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Grade 7
Strand: B1. Number Sense

	Curriculum Expectations	Pages
B1.1	Represent and compare whole numbers up to and including one billion, including in expanded form using powers of ten, and describe various ways they are used in everyday life	5 - 30
B1.2	Identify and represent perfect squares, and	31 - 37
B1.3		- 90,
B1.4	Use equivalent fractions to simplify fractions, when appropriate, in various contexts	50 - 68
B1.5	Generate fractions and decimal numbers between any two quantities	69 - 81, 91 - 94
B1.6	Round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts	106 - 117
B1.7	Convert between fractions, decimal numbers, and percents, in various contexts	118 - 134

Name: _____ 5

Place Value Chart

5 213 972 483											
Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
		5	2	1	3	9	7	2	4	8	3

Instructio: Fill in the place value charts below

1) 3 521 788 244											
Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

2)											
Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

3) 9 237 031 3											
Billions			Millions			Thou					
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

4) 2 125 284 275											
Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

5) 8 368 547 941											
Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

Name: _____ 8

Expanded Form

Questions What is the expanded form of the numbers below?

1) 6 753 501 003

6 000 000 000 + 700 000 000 + 50 000 000 + 3 000 000 + 500 000 + 1 000 + 3

2) 2 851 460 000

3) 9 128 700 000

4) [illegible] 318

5) [illegible]

6) 5 104 705 [illegible]

7) 7 852 620 500

8) 4 870 008 985

9) 5 586 900 084

10) 7 842 000 541

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) What is the standard form of the number below?

9,000,000,000 + 800,000,000 + 10,000,000 + 500,000 + 40,000 + 9,000 + 100 + 60 + 3

_____

2) What is the expanded form of the numbers below?

3 093 801 456

_____

_____

Name: _____

1) What is the standard form of the number below?

9,000,000,000 + 800,000,000 + 10,000,000 + 500,000 + 40,000 + 9,000 + 100 + 60 + 3

_____

2) What is the expanded form of the numbers below?

3 093 801 456

_____

_____

Name: _____

1) What is the standard form of the number below?

9,000,000,000 + 800,000,000 + 10,000,000 + 500,000 + 40,000 + 9,000 + 100 + 60 + 3

_____

2) What is the expanded form of the numbers below?

3 093 801 456

_____

_____

Name: _____

1) What is the standard form of the number below?

9,000,000,000 + 800,000,000 + 10,000,000 + 500,000 + 40,000 + 9,000 + 100 + 60 + 3

_____

2) What is the expanded form of the numbers below?

3 093 801 456

_____

_____

Name: _____ 11

Curriculum Connection: 6.1.1

Powers of 10

Powers of 10 are used to make it easier to write larger numbers. Using powers of 10 allows us to write less zeros than we normally would.

For example:
5,000 = 5 x 1,000 or using powers of 10, you can say 5,000 = 5 x 10^3

The 3 is called an exponent. In simple terms, each power adds one zero.

Question: Fill in the value for the exponents below

	Number	Using the Power of 10
1)	10	1 x 10☐
2)		1 x 10☐
3)	100 000	1 x 10☐
4)	1 000 000	
5)	10 000 000	x
6)	100 000 000	1 x 10☐
7)	1 000 000 000	1 x 10☐
8)	300 000 000	3 x 10☐
9)	50 000 000	5 x 10☐
10)	7 000 000 000	7 x 10☐

Name: _____ 12

Expanded Form

Questions What is the expanded form of the numbers below?

1) 6 753 501 003

$(6 \times 10^9) + (7 \times 10^8) + (5 \times 10^7) + (3 \times 10^6) + (5 \times 10^5) + (1 \times 10^2) + (3 \times 10^0)$

2) 2 851 460 000

3) 9 128 700 000

Name: _____ 13

Curriculum Connection: 6.1.1

Expanded Form

Questions What is the expanded form of the numbers below?

1) $(3 \times 10^9) + (5 \times 10^8) + (7 \times 10^7) + (2 \times 10^6) + (1 \times 10^5) + (3 \times 10^3) + (6 \times 10^0)$

3,572,103,006

2) $(2 \times 10^{\square}) + (\square \times 10^7) + (3 \times 10^6) + (7 \times 10^5) + (9 \times 10^3) + (1 \times 10^2)$

3) $(5 \times \square) + (\square \times \square) + (\square \times 10^5) + (1 \times 10^4) + (7 \times 10^3) + (6 \times 10^2) + (3 \times 10^0)$

4) $(7 \times 10^8) + (4 \times \square) + (\square \times \square) + (9 \times 10^3) + (4 \times 10^2)$

5) $(9 \times 10^{\square}) + (6 \times 10^{\square}) + (7 \times 10^{\square}) + (5 \times \square) + (2 \times \square) + (\square \times 10^1)$

6) $(7 \times 10^{\square}) + (6 \times 10^{\square}) + (2 \times 10^{\square}) + (4 \times 10^{\square}) + (\square \times \square) + (\square \times 10^0)$

7) $(4 \times 10^{\square}) + (3 \times 10^{\square}) + (5 \times 10^{\square}) + (7 \times 10^{\square}) + (1 \times 10^{\square}) + (6 \times 10^{\square})$

8) $(3 \times 10^9) + (5 \times 10^8) + (7 \times 10^7) + (1 \times 10^6) + (2 \times 10^5) + (9 \times 10^4) + (7 \times 10^3)$

9) $(5 \times 10^{\square}) + (3 \times 10^{\square}) + (8 \times 10^{\square}) + (9 \times 10^{\square}) + (5 \times 10^{\square}) + (2 \times 10^{\square}) + (3 \times 10^{\square})$

10) $(3 \times 10^{\square}) + (6 \times 10^{\square}) + (1 \times 10^{\square}) + (4 \times 10^{\square}) + (1 \times 10^{\square}) + (3 \times 10^{\square}) + (4 \times 10^{\square})$

Name: _____ 14

Written Form

1 – One	5 – Five	9 – Nine	13 – Thirteen	17 – Seventeen	30 – Thirty	70 – Seventy
2 – Two	6 – Six	10 – Ten	14 – Fourteen	18 – Eighteen	40 – Forty	80 – Eighty
3 – Three	7 – Seven	11 – Eleven	15 – Fifteen	19 – Nineteen	50 – Fifty	90 – Ninety
4 – Four	8 – Eight	12 – Twelve	16 – Sixteen	20 – Twenty	60 – Sixty	100 – Hundred

Part 1 the standard form of the written words below

1) Se… six million, six hund… two hundred fifty-eig…	2) Nine hundred twenty-five million, seven hundred sixty-three thousand, three hundred twelve
3) Eighty-two … hun… two thousand, nine …	4) Six-hundred twenty-one million, eight hundred thirty-two thousand, one hundred …-nine
5) Four hundred seventy-three … hundred eighty thousand, one hundred ninety-nine	…ed forty-nine million, three hund… thousand, one hundred sixt…

Part 2 Write the written form of the numb…

1) 134 345 142
2) 412 527 351
3) 645 512 257
4) 274 464 495

Name: _____ 15

Task Cards: Place Value

Objective What are we learning about?

Students will practice converting numbers from different representations, including expanded form, written form, and standard form.

Materials What you will need for the activity

- 2
- for answers
- Pen

Instructions the activity

1. Begin by explaining the and the importance of understanding how numbers are construct
2. Organize the students into pairs and provide sets of task cards.
3. Give each pair an answer recording sheet
4. Encourage teamwork by having students collabora solutions.
5. Allow students to select any task card to begin with, emphasizi complete the cards in any order they prefer.
6. Instruct students to record the letter of their chosen answer (A, B, or C) on their answer sheet beside the task card's number.
7. Consider using a timer to create a dynamic challenge, adjusting the duration to fit the lesson's objectives and complexity.
8. After the activity, review the answers collectively, discussing any challenging patterns and strategies used to solve them.
9. Have students reflect on the activity, sharing the methods they applied and obstacles they overcame.

Name: _____ 16

Task Cards | Cut out the task cards below

Card 1:
Eight billion, three hundred seventy-five million, four hundred twenty-eight thousand, one hundred three

a) 8,375,428,103
b) 8,357,428,103
c) 8,375,482,103

Card 2:
My number has 3 [illegible] hundred fifty thousand, [illegible]

a) 3,400,250,[illegible]
b) 3,400,250,068
c) 3,400,205,068

Card 3:
9,302,174,258

a) 9,000,000,000 + 300,000,000 + 2,000,000 + 100,000 + 70,000 + 4,000 + 200 + 50 + 8
b) 9,000,000,000 + 300,000,000 + 2,000,000 + 100,000 + 70,000 + 4,000 + 200 + 50 + 8
c) 9,000,000,000 + 300,000,000 + 2,000,000 + 100,000 + 70,000 + 4,000 + 200 + 50 + 8

Card 4:
8,000,000,000 + 100,000,000 + 4,000,000 + 300,000 + 40,000 + 5,000 + 70 + 2

a) 8,134,365,772
b) 8,104,365,072
c) 8,104,365,272

Card 5:
What is the expanded form of the number below?

7,204,815,690

a) 7,000,000,000 + 200,000,000 + 4,000,000 + 10,000 + 5,000 + 600 + 90
b) 7,000,000,000 + 200,000,000 + 4,000,000 + 15,000 + 6,000 + 90
c) 7,000,000,000 + 200,000,000 + 4,000,000 + 15,000 + 600 + 90

Card 6:
One billion, five hundred sixty-three million, eight hundred twenty-nine thousand, seven hundred sixteen

a) 1,563,829,761
b) 1,653,829,716
c) 1,563,829,716

Card 7:
Seven [illegible] eight million, six hun[illegible] hundred [illegible]

a) 7,1[illegible]
b) 7,198,650
c) 7,189,650

Card 8:
Two billion, four hundred fifty-six million, seven hundred eighty-nine thousand, one hundred two

a) 2,456,789,102
b) 2,456,879,102
c) 2,465,789,102

Name: _____ 17

Task Cards | Cut out the task cards below

Card 9:
My number has 5 billion, 6 hundred million, 7 hundred forty thousand, 3 tens, and 8 ones.

a) 5,600,704,308
b) 5,600,740,038
5,600,740,308

Card 10:
Four [illegible] eight [illegible]-seven million, five hundred [illegible] nine [illegible] teen

a) 4,[illegible]
b) 4,867,[illegible]
c) 4,876,523,[illegible]

Card 11:
6,209,314,875

a) 6,000,000,000 + 200,000,000 + 9,000,000 + 300,000 + 10,000 + 4,000 + 800 + 70 + 5
b) 6,000,000,000 + 200,000,000 + 9,000,000 + 300,000 + 10,000 + 4,000 + 80 + 70 + 5
c) 6,000,000,000 + 200,000,000 + 9,000,000 + 300,000 + 14,000 + 8,000 + 75 + 5

Card 12:
Three billion, two hundred eighteen million, four hundred fifty-nine thousand, seven hundred sixty-eight

a) 3,218,459,768
b) 3,218,459,876
c) 3,218,495,768

Card 13:
My number has 4 billion, 5 hundred million, 3 hundred twenty-one thousands, 9 hundreds, 1 tens, and 8 ones.

a) 4,000,500,321,918
b) 4,500,321,918
c) 4,000,500,321,908

Card 14:
Nine billion, four hundred seventy-six million, two hundred thirty-one thousand, eight hundred seventy-four

a) 9,476,231,874
b) 9,476,231,784
c) 9,467,231,874

Card 15:

a) 3,000,000,000 + [illegible] + 2,000,000 + 100,000 + [illegible] + 6
b) 3,000,000,000 + [illegible] + 100,000 + 50,000 + [illegible]
c) 3,000,000,000 + 400,000 + [illegible] + 100,000 + 50,000 + 7,000 + [illegible] + 40 + 6

Card 16:
Five billion, six hundred thirty-two million, one hundred four thousand, two hundred fifty-six

a) 5,632,014,256
b) 5,632,104,256
c) 5,623,104,256

Name: _____ 18

Task Cards | Cut out the task cards below

Card 17:
My number has 7 billion, 8 hundred fifty million, 2 hundred ten thousand, 4 tens, and 9 ones.

a) 7,850,210,409
b) 7,800,210,409
c) 7,850,210,049

Card 21:
Three billion, nine hundred seventy-two million, one hundred fifty-four thousand, six hundred eighty-one in standard form

a) 3,972,154,618
b) 3,972,514,681
c) 3,972,154,681

Card 22:
6,000,000,000 + 800,000,000 + 90,000,000 + 4,000,000 + 500,000 + 30,000 + 7,200 + 600 + 40 + 8

a) 6,849,537,648
b) 6,894,537,684
c) 6,894,537,648

Card 19:
4,706,289,154

a) 4,000,000,000 + 700,000,000 + 6,000,000 + 200,000 + 80,000 + 9,000 + 100 + 50 + 4
b) 4,000,000,000 + 700,000,000 + 6,000,000 + 200,000 + 80,000 + 9,000 + 1,000 + 50 + 4
c) 4,000,000,000 + 700,000,000 + 6,000,000 + 200,000 + 80,000 + 9,000 + 10 + 50 + 4

Card 23:
...3,201

a) ... + 60,000,000 + 7,... + 3,000 + 200 + 1
b) 4,000,000,... + 7,000,000 + 800,... + 200 + 1
c) 4,000,000,000 + 500,000,... + 7,000,000 + 800,000 + 90,... + 3,000 + 20 + 1

Card 20:
Eight billion, one hundred thirty-two million, six hundred seventy-four thousand, one hundred eighty-five

a) 8,132,674,158
b) 8,132,674,185
c) 8,132,764,185

Card 24:
My number has 4 billion, 9 hundred sixty million, 2 hundred thousand, 1 hundred, 4 tens, and 7 ones

a) 4,960,200,174
b) 4,960,200,147
c) 4,960,020,147

Name: _____ 19

Task Cards: Place Value

Answers Record your answers below

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

Name: _____ 21

Zero As Placeholder

1 – One	5 – Five	9 – Nine	13 – Thirteen	17 – Seventeen	30 – Thirty	70 – Seventy
2 – Two	6 – Six	10 – Ten	14 – Fourteen	18 – Eighteen	40 – Forty	80 – Eighty
3 – Three	7 – Seven	11 – Eleven	15 – Fifteen	19 – Nineteen	50 – Fifty	90 – Ninety
4 – Four	8 – Eight	12 – Twelve	16 – Sixteen	20 – Twenty	60 – Sixty	100 – Hundred

Part 1 finished his homework! Find his errors and correct them.

	Ben's Answer	Correct Answer
1) Seven thou	7010	
2) Eighty-one t , for	81 40	
3) Four-hundred seven thous	478 6	
4) Ninety-four million, one hundred	94 100	
5) Five-hundred million, seventy	5 70	
6) Eighty-eight million, thirty-one	88	
7) One hundred three million, four thousand		
8) One billion, one million, one thousand, one	100 100 1	

Part 2 What is wrong with Ben's answer below? Explain.

Question	Ben's Answer	Why is Ben's answer wrong?
Five billion, two hundred thousand, six	5 200 006	

Name: _____ 23

Place Value - Number Breakdown

Instructions Fill in the blanks below

Number Breakdown

730 506 802

B	[illegible]	M	H Th	T Th	Th	H	T	O

Write the expa[illegible]orm[illegible]ber below

_____

Fill in the pattern below

730 506 802, _____, _____, 73[illegible]02, 734 506 802

Fill in the pattern below

730 506 802, _____, 730 508 802, _____, [illegible]02

Fill in the pattern below

730 506 802, 730 506 902, _____, 730 507 102, _____

730 506 802	+10 000	
730 506 802	+1 000 000	
730 506 802	+ 1 000 000 000	
730 506 802	- 10 000 000	
730 506 802	- 1 000	

Name: _____ 29

Place Value Quiz

Part 1 Fill in the place value charts below

1) 1 363 635

B	H M	T M	M	H Th	T Th	Th	H	T	O

Part 2 ...e is the underlined number?

1) 452 132 ...	...162 668	3) 458 342 658
4) 153 514 248	...54...	6) 1 412 762 134

Part 3 Fill in the below – how many ... the ...

	Number	Billions	Millio...	...ousa...	Ones
1)	5 218 245 842				
2)	7 610 304 220				
3)	3 497 584 752				

Part 4 Fill in the powers of 10 that represent the number

	Number	Using the Power of 10
1)	100 000	1 x 10□
2)	1 000 000	1 x 10□
3)	1 000 000 000	1 x 10□

Part 5 What is the standard form of the numbers below?

1) $(2 \times 10^5) + (4 \times 10^4) + (3 \times 10^3) + (7 \times 10^2) + (9 \times 10^1) + (1 \times 10^0)$

2) $(7 \times 10^7) + (6 \times 10^6) + (2 \times 10^5) + (4 \times 10^4) + (5 \times 10^3) + (8 \times 10^2) + (4 \times 10^0)$

Part 6 ...expanded form of the numbers below using powers of 10

1) 2 85...0 000

2) 9 128 700 000

Part 7 Write the standard form of th... in wo...

1) Six-hundred four million, three hundred seventy-six thousand, two hundred twenty-two

2) Nine-... ...ty ... two thousand, ...

Part 8 Write the written form of the numbers below

1) 87 300 640

2) 500 160 500

3) 352 007 004

Name: _____ 31

Perfect Squares – Square Numbers

A **perfect square** is any number that is a product of two identical numbers. In other words, when we multiply two of the same numbers together, the answer is a perfect square. Perfect squares are also referred to as square numbers.

Examples – 9 is a perfect square (3 x 3) 4 is a perfect square (2 x 2)

Part 1 e by determining the perfect square

		fect Square
1)	1 x	
2)	2 x 2 =	
3)	3 x 3 =	
4)	4 x 4 =	
5)	5 x 5 =	
6)	6 x 6 =	

	Question	Perfect Square
7)	7 x 7 =	
8)	8 x 8 =	
9)	x 9 =	
10)		
11)		
12)	12 x 12 =	

Part 2 Solve the word problem below

1) Emma has a square garden with a side length of 7 meters. What is the area of the garden?

2) A square ceiling has an area of 144 square metres. If John wants to paint the ceiling, what is the length of one side of the ceiling?

Name: _____ 32

Perfect Squares – Exponents

When we multiply a number by itself, we can use an exponent. An **exponent** refers to the number of times a number is multiplied by itself. A **perfect square** is the square of an integer. This means it is the number that is the product of two equal factors. Therefore, it is when we use an exponent to the power of 2.

Example – 16 is a perfect square (4 x 4) or 4^2

Part 1 by determining the perfect square

	Question	Perfect Square
1)	1^2	
2)	2^2	
3)	3^2	
4)	4^2	
5)	5^2	
6)	6^2	

	Question	Perfect Square
7)	7^2	
8)	8^2	
9)	9^2	
10)	10^2	
11)		
12)		

Part 2 Find out the area of the squares below

When we calculate the area of a square, we are multiplying the length by the width or base times height. Since a square has the same side lengths, the formula is: s^2

	Question	Area
1)	☐ 4cm	
2)	7cm ☐	

	Question	Area
3)	☐ 9mm	
4)	6m ☐	

Name: _____ 34

Square Roots

A **square root** is a number that can be multiplied by itself to give the original number. A square root is the opposite of a perfect square. Instead of multiplying a number by itself, we take the answer and find out what number was used.

Examples The square root of $\sqrt{36}$ is 6 | The square root of $\sqrt{9}$ is 3

Part 1 by determining the square root

		Square Root
1)	$\sqrt{1}$	
2)	$\sqrt{4}$	
3)	$\sqrt{9}$	
4)	$\sqrt{25}$	
5)	$\sqrt{64}$	
6)	$\sqrt{100}$	

	Question	Square Root
7)	$\sqrt{49}$	
8)	$\sqrt{36}$	
	$\sqrt{1}$	
	$\sqrt{81}$	

Part 2 Use the area of the squares below to find out the side l

	Question	Area
1)	☐ mm	16m²
2)	cm ☐	25cm²
3)	☐ m	49m²

	Question	Area
4)	☐ cm	81cm²
5)	m ☐	64m²
6)	☐ mm	121mm²

Name: _____ 35

Perfect Squares & Square Roots

Part 1 Fill in the table below

	Equation	Exponent	Answer	Square Root of Answer
1)	1 x 1 =	1^2	1	1
2)	x 5 =			
3)			36	
4)				9
5)				
6)			9	
7)				
8)		2^2		
9)				7
10)	11 x 11 =			
11)				
12)			144	

Part 2 Solve the word problem below

1) You have a square rug that has an area of 10 000cm. What is the length of one side of the carpet?

2) A square flower garden has a side length of 9m. What is the area of the flower garden?

Name: _____ 39

Graphing Integers & Opposite Integers

Part 1 Graph each integer by writing the letter on the number line.

a) 0	e) -18	i) 3	m) -6
b)	17	j) 15	n) -7
c) 10	20	k) 20	o) -10
d) 18	7	L) -3	p) 17

Part 2 (hint: an opposite ... negative pair, for e.g. 3 and -3
Which letter pairs ar...

1) _____	5) _____
2) _____	6) _____
3) _____	7) _____
4) _____	8) _____

Part 3 Write the opposite integer below

1) 8		4) 14	
2) 12		5) -4	
3) -18		6) -10	

Name: _____ 41

Writing Integers

We can represent a situation using integers. In cases where we have less than zero, we can use a negative integer. When we have more than zero, we use a positive integer.

Example - Kaitlyn owes her father $20. Therefore, Kaitlyn has -$20.

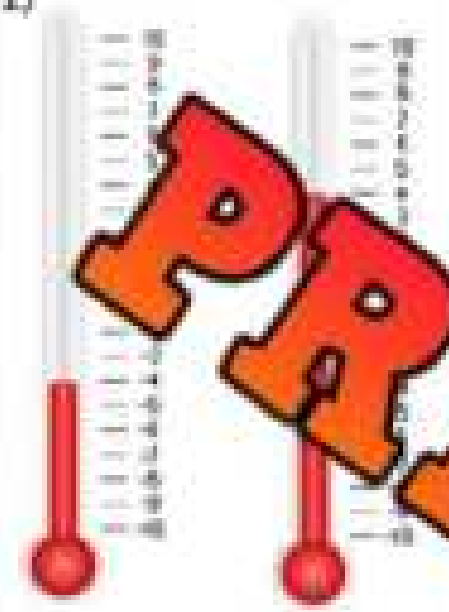
Questions	Write the integer for the situation below
1) Claire [illegible] mom $100. Write this number as an integer.	2) New Orleans is 1m below sea level. Write this number as an integer. 
3) The temperature [illegible] The temperature on Tue[illegible] 10°C. What is the temperat[illegible] Tuesday?	4) The football team lost 4 yards on [illegible] first play of the game. Write this [illegible] as an integer.
5) Mount Everest is 8,849m above sea level. Write this number as an integer. 	6) [illegible] 423m below sea le[illegible] this n[illegible] as an integer.
7) Savana owes $220 on her credit card. Write her current balance as an integer.	8) Jack was paid $250 from his employer. Write his new financial situation as an integer. 
9) The temperature started the day at -9°C and ended the day at -1°C. Write the **change** in temperature as an integer.	10) Alex is penalized 5 points for handing in his assignment late. Write this number as an integer.

Name: _____ 43

Integers – Temperatures – Vertical Number Line

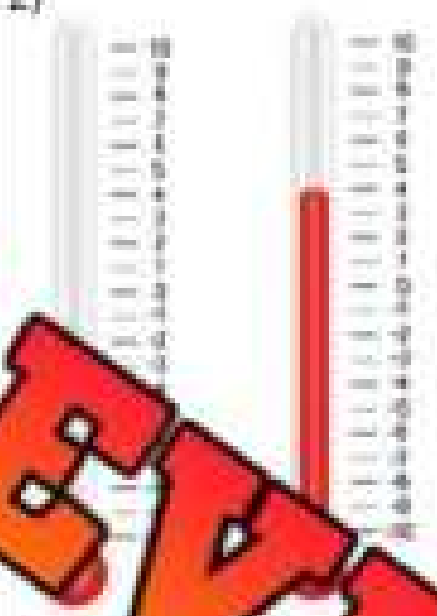
Instructions Use the number lines to solve the questions

1)



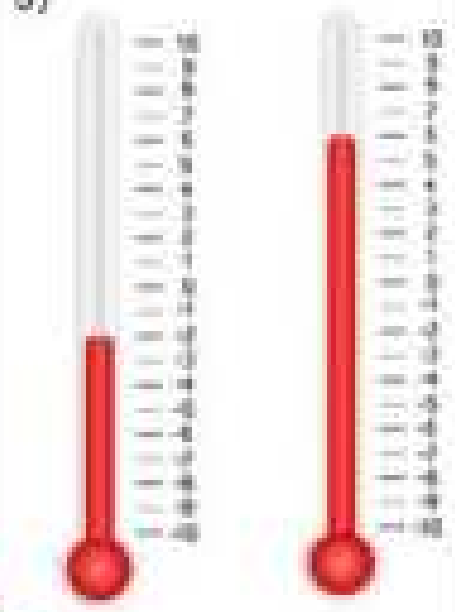
Difference = _____

2)



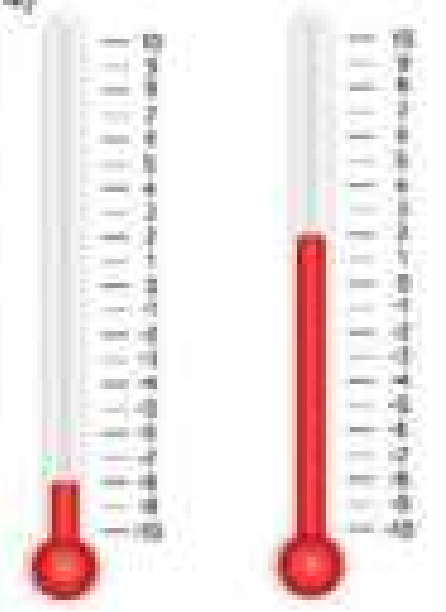
Difference = _____

3)



Difference = _____

4)



Difference = _____

5)

Difference = _____

Difference = _____

Name: _____ 46

Comparing Integers

Instructions Use the <, >, = to compare the integers below

1) 8 ☐ 6	2) -5 ☐ 4	3) -7 ☐ 3
4) -5 ☐	☐ -6	6) -3 ☐ -7
7) -3 ☐ 8		9) 8 ☐ 6
10) -5 ☐ -7	11) -4 ☐	☐ 4
13) -7 ☐ 2	14) -7 ☐ -8	
16) 2 ☐ -3	17) -6 ☐ -3	18) -1 ☐ -9
19) -3 ☐ 0	20) -9 ☐ -6	21) -2 ☐ -2
22) 6 ☐ -9	23) -5 ☐ -6	24) -3 ☐ 6

Name: _____ 47

Ordering Integers – Least to Greatest

Part 1 Arrange the integers from least to greatest

1) 5, 3, -6, -9, 7	2) -4, 4, 8, 2, -9
3) 4, -5	4) -5, -4, -6, -2, -7
5) 5, -3, -8,	-5, -1, 6, 0, 2
7) 4, 0, -2, -9, -6	8) 1, -3, -5
9) 15, -23, -12, -16, 7	10) -15, -11,

Part 2 Answer the word problem below

The average temperatures for the first 5 months of the year are recorded below. Arrange the months in order of coldest to warmest.

January = -5°C February = -8°C March = -3°C April = 2°C May = 10°C

_____, _____, _____, _____, _____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Arrange the integers from greatest to least.

8, 0, -4, -1, 5, -9, 6, -2, 3

Circle the greatest and smallest integer.

-23, -27, 19, 22, 10, -24, 15, 20, -13

Name: _____

Arrange the integers from greatest to least.

8, 0, -4, -1, 5, -9, 6, -2, 3

Circle the greatest and smallest integer.

-23, -27, 19, 22, 10, -24, 15, 20, -13

Name: _____

Arrange the integers from greatest to least.

8, 0, -4, -1, 5, -9, 6, -2, 3

Circle the greatest and smallest integer.

-23, -27, 19, 22, 10, -24, 15, 20, -13

Name: _____

Arrange the integers from greatest to least.

8, 0, -4, -1, 5, -9, 6, -2, 3

Circle the greatest and smallest integer.

-23, -27, 19, 22, 10, -24, 15, 20, -13

Name: _____ 52

Equivalent Fractions

Questions Compare the fractions using < > =

1. $\frac{2}{\square}$

2. $\frac{4}{8}$ $\square$ $\frac{6}{10}$

3. $\frac{1}{5}$ $\square$ $\frac{2}{10}$

4. $\frac{2}{3}$ $\square$ $\frac{3}{4}$

5. $\frac{3}{12}$ $\square$

6. $\frac{4}{\square}$ $\square$ $\frac{2}{4}$

7. $\frac{5}{7}$ $\square$ $\frac{8}{14}$

8. $\frac{7}{8}$ $\square$ $\frac{3}{4}$

9. $\frac{6}{8}$ $\square$ $\frac{4}{6}$

10. $\frac{3}{5}$ $\square$ $\frac{6}{10}$

11. $\frac{6}{12}$ $\square$ $\frac{7}{14}$

12. $\frac{3}{4}$ $\square$ $\frac{8}{12}$

Name: _____ 53

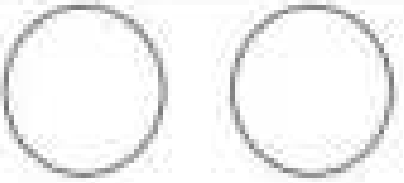
Equivalent Fractions

Questions Divide the shapes into equal parts and shade in the fraction. Are they equivalent?

1.

Yes

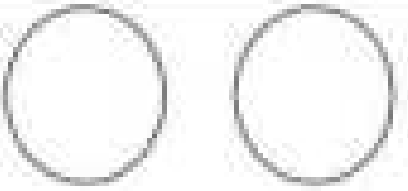
2.



$\frac{3}{6}$ $\frac{2}{3}$

Yes No

3.



$\frac{1}{4}$ $\frac{2}{8}$

Yes No

4.

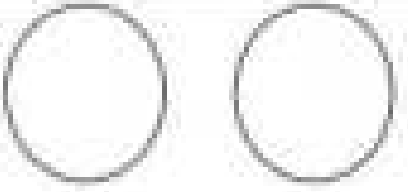
$\frac{3}{4}$ $\frac{5}{8}$

Yes No

5.

Yes

6.



$\frac{1}{3}$ $\frac{2}{6}$

No

7.

$\frac{1}{4}$

$\frac{2}{6}$

Yes No

8.

$\frac{2}{2}$

$\frac{4}{4}$

Yes No

$\frac{1}{3}$

$\frac{2}{6}$

Yes No

10.

$\frac{1}{2}$

$\frac{3}{6}$

Yes No

11.

$\frac{2}{5}$

$\frac{5}{10}$

Yes No

12.

$\frac{2}{3}$

$\frac{4}{6}$

Yes No

Name: _____ 56

Equivalent Fractions

Questions | Write your own equivalent fractions

1)	$\frac{2}{3}$	=	___	=	___	=	___	=	___	=	___	= ___
2)	$\frac{3}{4}$	=	___	=	___	=	___	=	___	=	___	= ___
3)	$\frac{5}{7}$	=	___	=	___	=	___	=	___	=	___	= ___
4)	$\frac{2}{9}$	=	___	=	___	=	___	=	___	=	___	= ___
5)	$\frac{5}{6}$	=	___	=	___	=	___	=	___	=	___	= ___
6)	$\frac{4}{9}$	=	___	=	___	=	___	=	___	=	___	= ___
7)	$\frac{3}{5}$	=	___	=	___	=	___	=	___	=	___	= ___
8)	$\frac{7}{10}$	=	___	=	___	=	___	=	___	=	___	= ___

Name: _____ 57

Memory Game: Matching Equivalent Fractions

Objective What are we learning about?

Students will learn to identify and match equivalent fractions through a fun and interactive game.

Materials What you will need for the activity

- Memory game cards. Each card will have a different fraction. Each card is matched to another fraction
- A small table or classroom floor

Instructions How you will complete the activity

1. Divide the class into groups of 3 or 4. Give each group a set of Memory Game cards. (Provided)
2. Have each group lay all the cards face down in a grid on a table or floor.
3. The students take turns flipping over two cards at a time, trying to find a matching equivalent fraction.
4. If a student finds a match, they remove those cards from the grid and keep them.
5. If the cards do not match, they are turned back over, and the next student takes a turn.
6. The game continues until all the cards have been matched.
7. After the game, review the equivalent fractions with the class.

Name: _____ 58

Cards | Memory Game Cards

1/2	3/6
1/4	3/9
2/3	6/16
3/4	9/12

Cards: Memory Game Cards

3/10	9/30
7/10	14/20
9/10	18/20
2/7	6/21
3/7	9/21

Name: _____ 62

Introduction to Factors

Instructions List all of the factors for the numbers below

1) 12 _____, _____, _____, _____, _____, _____

2) _____, _____

3) 21 _____, _____, _____

4) 16 _____, _____, _____, _____

5) 43 _____, _____

6) 29 _____, _____

7) 6 _____, _____, _____, _____

8) 10 _____, _____, _____, _____

9) 15 _____, _____, _____, _____

10) 20 _____, _____, _____, _____, _____, _____

Name: _____ 63

Find The Factors

Instructions Circle all the factors of the number listed

1) 10 8 2 9 4 1 10 5	2) 8 8 2 6 4 3 1 7 5
3) 47 23 25 3 47	4) 18 1 9 6 4 2 3 18
5) 22 22 2 7 3 11 1 10 6	6) 25 2 25 13 4
7) 24 8 2 4 6 3 1 24 12	8) 58 2 30 3 6 1 29 58
9) 86 2 44 1 52 43 3 86 8	10) 63 3 21 2 63 9 1 15 7

Name: _____ 64

Simplifying Fractions

Fractions can be equal, which means we can write the same fraction in many different ways. The best way to write a fraction is to simplify it to its lowest form.

How To Do It:

1. Write down the factors for both numbers.

Example: the number 6 has 4 factors: 6, 1, 2, 3

2. Find the greatest common factor (GCF) by circling the largest number that goes into both numbers.

3. Divide

Exa

$\frac{25}{100}$ - Factor

$\frac{25}{100}$ - Factors: 10, 100

$\frac{25}{100} \div 25 = \frac{1}{4}$

Questions Simplify Fractions

1) $\frac{8}{16} = \frac{\quad}{\quad}$	2) $\frac{\quad}{12}$
3) $\frac{12}{18} = \frac{\quad}{\quad}$	4) $\frac{25}{35} = \frac{\quad}{\quad}$
5) $\frac{36}{60} = \frac{\quad}{\quad}$	6) $\frac{21}{35} = \frac{\quad}{\quad}$
7) $\frac{14}{42} = \frac{\quad}{\quad}$	8) $\frac{16}{32} = \frac{\quad}{\quad}$

Name: _____ 65

Simplifying Fractions - Matching

Questions | Draw a line from the fraction to its simplest form

Fraction	Simplest Form
$\frac{8}{16}$	$\frac{5}{6}$
$\frac{15}{18}$	$\frac{4}{5}$
$\frac{35}{50}$	$\frac{6}{7}$
$\frac{36}{42}$	$\frac{4}{9}$
$\frac{24}{27}$	$\frac{1}{2}$
$\frac{8}{10}$	$\frac{7}{10}$

Name: _____ 66

Simplifying Fractions

Questions | Select the simplest terms of the fraction

1) $\frac{10}{30}$

a) $\frac{2}{}$ c) $\frac{1}{3}$

2) $\frac{8}{16}$

a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{2}{4}$

3) $\frac{}{20}$

a) $\frac{3}{4}$ b) $\frac{4}{5}$ c) $\frac{7}{9}$

4) $\frac{15}{25}$

a) $\frac{5}{7}$ c) $\frac{3}{5}$

5) $\frac{18}{24}$

a) $\frac{4}{5}$ b) $\frac{3}{4}$ c) $\frac{2}{3}$

a) $\frac{4}{6}$ b) $\frac{3}{5}$ c) $\frac{2}{4}$

7) $\frac{18}{32}$

a) $\frac{9}{16}$ b) $\frac{3}{7}$ c) $\frac{2}{5}$

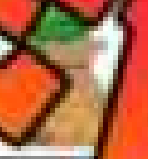
8) $\frac{12}{36}$

a) $\frac{2}{6}$ b) $\frac{3}{9}$ c) $\frac{1}{3}$

Name: _____ 67

Simplifying Fractions – Alex's Homework

Questions Alex answered the questions but didn't simplify enough. Help him out!

Question	Alex's Answer	Your Answer
1) Isabella baked 30 cookies. She gave away 20 of them. What fraction of cookies did she give away? 	20/30 or 10/15	
2) Zoe earned $60 selling baked goods. She earned $15 on Friday. What fraction of money did she earn on Friday? 	15/60 or 3/12	
3) Ethan has 18 candies. 6 are blue and 12 are green. What fraction of the candies are blue? 		
4) A canteen sold 64 drinks today. They sold 24 sport drinks. What fraction of drinks were sport drinks? 	24/64 or 12/32	
5) Ella scored 16 points in her basketball game. Her team scored a total of 36 points. What fraction of total points did Ella score? 	16/36 or 8/18	

Name: _____ 69

Fractions on a Number Line – Intro.

Instruction Fill in the number lines below.

Name: _____ 71

Fractions on a Number Line – Anchors

Part 1 Fill in the number lines below.

Part 2 List at least three fractions between the numbers.

Fractions

Name: _____ 72

Generating Fractions Between Whole Numbers

Practice List at least three fractions between the numbers.

1)

Fractions

2)

Fractions

3)

Fractions

Word Problems Solve the problems below.

1) Daniel thinks $3\frac{3}{4}$ is between 2 and 3. Is he right? Explain why or why not.

2) Thomas said he has listed all the fractions between 1 and 2. Is he right? Explain why or why not. His list is written below.

$1\frac{1}{8}$, $1\frac{2}{8}$, $1\frac{3}{8}$, $1\frac{4}{8}$, $1\frac{5}{8}$, $1\frac{6}{8}$, $1\frac{7}{8}$, $1\frac{8}{8}$

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

List three fractions between the numbers.

$1\frac{3}{5}$ ⟷ $2\frac{2}{3}$

Fractions

Name: _____

List three fractions between the numbers.

$1\frac{3}{5}$ ⟷ $2\frac{2}{3}$

Fractions

$\frac{5}{15}$ ⟷ $\frac{6}{8}$

Fractions

$\frac{5}{15}$ ⟷ $\frac{6}{8}$

Fractions

Name: _____

List three fractions between the numbers.

$1\frac{3}{5}$ ⟷ $2\frac{2}{3}$

Fractions

$\frac{5}{15}$ ⟷ $\frac{6}{8}$

Fractions

Name: _____

List three fractions between the numbers.

$1\frac{3}{5}$ ⟷ $2\frac{2}{3}$

Fractions

$\frac{5}{15}$ ⟷ $\frac{6}{8}$

Fractions

Name: _____ 80

Counting by Hundredths – Decimals Pattern

Instruction Continue counting by hundredths by filling in the missing boxes.

Name: _____ 82

Comparing Decimals

Part 1 Compare the following numbers

1) 0.157 < 0.232	2) 0.372 ☐ 0.921	3) 0.347 ☐ 0.338
4) 0.257 ☐ 0.253	5) 0.264 ☐ 0.812	6) 0.567 ☐ 0.521
7) 0.157 ☐	☐ 0.462	9) 0.328 ☐ 0.724
10) 0.157 ☐ 0.152		12) 0.349 ☐ 0.812
13) 0.157 ☐ 0.159	14) 0.927 ☐	☐ 0.532

Part 2 Compare the following numbers

1) Nick and Ryan both ran in the 200 metre race last week. Nick ra… 34.413 seconds and Ryan ran it in 34.903 seconds. Who ran it faster?

2) Lamelo Ball scores 18.721 points a game while his brother Lonzo Ball scores 18.217 points a game. Who scores more points a game?

3) Jacob jumped 3.763m in long jump. Owen jumped 3.859m. Who jumped further?

Name: _____ 90

Graphing Integers and Decimals

Instructions Put the integers and decimals in order from least to greatest

1) 8, 6.412, -5, -9, 4.214

2) 8.43 2, -6, 6.414

3) 7.372, 7.2 -

4) 6.323, 6.452, 6.178, -7, -4

5) 5, 5.001, -5, 5.002, 0

6) 3.435, 3.441, -4, -9, 3.214

7) 5, 4.217, -5, 9.259, 4

8) 9, 9.456, -5, -4, 9.526

9) 4, 3.452, -5, -3, 3.747

10) 2, -2, 4.507, -3, 0

11) -8, -9, -7

12) 0, 5.

13) 6, 6.304, -6, 6.039, 0

14) 4, 5.555, -9, -1, 4.001

Name: _____ 92

Converting Fractions and Decimals

Part 1 Fill in the table with the converted decimal and fraction.

Fraction	Decimal
	.10
	.20
50/100	
	.70
80/100	
	.90
100/100	

Fraction	Decimal
15/100	
	.28
36/100	
	.48
	.62
68/100	
	.82

Part 2 Convert the following fractions and decimals.

0.22 = /100	0.51 = /100	0.44 = /100	0.88 = /100
42/100 =	66/100 =	39/100 =	97/100 =
31/100 =	72/100 =	0.81 = /100	0.91 = /100

Name: _____ 93

Generating Decimals Between Whole Numbers

Practice List at least three decimals between the numbers.

1)

Decimals

2)

Fractions

3)

Fractions

Word Problems Solve the riddles below.

1) Write a decimal that is larger than 9 but less than

2) Write a decimal that is larger than 49 but less than 50.

3) Write a decimal that is larger than 99 but less than 100.

4) Write a decimal that is larger than 999 but less than 1000.

Name: _____ 95

Ordering Integers, Decimals, and Fractions

Instructions Put the integers, decimals, and fractions in order from least to greatest.

1) $\frac{2}{3}$, -5, 0.01, 3, $\frac{1}{2}$

2) $\frac{4}{}$, [illegible], 0.01, 5, $\frac{3}{4}$

3) $\frac{1}{2}$, [illegible]

4) $\frac{5}{6}$, -1, 0.01, 1, $\frac{2}{4}$

5) $\frac{3}{5}$, -3, 0.01, 2, $\frac{1}{5}$

6) $\frac{4}{7}$, -8, 0.01, 3, $\frac{2}{4}$

7) $\frac{4}{5}$, -5, 0.01, 5, $\frac{2}{7}$

8) $\frac{5}{8}$, -3, 0.01, 6, $\frac{4}{5}$

9) $\frac{4}{5}$, -1, 0.01, 2, $\frac{3}{6}$

10) $\frac{4}{10}$, -8, 0.01, 5, $\frac{1}{4}$

11) $\frac{3}{4}$, -6, 0.01, 3, $\frac{5}{8}$

12) [illegible] -5, 0.01, 1, $\frac{2}{4}$

13) [illegible] 6, $\frac{1}{5}$

14) $\frac{6}{8}$, -10, 0.[illegible] 9, $\frac{1}{3}$

15) $\frac{7}{8}$, -3, 0.01, 6, $\frac{2}{3}$

16) $\frac{2}{5}$, -7, 0.01, 7, $\frac{1}{4}$

Name: _____ 103

Integers, Fractions, and Decimals – Word Problems

Instructions Answer the questions below.

1) 4 friends worked a week at a farm collecting strawberries. They made $1000 total. Some of the friends worked harder than others. A breakdown of how much each friend earned is below.

	Colton	Hudson	Joel
	-$10	$410.50	$239/1000

a) [illegible] where Colton could be -$10?

b) Order the friends [illegible] most money to who made the least.

2) The girl's basketball team kept stats [illegible] shooting stats are listed below.

Alex	Hanna	Rebecca	Co[illegible]y
0.429	40/90	41.1%	47/100

a) Who was the best shooter?

b) Who was the worst shooter?

c) Rank the girls in order from best shooter to worst shooter.

Name: _____ 104

Integers, Decimals, Fractions, and Percent Quiz

Part 1 Use the <, >, = to compare the integers below

1) 8 ☐ −6 2) −5 ☐ 4 3) −7 ☐ 3

4) −5 ☐ −4 5) 1 ☐ −6 6) −3 ☐ −7

7) −3 ☐ 3 8) 3 ☐ −7 9) 8 ☐ 6

Part 2 Arr… …eatest to least

1) 7, 3, −6, −8, 5	−4, 8, 1, −9
3) 1, 3, −3, 6, −7	4) 4, −1, −5

Part 3 What is the name of the place value for the underlined number?

1) 728.1252	2) 63.4212	3) 4 352.4127	4) 13.61288
5) 2.43572	6) 1.73213	7) 24.32646	8) 7.925236

Part 4 Put the integers, decimals, and fractions in order from least to greatest

1) $\frac{2}{3}$, -5, 0.01, 2, $\frac{1}{2}$

3) $\frac{4}{5}$, -3, 0.500, 2, $\frac{2}{6}$

2) $\frac{4}{8}$, -2, 0.4, 2, $\frac{3}{4}$

4) $\frac{4}{10}$, -1, 0.3, 4, $\frac{1}{4}$

Part 5 [illegible] following fractions, decimals and percents

358/1000 =	[illegible]	45.2% = /1000	718/1000 = %
36.2% = /1000	261/1000 =	[illegible]	0.528 = %

Part 6 Answer the questions below

4 friends competed in a 3-point shooting contest [illegible] each took 50 shots. Their results are below.

Matt	Chris	Adam	[illegible]
18/50	0.451	39%	21/50

a) Who was the best shooter?

b) Rank the friends in order of best shooter to worst shooter.

Name: _____ 109

Rounding Numbers 3 Different Ways

Round Down ← → Round Up

0	1	2	3	4	5	6	7	8	9

10	100	1000
1864 → 1860	1864 → 1900	1864 → 2000

Question: Round the numbers three different ways

#		100	1000
1)	2137 →	2137 → 2100	2137 → 2000
2)	4236 → _____		4236 → _____
3)	6841 → _____	6841 → _____	6841 → _____
4)	5615 → _____	5615 → _____	
5)	7519 → _____	7519 → _____	7519 → _____
6)	3782 → _____	3782 → _____	3782 → _____
7)	8559 → _____	8559 → _____	8559 → _____
8)	9463 → _____	9463 → _____	9463 → _____

Name: _____ 110

Rounding Decimal Numbers - Nearest Whole Number

Round Down | Round Up

0	1	2	3	4	5	6	7	8	9

Part 1 Round the decimal number to the nearest whole number. Circle the answer

Part 2 Answer the word problems below

1) James threw 10.3 metres in shot put. Round his score to the nearest whole number.

2) Susan was shopping for candy. She bought 26.4 grams of candy. Round how much candy she bought to the nearest gram.

Name: _____ 114

Terminating and Repeating Decimal

Terminating Decimal
- Decimals that come to an end

Example - 2/4 = 0.5

Repeating Decimal
- Decimals that never end

Example - 2/3= 0.66666... or $0.\overline{6}$

We can use a line over the repeating number or number pattern to show it repeats forever.

Part 1 ecimal a repeating or terminating decimal?

1) 0.6		6) 0.9	
2) 0.3		7) $0.\overline{72}$	
3) $0.\overline{7}$		$0.41\overline{6}$	
4) 0.25			
5) $0.\overline{6}$			

Part 2 Write the decimals below – use a line ... earn ...mals

1) $\frac{1}{3}$ = $0.\overline{3}$	2) $\frac{6}{10}$ =	3)
4) $\frac{2}{3}$ =	5) $\frac{8}{11}$ =	6) $\frac{3}{9}$ =
7) $\frac{1}{4}$ =	8) $\frac{11}{12}$ =	9) $\frac{4}{12}$ =
10) $\frac{3}{5}$ =	11) $\frac{4}{6}$ =	12) $\frac{1}{12}$ =
13) $\frac{5}{8}$ =	14) $\frac{1}{8}$ =	15) $\frac{7}{8}$ =

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.9

2) 0.5

Write the decimals below – use a line to show repeating decimals

$\frac{15}{2}$ = $\frac{7}{3}$ =

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) $0.\overline{59}$

Write the decimals below – use a line to show repeating decimals

$\frac{15}{2}$ = $\frac{7}{3}$ =

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) $0.\overline{59}$

Write the decimals below – use a line to show repeating decimals

$\frac{15}{2}$ = $\frac{7}{3}$ =

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) $0.\overline{59}$

Write the decimals below – use a line to show repeating decimals

$\frac{15}{2}$ = $\frac{7}{3}$ =

Name: _____ 118

Fractions, Decimals, and Percents

Part 1 Fill in the table with the converted decimal, fraction, and percent.

Fraction	Decimal	Percent
100/1000		10.0%
		20.0%
	0.300	%
400/		40.0%
500/1000		%
		60.0%
	700	%
	0.800	%
900/1000		
	1.000	

Part 2 Convert the following fractions, decimals and percentages.

138/1000 = %	536/1000 = 0.	42.4% = /1000	398/1000 = %
56.2% = /1000	161/1000 = %	871/1000 = 0.	0.938 = %
0.356 = %	0.682 = %	71.4% = 0.	782/1000 = 0.

Name: ______________________ 120

Fraction/Decimal/Percent Bottle Flip Challenge

Objective What are we learning about?

To practise and reinforce understanding of converting between fractions, decimals, and percents through the engaging and physically active bottle flip game.

Materials What you will need for the activity.

- [illegible] pair/group) filled to approximately one-third with water (or us[illegible] with[illegible]
- Set of frac[illegible] ent conversion question cards
- Answer sh[illegible] group

Instructions How y[illegible] comple[illegible] tivity

1. Start with a short lesson on con[illegible] etw[illegible] ctions, decimals, and percents.
2. Arrange the students into pairs or smal[illegible] a bottle and a set of question cards to each.
3. Each pair or group receives an answer sheet [illegible] heir [illegible] rs.
4. Explain the rules: One student draws a question ca[illegible] conversion problem between fractions, decimals, or perce[illegible]
5. Once they believe they have the correct answer, they write it do[illegible] their answer sheet.
6. The student then gets to attempt a bottle flip. A successful flip means they get a point, an unsuccessful flip means they need to try to solve another question card before flipping again.
7. Alternate turns within each group or pair until they have completed all the question cards.
8. Groups or pairs tally their successful flips and compare with the rest of the class to determine the winning team.
9. Go through the answer sheet with the class to ensure understanding and correct any misconceptions.

Name: _____ 121

Questions Cut out the questions below and use them for the game.

25/1000 = _____ %	805/1000 = 0 _____	42.3% = 0. _____	67% = _____/1000
0.406 = _____ %	[illegible]	79.5% = 0. _____	89.2% = _____/1000
325/1000 = _____ %	41/1000 = 0 _____	25[illegible]4% = 0. _____	[illegible]0
0.234 = _____ %	0.58 = _____ %	67.4% = 0. _____	74.1% = _____/1000

Name: _____ 122

Questions Cut out the questions below and use them for the game.

A tank is filled with 45 out of 60 liters of water. What is the fraction, decimal, and per	A class of 30 students. 21 brought their lunch. What is the fraction, decimal, and percent for the students who brought lunch?	A car travelled 250 kilometres out of a 400-kilometre trip. What is the fraction, decimal, and percent for the distance travelled?	A store sold 120 out of 200 apples. What is the fraction, decimal, and percent for the apples that are sold?
A fie[illegible] 15 [illegible] of 25 flow[illegible] blooming. Wh[illegible] the fraction, decimal, and percent for the blooming flowers?	[illegible] player [illegible] 50 [illegible]	A computer processed 18 out of 24 tasks. What is the fraction, decimal, and [illegible]nt for the [illegible]d task?	A library has 75 out of 120 books checked out. What is the fraction, decimal, and percent for the checked-out books?
A movie was watched by 200 out of 300 students. What is the fraction, decimal, and percent for the people who watched the movie?	A bakery sold 45 out of 60 loaves of bread. What is the fraction, decimal, and percent for the sold loaves of bread?	[illegible]ce w[illegible] [illegible]ed [illegible] of 12[illegible] [illegible]ia[illegible] is the [illegible] decimal, [illegible] percent for the runners who completed the race?	[illegible] farm harvested [illegible]0 out of 240 [illegible]es. What is [illegible]on, [illegible] the tom[illegible] that were [illegible]rvested?
A school has 90 out of 150 students in a club. What is the fraction, decimal, and percent for the students who are in a club?	A phone battery is charged to 80 out of 100 percent. What is the fraction, decimal, and percent for the charged amount?	A concert was attended by 450 out of 600 people. What is the fraction, decimal, and percent for the people who attended the concert?	A survey showed that 160 out of 200 people liked ice cream. What is the fraction, decimal, and percent for the people who liked ice cream?

Name: _____ 124

Conversions Bottle Flip Challenge

Answers | Record your answers below

17	
18	
19	
20	
21	
22	
23	
24	

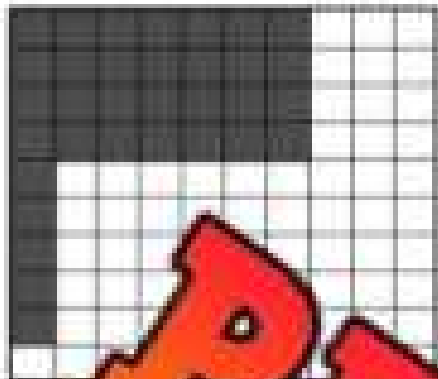
25	
26	
27	
28	
31	
32	

Successful Flips Tally	
# of Wrong Answers	
Final Score: Successful Flips – Wrong Answers	

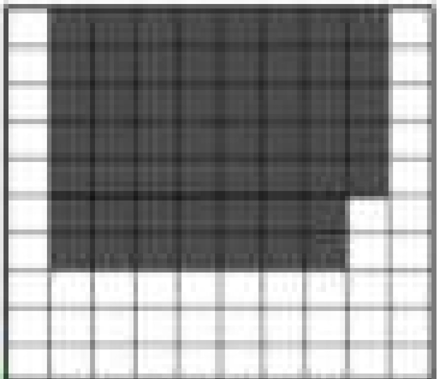
Name: ______________________

Fractions, Decimals, and Percents

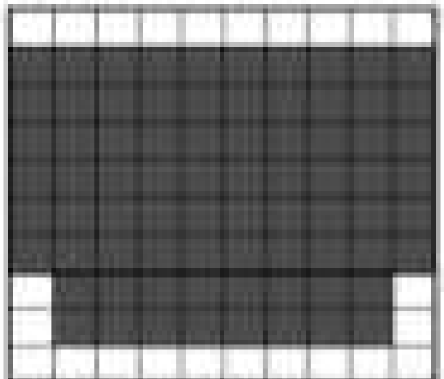
Questions What fraction, decimal and percent of the array is shaded in?



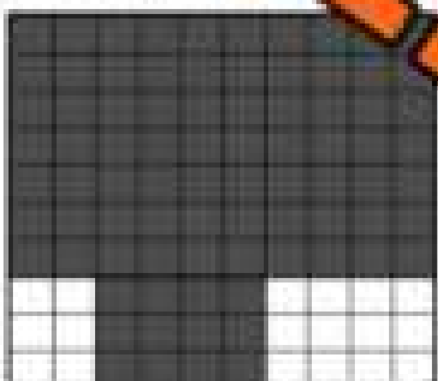
Fraction	
Decimal	
Percent	



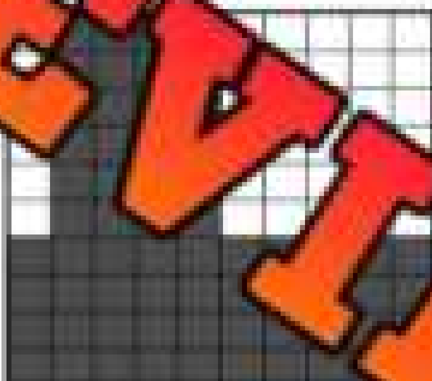
Fraction	
Decimal	
Percent	



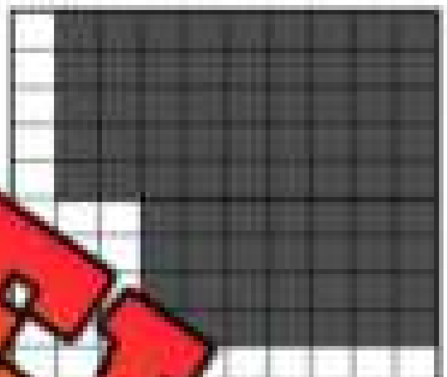
Fraction	
Decimal	
Percent	



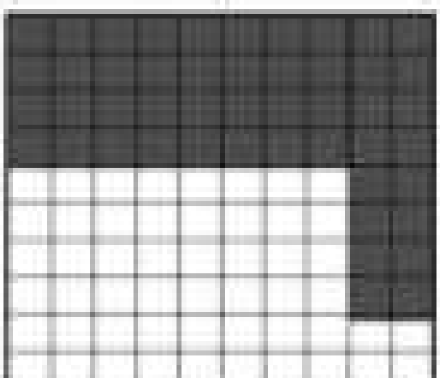
Fraction	
Decimal	
Percent	



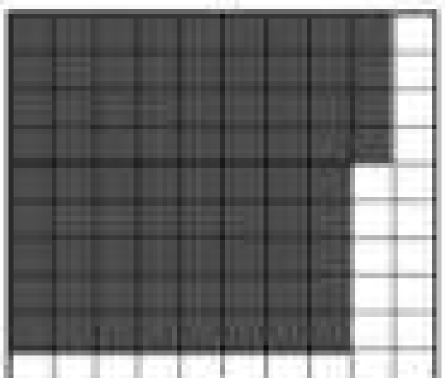
Fraction	
Decimal	
Percent	



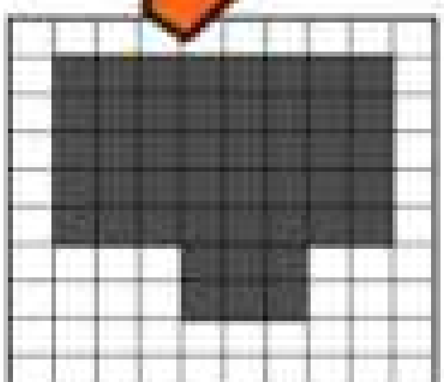
Fraction	
Decimal	
Percent	



Fraction	
Decimal	
Percent	



Fraction	
Decimal	
Percent	

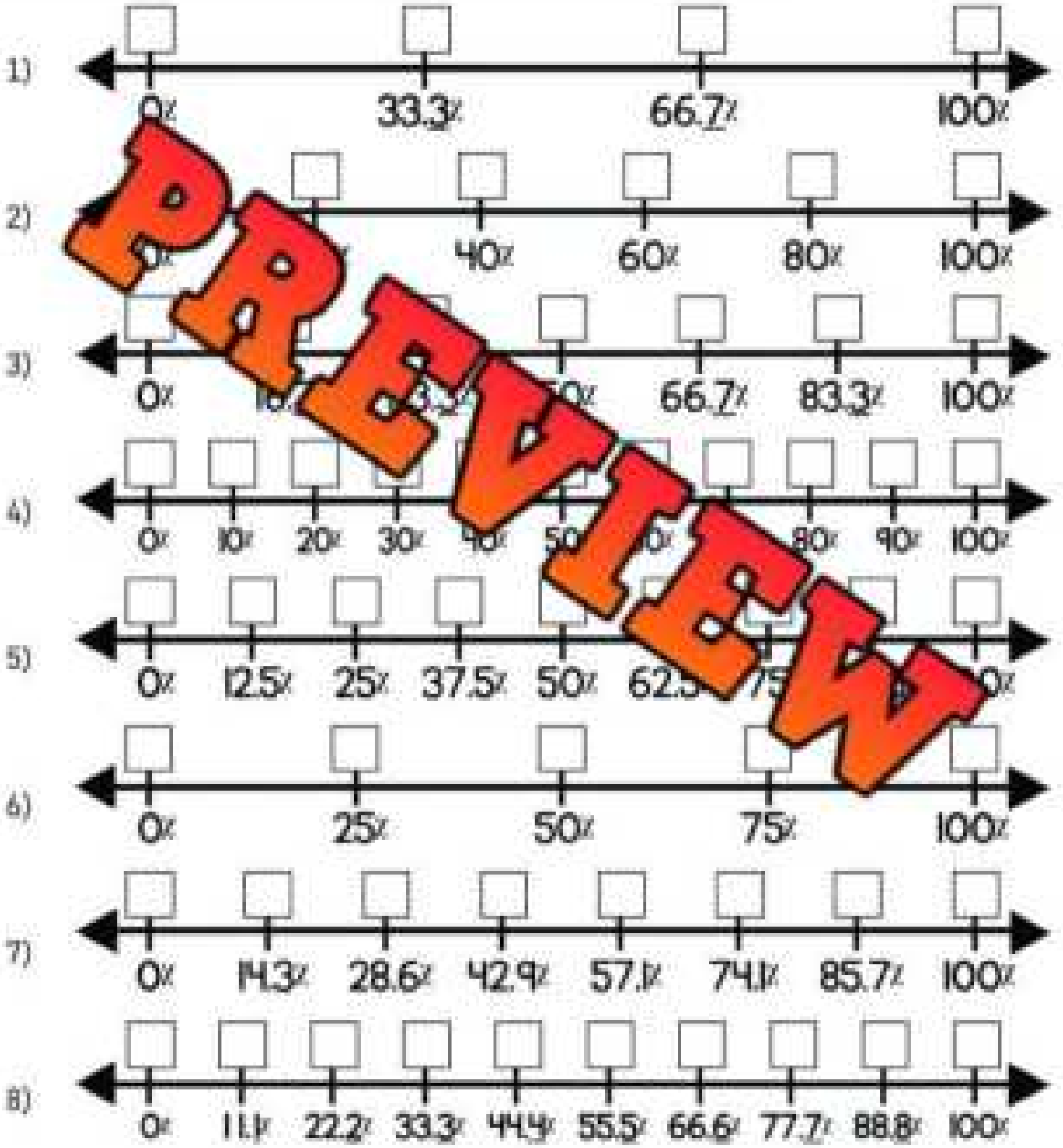


Fraction	
Decimal	
Percent	

Name: _____ 127

Decimal & Percent – Number Line

Instruction Write the decimal above the percent.



Name: _____ 129

Sport Statistics – Fractions, Decimals, and Percents

Information | Baseball Statistics – 2020 Regular Season Offensive Statistics

1) Mike Trout had 200 at bats in 2020. He had 56/200 hits, 42/200 runs, and 18/200 home runs. This means for every 200 at bats, he would have 56 hits, 42 runs, and 18 home runs.

	Hits	Runs	Home Runs
	56/200	42/200	18/200
Dec[illegible] to th			
Pe[illegible]			

a) If Trout had 100 at ba[illegible]ny [illegible] would he have? _____

2) Mookie Betts had 300 at bats in 2020. He had 99/300 hits, 5[illegible] 27/300 home runs. This means for every 300 at bats, he would have [illegible], 57 runs, and 27 home runs.

	Hits	Runs	Home Runs
Totals – Fraction	97/300	57/300	27/300
Decimal to thousandths			
Percent			

a) If Betts had 100 at bats, how many hits would he have? _____

Name: _____ 131

Number Sense Quiz

Part 1 Solve by determining the perfect square

	Question	Perfect Square
1)	3^2	
2)		
3)		

	Question	Perfect Square
4)	6^2	
5)	4^2	
6)	9^2	

Part 2 Solve by determining the square root

	Question	
1)	$\sqrt{16}$	
2)	$\sqrt{4}$	
3)	$\sqrt{9}$	

	Question	Square Root
4)	$\sqrt{49}$	
5)	$\sqrt{36}$	
6)		

Part 3 Arrange the integers from least to g

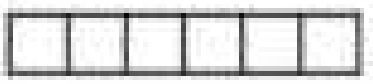
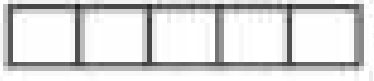
1) 5, 3, -6, -9, 7	2) -4, 4,

Part 4 Use the <, >, = to compare the integers below

1) 8 ☐ -6 2) -5 ☐ 4 3) -7 ☐ 3

4) -5 ☐ -4 5) 1 ☐ -6 6) -3 ☐ -7

Part 5 Shade in the fraction and decide if they are equivalent

1.	2.	3.
 $\frac{3}{12}$	 $\frac{4}{10}$	 $\frac{1}{6}$
 $\frac{1}{4}$	 $\frac{2}{5}$	 $\frac{3}{12}$
Yes No	Yes No	Yes No

Part 6 Write equivalent fractions for the following fractions

$\frac{1}{2}$	
$\frac{1}{4}$	

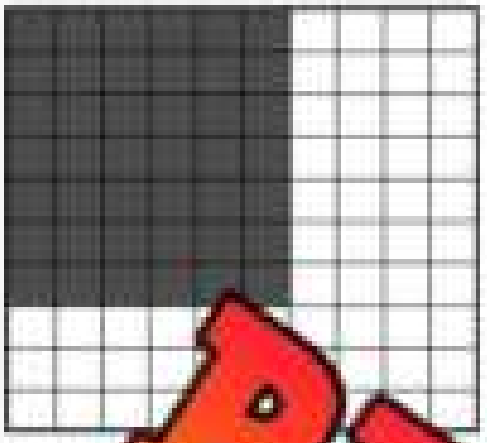
Part 7 Simplify each fraction

1) $\frac{8}{16} = \_\_\_\_$	2) $\frac{9}{12} = \_\_\_\_$	3) $\frac{\_\_}{18}$
4) $\frac{21}{35} = \_\_\_\_$	5) $\frac{25}{35} = \_\_\_\_$	6) $\frac{36}{60} = \_\_\_\_$

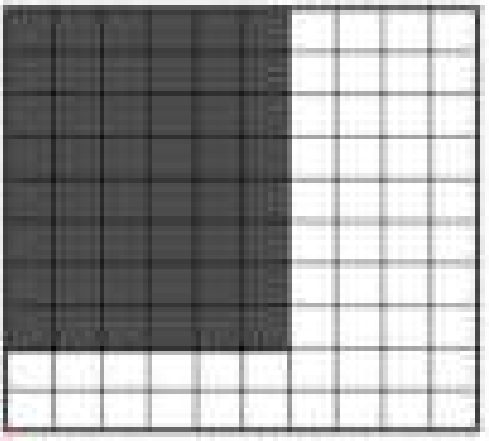
Part 8 Round the decimal number to the nearest hundredth

1) 0.425 → _____	2) 0.859 → _____	3) 0.259 → _____
4) 0.568 → _____	5) 0.237 → _____	6) 0.127 → _____

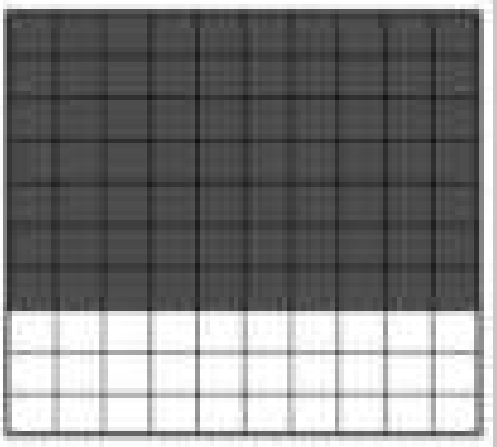
Part 12 Write the fraction, decimal, and percentage that is shaded in



Fraction	Decimal



Fraction	Decimal	Percent



Fraction	Decimal	Percent

Part 13 Compare the [illegible]

4 friends competed in a 3-point [illegible] basketball. They each took 50 shots. Their results are below.

Valentina	Claire	[illegible]	[illegible]ier
12/25	0.439	0.44	

a) Who was the best shooter?

b) Rank the friends in order of best shooter to worst shooter.

Grade 7
Strand: B2 – Operations

	Curriculum Expectations	Pages That Cover the Expectations
B2.1	Use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations	138 – 143, 219 – 220
B2.2	Understand and recall commonly used percents, fractions, and decimal equivalents	157 – 159
B2.3	Use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used	144 – 156
B2.4	Use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of integers	160 – 174
B2.5	Add and subtract fractions, including by creating equivalent fractions, in various contexts	175 – 207
B2.6	Determine the greatest common factor for a variety of whole numbers up to 144 and the lowest common multiple for two and three whole numbers	208 – 213
B2.7	Evaluate and express repeated multiplication of whole numbers using exponential notation, in various contexts	214 – 218
B2.8	Multiply and divide fractions by fractions, using tools in various contexts	221 – 244
B2.9	Multiply and divide decimal numbers by decimal numbers, in various contexts	245 – 294
B2.10	Identify proportional and non-proportional situations and apply proportional reasoning to solve problems	295 – 316

Name: _____ 136

Mixed Operations - BEDMAS

When solving an equation, you need to follow the order of operations. This means you have to solve the equation in the correct order, not just from left to right. Using BEDMAS helps us remember the order to solve.

1. Brackets 2. Exponents 3. Division or Multiplication (whichever is first)
4. Addition or Subtraction (whichever is first)

Example 2

$9 - 3 \div (3 \times 1) = ?$

$9 - 3 \div 3 =$

$9 - 1 = 8$

Instructions Solve the equations using BEDMAS

1) $3 + (4 \times 5) =$	2) $21 - [illegible]$	3) $(8 \times 4) + (4 \div 2) =$
4) $(12 \div 6) \times 3 =$	5) $12 + (2 + 10) =$	6) $[illegible] \div 3) =$
7) $24 \div 6 + (4 + 10) =$	8) $17 - 2 \times 5 =$	9) $25 + (5 \times 5) =$
10) $25 - 15 \div 5 =$	11) $22 - 6 + 5 =$	12) $18 - 5 + (6 \times 8) =$

Name: _____ 140

Mixed Operations - BEDMAS

Instructions Find out the value of the variables using BEDMAS

1) 1 x (2 + 8) =	2) 3 x (6 - 4) =	3) 8 x 4 + (13 + 8) =
4) (7	5) 9 - 4 + (4 x 9) =	6) 5 x (4 + 5) =
7) 36 ÷ (3 + 3) =	8 =	9) 28 + (9 ÷ 3) =
10) 2 x (28 ÷ 7) =	11) 42 + (3 x 4	5 + 9 x (2 + 1) =

Word Problems Answer the word problems below

1) Lindsay ordered two slices of pizza and soda for lunch. A slice of pizza is $2.50, and a soda is $2.00. Lindsay did the math below. What did she do wrong?

$2.50 + $2.00 x 2 = ?
$4.50 x 2 = $9.00

2) John bought 2 pieces of bubble gum for 20 cents each and 3 chocolate bars for 70 cents each. How many cents did he spend? Write the equation.

Name: _____ 141

Order of Operations – Who's Right?

Questions Sophia and Aiden both answered the questions below. Circle who's right

	Question	Sophia's Answer	Aiden's Answer
1	2 + 6 x 4 + 12	44	38
2	[illegible] 3	4	24
3	[illegible] (2	0	18
4	5 x 3 + 8 ÷ [illegible]	[illegible]	11
5	12 ÷ 3 x (5 + 5)	25	40
6	20 + (8 – 3) x 2	30	[illegible]
7	10 x 3 – (2 x 5) – 2	22	18
8	25 ÷ 5 + 6 x 3	23	33
9	48 ÷ 6 – (2 + 3)	48	3
10	3 + 6 x 7 + 11 – 6 ÷ 2	53	34

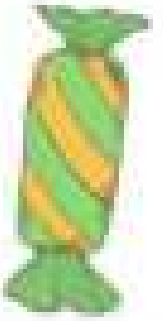
Name: _____ 142

Order of Operations – Candy Shop

Word Problems Write the equation for the situations below and answer the question

A candy shops sells gum, gummies, and candies. The prices are displayed in the table below.

Candy	Price in Cents
Gum	25
Gummies	5
Candies	10



Example
Miranda bought 2 pi[illegible] gummies, and 5 candies. How many cents did she spend?

Ans[illegible] 2 x [illegible] + (5 x 10) +
50 [illegible] = 1[illegible]

1) Ava bought 3 pieces of gum, 8 gummies [illegible] candies. How many cents did she spend?

2) Neil had 100 cents. He bought 5 gummies and 6 candies. H[illegible]oes he have left?

3) Dan purchased 4 pieces of gum, 9 gummies, and 3 candies. How many cents did he spend?

4) Claire had 150 cents. She bought 3 pieces of gum, 3 candies, and 6 gummies. How much does she have left?

Name: _____ 146

Mental Math – Calculating Percentages – 10%, 15%

Percents represent a rate out of 100 in relation to a whole. Therefore, we can represent 10% as 0.10 and 15% as 0.15.

Hint – To mentally calculate 15%...

1. Determine 10% of the number
2. Find half of the answer (5%)
3. Add the 5% to the 10%

Example

1. 210
2. [illegible]
3. [illegible]
4. [illegible]

Instruction [illegible]

	Number		0.05 (Half)	15%
1)	100		5	15
2)	200			
3)	400			
4)	500			
5)	120			
6)	180			
7)	240			
8)	310			
9)	450			
10)	680			

Name: _____ 147

Mental Math – Calculating Percentages – 25%, 50%

Percents represent a rate out of 100 in relation to a whole. 50% represents half of a number and 25% is a quarter of a number.

Steps – Calculating 50%..
1. Find half of the number

Example – 50% of 148
1. Divid[illegible] number 148 in half (148
2. 50[illegible]

Steps – Calculating 25%
1. Find out what 50% of the number is by halving the number
2. Halve the number one more time

Example – 25% of 188
1. 188 ÷ 2 = 94
2. 94 ÷ 2 = 47

Part 1 [illegible] of [illegible]mbers below?

1)	24	_____	[illegible]		3)	76	_____
4)	128	_____	[illegible]		6)	212	_____
7)	264	_____	8)	_____	[illegible]	418	_____
10)	550	_____	11)	636	_____	[illegible]	_____

Part 2 Fill in the table below.

	Number	50%	25%
1)	100		
2)	200		
3)	240		
4)	164		
5)	188		
6)	264		

	Number	[illegible]	25%
7)	348		
8)	414		
9)	560		
10)	644		
11)	828		
12)	940		

Name: _____ 151

Determining Sales Tax

To determine a 12% sales tax, we can use our knowledge of calculating 1% and 10%.

For example:

Product Price	1%	2%	10%	13%	Total Price
$10.0	$0.10	$0.20	$1.00	$1.30	$11.20

1% of 10. which is 10 cents. We can multiply this by 2 to get 2%, which gives us 0.20 of 10.00 is 1.00 or 1 dollar. This gives us a total of $11.20.

Question: st above to calculate the sales tax and total price

#	Product Pric	1	2	10%	12%	Total Price
1	$24.00	0.2	0.4	2.40	2.40 + 0.48 $2.88	$26.88
2	$17.00					
3	$27.00					
4	$44.00					
5	$74.00					
6	$66.00					

Name: _____ 152

Determining Sales Tax – Word Problems

Questions	Answer the word problems below

1) Kayden has a $10 bill and wants to know if he can afford a burger and fry meal that costs $8.00 before taxes. Calculate the total cost of the meal after adding 12% tax. Can he afford the meal?

Bonus: How much money does he have left?

2) Dexter wants to buy a [illegible] $100 and the game costs $65.00 before tax. How much will the game cost after tax?

Bonus: How much money will he have left if he buys the game?

3) Mya is thinking of purchasing a new pair of headphones that cost $59.00. She only has $65.00. Does she have enough money to buy them after a 12% tax is added? Explain.

Name: _____ 153

Word Problems – Missing Percentages

Questions	What percentage is missing?

1) In a class, 63% of students take a bus to school and 34% get a drive from their parents. What percentage of students walk to school?

2) In a [illegible] students, 23% thought math was fun and 42% thought math was [illegible] percentage of students disliked math?

3) A shop sells 3 [illegible] tracked their sales last week and found out that 38% of the do[illegible] sold w[illegible] chocolate, and 21% were vanilla. What percentage of the donuts [illegible]

4) In a candy survey, respondents were asked [illegible] their favourite. They could choose from 4 different options [illegible] hard [illegible] gummies. 18% chose gum, 27% chose hard [illegible] What percentage chose gummies?

5) The Saskatchewan Ministry of Transportation studied [illegible] in Saskatchewan. There were 3 options – gas, diesel, or electr[illegible] diesel and 4% used electricity. What percentage of vehicles use gas?

6) A zoo has monkeys, zebras, pandas, and snakes. Of all the animals, 23% are monkeys, 29% are zebras, and 26% are pandas. What percentage of the animals are snakes?

7) Zoe spends 3 hours on 5 social media apps each day. She spends 28% of the 3 hours on Instagram, 15% on Facebook, 22% on TikTok, and 17% on Snapchat. What percent does she spend on YouTube?

Name: _____ 154

Math Basketball: Missing Percentages Challenge

Objective What are we learning about?

To reinforce students' understanding and application of calculating missing percentages through engaging word problems and a fun basketball shooting game.

Materials What you will need for the activity

- Small ball (e.g., foam ball)
- Trash can [illegible] as the hoop
- Index cards [illegible] word problems
- Marker or pen
- Timer or stopwatch

Instructions How you will complete the activity

1. Arrange the classroom so that there is enough space [illegible] teams to work simultaneously. Place a desk about 6 feet [illegible]
2. Place a stack of index cards with problems on [illegible]
3. Provide each team with a recording sheet and a pencil.
4. Divide the students into teams of about five members each.
5. Each team stands in a line behind their respective desk.
6. The first student in line flips over an index card and solves the problem.
7. Once the answer is recorded, the student attempts to shoot the ball into the bin.
8. If the student makes the shot, they place a tally mark on the team's tally sheet for a point. If they miss, no tally is given.
9. The student then goes to the end of the line, and the next student steps up to the desk to repeat the process.
10. The activity continues until all index cards have been solved.
11. Once all index cards are completed, the teacher collects the recording sheets and reviews the answers with the class.
12. For each incorrect answer, the team loses one point.
13. The team with the highest number of points after deductions is declared the winner.

Name: _____ 15%

Index Cards | Use the following table for the game.

A library has 300 books. 60% of the books are fiction, and 25% are non-fiction. What percentage are reference books?
A class survey shows 38% of students walk to school, and 40% bike. What percentage use other modes of transportation?
A farm has animals. 35% are cows, and 45% are chickens. What percentage are other animals?
In a pizza survey, people prefer pepperoni, and 35% prefer cheese. What percentage prefer other toppings?
A clothing store sells shirts, pants, and jackets. 50% of the items sold are shirts, and 30% are pants. What percentage are jackets?
In a school of 500 students, 40% are in grade 6, and 25% are in grade 7. What percentage are in other grades?
A movie theater sold 200 tickets. 60% were for action movies, and 25% were for comedies. What percentage were for other genres?
A restaurant's menu has appetizers, main courses, and desserts. 40% of the items are appetizers, and 30% are main courses. What percentage are desserts?
In a zoo, 55% of the animals are mammals, and 30% are birds. What percentage are reptiles or other animals?
A school library has 500 books. 45% are fiction, and 40% are non-fiction. What percentage are other types of books?
A technology store sells phones, laptops, and tablets. 50% of the items sold are phones, and 30% are laptops. What percentage are tablets?
In a science class, 40% of the students prefer biology, and 35% prefer chemistry. What percentage prefer other sciences?

Name: _____ 157

Class List – Decimal, Fraction, Percent

Mrs. Hansen just finished marking a math test. Her class list with the results of the test are below. She has simplified some of the fractions, and some students wrote a different test, meaning they are out of a different total.

Grades
A = 80% and up
B = 70%–79%
C = 60% – 69%
D = 50% – 59%
F = 49% or less

Questions Fill in the class list

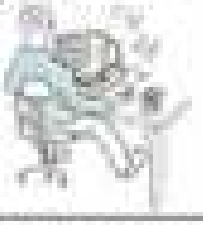
Student	Mark	Decimal	Percent	Grade
Madison				
Stella	/100			
Matthew				
Eli	7/10			
John	1/2			
Kai	1/4			
Ivy	4/4			
Everly	1/5			
Bella	75/100			
Skylar	95/100			
Leah	8/10			
Roman	1/8			
Adrian	1/10			
Easton	4/5			
Savannah	77/100			

Name: _____ 159

Word Problems – Missing Percentages

Questions | What percentage is missing?

1) A survey found out the most popular genre of music. The options were rap, pop, rock, country and jazz. What percent chose jazz?



Rap	1/4
Pop	25%
Rock	22%
Country	1/5
Jazz	

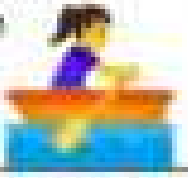
2) A [illegible] was [illegible] to determine which sport was the most popular. [illegible] were hockey, basketball, soccer, football, and gymnastics. What percent chose gymnastics?

Hockey	1/2
Basketball	17%
Soccer	1/10
Football	13%
Gymnastics	

3) Scott's website is used by different [illegible]. Of 2300 people that access his website weekly, data shows how many were using their phone, computer or tablet. What percentage of people use their tablet to access Scott's website?

Phone	3/4
[illegible]	17%
Tablet	

4) Courtney does 4 different workouts. She either runs, bikes, lifts weights, or uses a rowing machine. The amount she does each workout is listed in the table. What is the percentage of workouts where she chooses rowing?



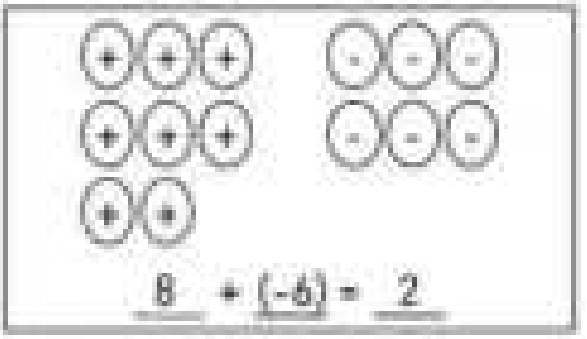
[illegible]	34%
Bike	9/20
Weights	33%
Rowing	

5) Nolan plays baseball. As a batter, he can get a single, double, triple, homerun, or out. His batting statistics are listed in the table. What percentage of 'at Bats' does he get out?

Single	1/4
Double	18%
Triple	1/20
Homerun	11%
Out	

Name: _____ 160

Adding Integers - Visuals



8 + (-6) = 2

Instructions: Write the equations below. What is the difference?

1) ___ + ___ = ___

2) ___ + ___ = ___

3) ___ + ___ = ___

4) ___ + ___ = ___

5) ___ + ___ = ___

6) ___ + ___ = ___

7) ___ + ___ = ___

8) ___ + ___ = ___

9) ___ + ___ = ___

10) ___ + ___ = ___

11) ___ + ___ = ___

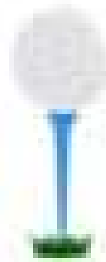
12) ___ + ___ = ___

Name: ______________________ 162

Golf – Adding Integers – Zero Pairs

Word Problems Solve the word problems below using counter chips.

1) Alice played 2 rounds of golf. Her final scores for both rounds are on the scorecard. What is the total score for the two rounds?



Round	Score
1	-6
2	+9
Total Score	

Equ[illegible] + ______

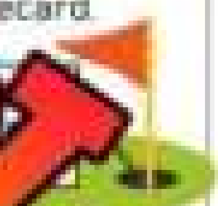
2) Theo play[illegible]ds [illegible]f. His final scores for all three rounds are on the scorecard. Wh[illegible] total [illegible]

Round	Score
1	-5
2	-3
3	+5
[illegible] Score	

Equation: ______ + ______ + ______ [illegible]

3) Leah played 4 rounds of golf. Her final score[illegible] on t[illegible]ecard. What is her total score?

R1	R2	R3	[illegible]	[illegible]
-4	4	-2	-4	[illegible]



Equation: ______ + ______ + ______ + ______ = ______

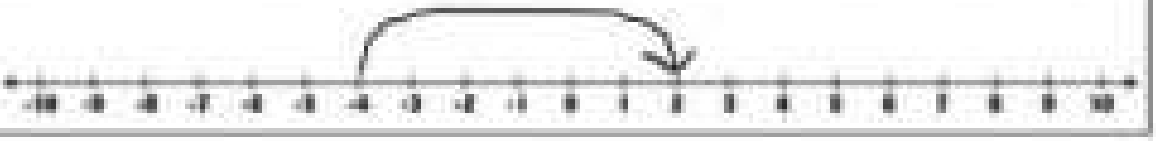
4) Miles played 4 rounds of golf. His final scores are written on the scorecard. What is his total score?

R1	R2	R3	R4	Total Score
8	3	-6	-5	

Equation: ______ + ______ + ______ + ______ = ______

Name: _____ 163

Adding Integers – Using Number Lines

5 + (-6) = -1	
-4 + 6 = 2	

Instructio — Use the number lines to solve the questions

1) 4 + [illegible] =	
2) -2 + 5 =	
3) 7 + (-1) =	
4) -6 + 6 =	
5) 7 + (-5) =	
6) -7 + 4 =	
7) 8 + (-4) =	
8) -8 + 5 =	

Name: ______________________ 166

Adding Integers – Using Number Lines

-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Part 1 Solve the questions below

1) 5 + (	6) -15 + 11 + (-5) =
2) 18 6) =	7) 17 + (-6) + (-8) =
3) -12 + 5 + (-6)	-15 + (-5) + 11 =
4) 13 + (-6) + (-4) =	11 7) =
5) -11 + 4 + (-2) =	10) (

Part 2 Answer the word problems below. Write the equatio on

1) You take 9 steps forwards, 7 steps backwards, another 5 steps ards, and another 4 steps forwards. How far have you moved in steps?

2) The Big Dipper rollercoaster climbs straight up 30m above ground level before it drops 18m. Next, it climbs another 22m before it drops 17m. When the ride is over, the participants are how much higher than ground level?

Name: _____ 167

Math Jeopardy – Adding Integers

Objective What are we learning about?

Students will practice adding integers and solve word problems involving addition in a fun and engaging way.

Materials You will need for the activity.

- Jeopardy board
- Buzzer or bell

Instructions How you will complete the activity.

1. Print the Jeopardy board on the next page.
2. Divide the class into two teams.
3. Ask one team to go first by selecting a point value.
4. Read the question aloud from the point value.
5. The first team to ring the bell or buzzer gets to answer.
6. If they answer correctly, award them the points. If not, another team can answer.
7. Continue the game until all questions have been answered.
8. Tally the points to determine the winning team.
9. Conclude by discussing what they learned about the topic in the questions.

Name: ______________________

Jeopardy Questions	Ask students the questions below

$100	$200	$300	$400	$500
-13 + 27	12 + (-8) + 4	-16 + (-5) + 11	5 + (-12) + 8 + (-3)	-20 + 15 + (-5) + 18
24 + ([illegible]	-19 + 5 + (-2)	14 + (-7) + (-4)	-8 + 12 + (-9) + 3	25 + (-13) + (-7) + 10
-37 [illegible]	[illegible]	-4 + (-6) + 13	-10 + 14 + (-7) + 6	30 + (-10) + (-12) + 5
You gain 8 points and then lose 2 points. How many points remain?	You earn [illegible] then spend [illegible] How many $ remains?	[illegible] How many points remain?	You take an elevator up 8 floors, down 5, [illegible] up 3 more. [illegible] are	A plane ascends 20m, descends 15m, ascends 25m, and descends 10m. How high is it above ground?
You lose 6 points and then gain 4 points. How many points remain?	You find $20 and then spend $14. How many $ remains?	You lose 28 points and then gain 6 points. How many points remain?	[illegible] steps, and [illegible] steps. How [illegible] steps have you climbed?	[illegible] balloon rises [illegible] How high is [illegible] above the starting point?
You gain 19 points and then lose 7 points. How many points remain?	You earn $18 and then spend $12. How many $ remains?	You gain 5 points and then lose 9 points. How many points remain?	A rollercoaster climbs 25m, descends 15m, and climbs another 20m. How high is it above ground level?	You gain 25 points, lose 10 points, gain 15 points, and lose 5 points. What is your final score?

Name: _____ 169

Adding Integers - Rules

Adding Integers Rules

(+) + (+) = (+) Adding 2 positive integers will always give a positive answer

(−) + (−) = (−) Adding 2 negative integers will always give a negative answer

(+) + (−) = (−) Adding integers with different signs → use the larger number

(+) + (−) = (+) Adding integers with different signs → use the larger number

*** if the integers have the same sign, add them and keep the sign

*** if the integers have different signs, subtract them and use the sign of the larger number

Part 1 Use the rules above to answer the 1-step questions below.

1) 42 + (-13)	5) (-121)
2) 57 + (-66)	6) (-26)
3) -132 + (-112)	7)
4) (+33) + (+86)	8) -328

Part 2 Simplify the multi-step questions and use the ru

1) 16 + (-11) + (-17)	4) 42 + 35 + (-28) + (-55)
2) 37 + (-26) + 28	5) 68 + (-75) + (-33) + 91
3) -82 + (-42) + (-35)	6) -108 + 85 + (-72) + (132)

Name: _____ 170

Subtracting Integers – Keep, Flip, Change

Subtraction Integers Rules

To subtract integers, it is easiest to change the operation to addition and then follow the addition rules. We can do this by using the rule – Keep, Flip, Change. We keep the first number the same, flip the operation from subtraction to addition, and then change the third number's sign.

Example: 5 – (-6) = ? becomes 5 + 6 = 11

- **Keep** the first integer
- **Flip** the operation
- **Change** the sign of the next integer

Part 1 Solve the problems.

1) 8 – (-9) =	6) (+37) – (+41) =
2) 24 – (-11) =	7) (+ 23) =
3) (-11) – 8 =	8) (- =
4) (-23) – 13 =	9) (-53) – (=
5) (-31) – (-12) =	10) 88 – (-57) =

Part 2 Answer the word problem below. Write the equation for each question.

The highest recorded temperature on Earth is 56°C. The lowest recorded temperature is -89°C. What is the difference between these two temperatures?

Name: _____ 172

Subtracting Integers – Riddle

Instruction Write the letters above the answers at the bottom to solve the riddle.

E) 10 – (-4) =	N) (+17) – (+30) =
P) (	E) (+61) – (+38) =
L) (-16) – 7 =	(-36) – (-20) =
N) (-12) – 17 =	
V) 43 – (-18) =	A) (+63) – (+53) =

What begins with an E but only has one letter?

10	-13	14	-29	61	23	-25	-16	0	15

Name: _____ 173

Subtracting Integers – Number Line

Follow these steps to use a number line for solving subtraction questions involving integers.

1) Determine how far the numbers are on a number line (-5 and 5 has a distance of 10 in total – magnitude of 10)
2) The direction you move **from** the **second** number to the **first** number will tell you which sign to use. When we move left, we are moving in a negative direction (-) and when we move right, we are moving in a positive direction (+)

-5 Distance = 10 Moving left = -10

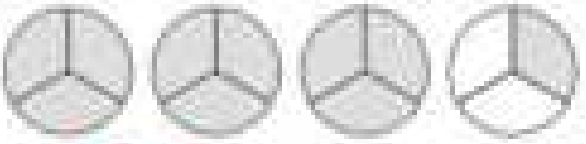
Instruction Use the number line to solve the questions.

1) 9 – (-3) =	
2) -4 – 8 =	
3) 7 – (-4) =	
4) -6 – 3 =	
5) 9 – (-9) =	
6) -7 – (-4) =	
7) (-10) – (-1) =	

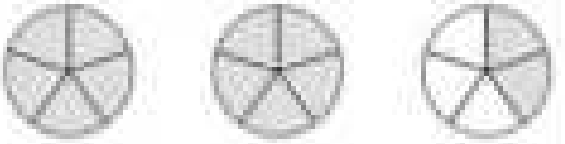
Name: _____ 177

Improper Fractions

Instructions Convert the mixed numbers into improper fractions

1) 

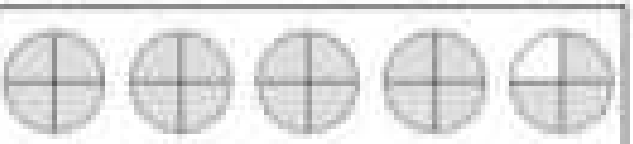
= ____

2) 

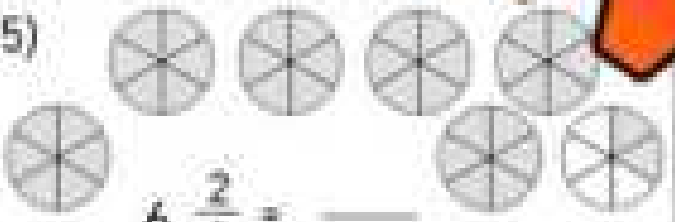
$2\frac{2}{5}$ = ____

3) 

$4\frac{1}{2}$ =

4) 

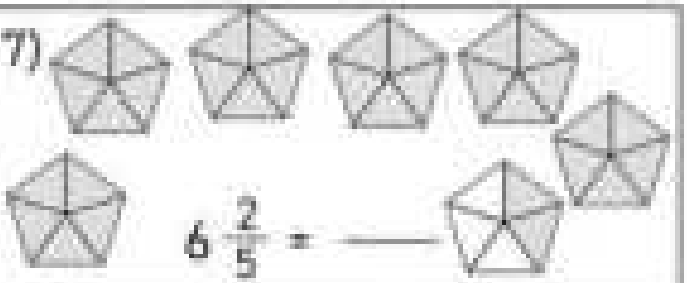
$4\frac{3}{4}$ = ____

5) 

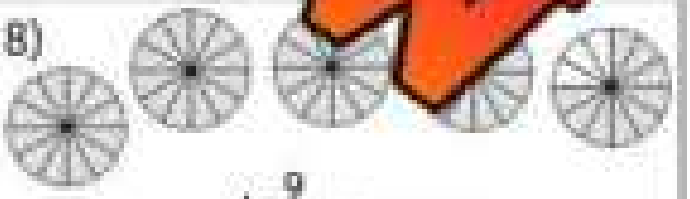
$6\frac{2}{6}$ = ____

6) 

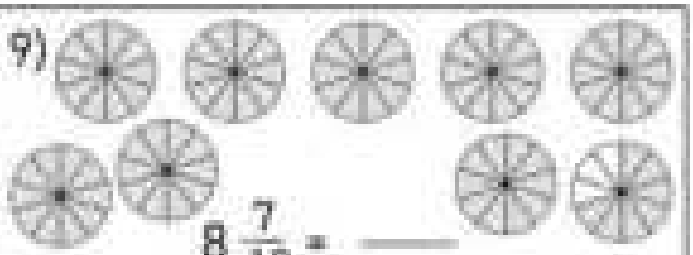
$\frac{3}{5}$

7) 

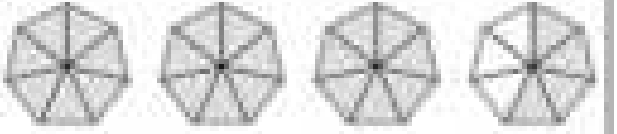
$6\frac{2}{5}$ = ____

8) 

$4\frac{9}{12}$ = ____

9) 

$8\frac{7}{10}$ = ____

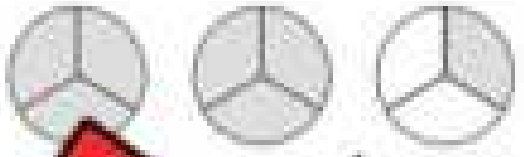
10) 

$3\frac{4}{7}$ = ____

Name: _____ 178

Mixed Numbers and Improper Fractions

Instructions Shade in the fractions and write the mixed number

1) 

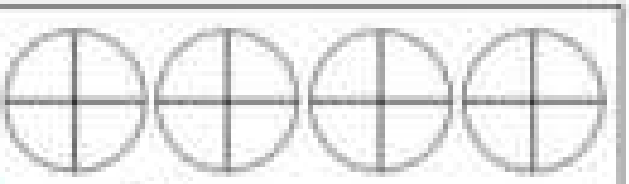
= $2\frac{1}{3}$

2) 

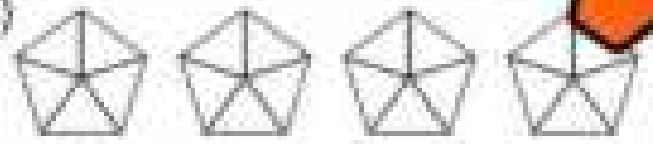
$\frac{9}{2}$ =

3) 

$\frac{6}{4}$ =

4) 

$\frac{14}{4}$ =

5) 

$\frac{17}{5}$ =

6) 

$\frac{11}{6}$ =

7) 

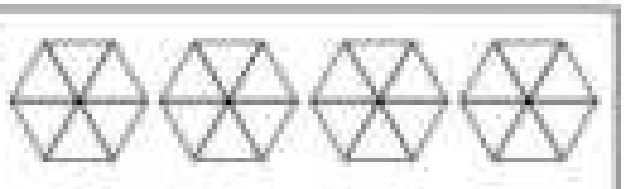
$\frac{13}{3}$ =

8) 

$\frac{15}{4}$ =

9) 

$\frac{8}{3}$ =

10) 

$\frac{19}{6}$ =

Name: _____ 189

Adding Fractions With Unlike Denominators

Instruction Add the fractions below

1) $\frac{1}{4} + \frac{4}{6} = \frac{3}{12} + \frac{8}{12} = \frac{11}{12}$

2) $\frac{1}{2} + \frac{3}{5} = \frac{\quad}{10} + \frac{\quad}{10} = \frac{\quad}{10}$

3) $\frac{\quad}{3} + \frac{\quad}{5} = \frac{\quad}{15} + \frac{\quad}{15} = \frac{\quad}{15}$

4) $\frac{4}{5} + \frac{3}{6} = \frac{\quad}{30} + \frac{\quad}{30} = \frac{\quad}{30}$

5) $\frac{1}{2} + \frac{3}{5} = \frac{\quad}{10} + \frac{\quad}{10} = \frac{\quad}{10}$

6) $\frac{1}{2} + \frac{4}{7} = \frac{\quad}{14} + \frac{\quad}{14} = \frac{\quad}{14}$

7) $\frac{1}{2} + \frac{2}{3} = \frac{\quad}{12} + \frac{\quad}{12} = \frac{\quad}{12}$

8) $\frac{\quad}{5} + \frac{\quad}{3} = \frac{\quad}{15} + \frac{\quad}{15} = \frac{\quad}{15}$

9) $\frac{3}{10} + \frac{4}{5} = \frac{\quad}{10} + \frac{\quad}{10} = \frac{\quad}{10}$

10) $\frac{3}{4} + \frac{2}{7} = \frac{\quad}{28} + \frac{\quad}{28} = \frac{\quad}{28}$

11) $\frac{2}{4} + \frac{1}{3} = \frac{\quad}{12} + \frac{\quad}{12} = \frac{\quad}{12}$

12) $\frac{2}{4} + \frac{7}{9} = \frac{\quad}{36} + \frac{\quad}{36} = \frac{\quad}{36}$

13) $\frac{1}{5} + \frac{3}{4} = \frac{\quad}{20} + \frac{\quad}{20} = \frac{\quad}{20}$

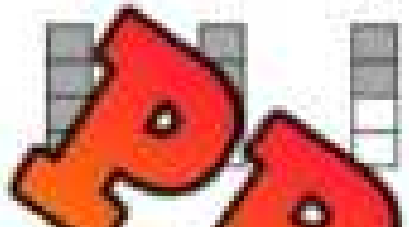
14) $\frac{3}{6} + \frac{5}{5} = \frac{\quad}{30} + \frac{\quad}{30} = \frac{\quad}{30}$

Name: _____ 192

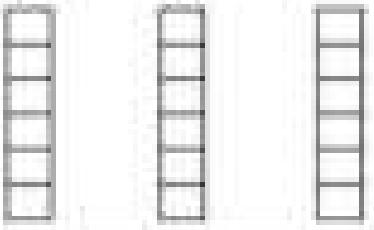
Subtracting Fractions – Common Denominators

Instruction Subtract the fractions below using the models.

1) $\frac{4}{4} - \frac{2}{4} = \frac{2}{4}$

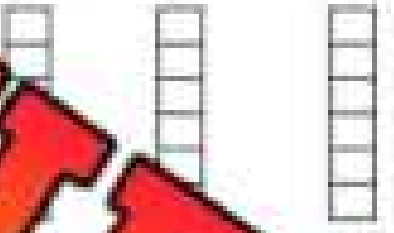


2) $\frac{5}{6} - \frac{3}{6} = \_\_$

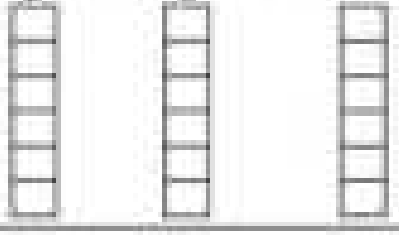


3) $\frac{5}{7} - \frac{\_}{7} = \_\_$

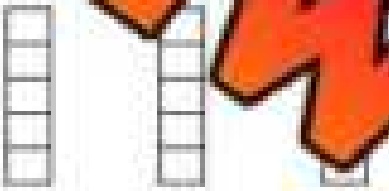
4) $\frac{6}{6} - \frac{3}{6} = \_\_$



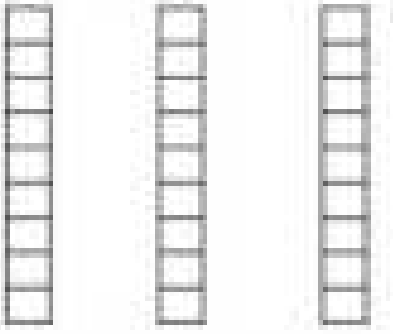
5) $\frac{5}{6} - \frac{1}{6} = \_\_$



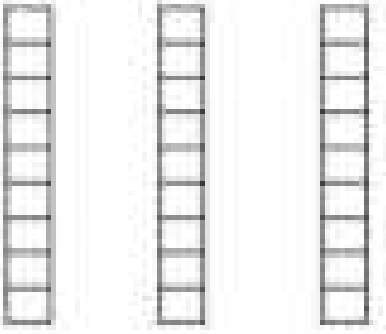
6) $\frac{5}{5} - \frac{\_}{5} = \_\_$



7) $\frac{8}{9} - \frac{3}{9} = \_\_$



8) $\frac{7}{9} - \frac{2}{9} = \_\_$



Name: _____ 196

Subtracting Fractions With Common Denominators

Instruction Solve the word problems.

1) Steven is having a birthday party. He cuts his cake into 10 slices. He hands out 6/10 slices of cake. Write the subtraction equation using fractions below. Then solve the equation.

2) Brian took 40 dollars [illegible] spent 15/40 on a new book. How many dollars out of the 40 [illegible]

3) Kate got 70 candies when she went Trick-or-Treating on Halloween. She ate 13/70 candies when she got home. How many does she have now out of 70?

Name: _____ 204

Unit Test – Percent, Decimals, Fractions and Integers

Part 1 Fill in the table below

	Number	x0.01	1%	x0.10	10%	x0.05	15%
1)	100						
2)							
3)							

Part 2 Fill in the table below

Carter found a new pair of shoes for sale at $85. He is lucky because they are an additional 15% off.

How much will the shoes cost before tax?

Part 3 Fill in the table below

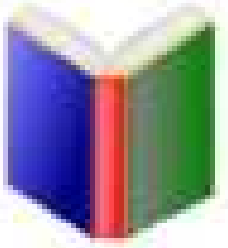
#	Product Price	1%	3%	10%	13%	Total Price
1	$10.00					
2	$18.00					
3	$37.00					

Part 4 Answer the word problems below

Eva wants to buy a new book, but she only has $10 in her purse. The book is priced at $8.00.

a) What will the price cost with 13% tax added?

b) How much money will she have left?



Part ...uestions below

1) 3 + (-7) =	...7) =	3) (-3) + 5 =
4) (-5) + 9 =	...2)	6) (-5) + 8 =

Kennedy played 3 rounds of golf. Her final ... or b... re on the scorecard. What is he total score for the two r...

Rou...	Score
	+6
Total Scor...	

Equation: _____ + _____ + _____ = _____

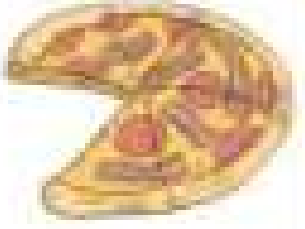
1) 9 – (-11) =	2) (-25) – 13 =
3) 26 – (-15) =	4) (+48) – (+13) =
5) (-17) – 9 =	6) 31 – 49 =

Part B Solve the word problems.

1) A cake recipe calls for 6/8 of a cup of white sugar and 3/4 of a cup of brown sugar. How much sugar in total does the cookie recipe use?

2) Brian mad[illegible] a k[illegible] His guests ate 2/4 of a kg. How much pasta is left?

3) Nicole had 6/12 of a pizza leftover from last night. The n[illegible]y, she ate 1/3 of the pizza. How much pizza is left?



Name: _____ 208

Greatest Common Factor

Instructions List the factors and write the greatest common factor (GCF)

1) 12 _____ 18 _____ GCF = ☐

2) 15 _____ 25 _____ GCF = ☐

3) 35 _____ 28 _____ GCF = ☐

4) 16 _____ [illegible] GCF = ☐

5) 32 _____ 48 _____ GCF = ☐

6) [illegible] 16 _____ GCF = ☐

7) 16 _____ 48 _____ GCF = ☐

8) 27 _____ 9 _____ GCF = ☐

9) 54 _____ 36 _____ GCF = ☐

10) 64 _____ 56 _____ GCF = ☐

Name: _____ 218

Greatest Common Factor - Riddle

Questions Find the GCF and match the letter to the numbers above. Notice there are 2 O's, T's and S's! You'll need to decide where to place the letter.

The more you take, the more you leave behind. What am I?								
4			12	24	3	15	25	5

S (15, [illegible])	(48, 56)	P (50, 75)
T (48, 36)	F (16, 28)	O [illegible]4)
S (48, 72)	T (9, 15)	E (60, 45)

Name: _____ 211

Lowest Common Multiple (LCM)

The lowest common multiple (LCM) is simply the smallest of the common multiples.

Steps:

1) List all the multiples of the set of numbers until you get a match
2) The LCM is the lowest number that fits into all numbers in the set

Exampl
(3, 10)
3 – 3 ... 21, 24, 27, (30) ...
10 ...
Answer – The LCM is 30

Instructions ...s low... ...on multiple (LCM) of the numbers below

1) (4, 10)	(3, ...	3) (2, 5)
4) (6, 8)	5) (5, 6)	...
7) (9, 4)	8) (9, 6)	9) (10, 6)

Name: _____ 212

Lowest Common Multiple - Riddle

Instructions Write the letters above the answers at the bottom to solve the riddle

U LCM of 3 and 4	R LCM of 9 and 21
[illegible] LCM of [illegible]3	Y LCM of 7 and 6
O LCM of 4 and 10	[illegible]CM of 4 and 14
N LCM of 6 and 8	A LCM of [illegible]

What belongs to you but is used more by your friends

42	20	12	63	24	18	21	28

Name: _____ 214

Exponents - Introduction

Exponents are used to show repeated multiplication of a number. An exponent tells us how many times to multiply a number by itself.

Exponent

Base → $5^4 = 5 \times 5 \times 5 \times 5$

Part 1 Complete the table with the expression and standard form

	Expression	Standard Form - Answer
1)		
2)	2^4	
3)	5^4	
4)	6^2	
5)	10^5	

Part 2 Write the power for the repeated multiplication ex

	Expression	Power	Standard - Answer
1)	4 x 4 x 4 x 4 x 4 x 4		
2)	5 x 5 x 5 x 5 x 5		
3)	7 x 7 x 7		
4)	10 x 10 x 10 x 10 x 10 x 10		
5)	2 x 2 x 2 x 2 x 2 x 2 x 2 x 2		

Name: ______________________ 216

Comparing Numbers - Exponents

Part 1 Which value is larger? Use < > and = to compare the values

1)	2^3	<	3^2
2)	2^4		2 x 5
3)	1[illegible]		3^2
4)	[illegible]		2^4
5)	$[illegible]^{10}$		3^3
6)	7 x 4		[illegible]

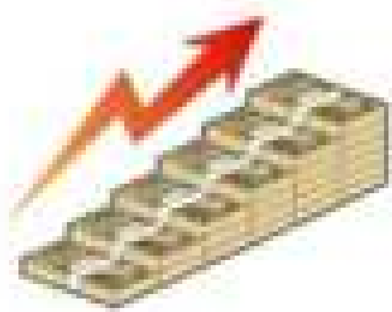
7)	6^3		11 x 9
8)	2^4		4^2
9)	5^4		4^5
10)	6^2		3^3
11)	10^5		5^{10}
12)	100^2		8^4

Part 2 Solve the [illegible]

Emily invested $3 in the stock marke[illegible] pick[illegible] [illegible]ner because every month, her investment tripled. She started c[illegible]ating [illegible] [illegible]ut can't figure out how to finish.

Month 1 - $3
Month 2 - $9
Month 3 - $27

How much did she earn after one year?



Name: _____ 218

Exponents Word Problems - Planets

Word Problems | Solve the word problems below

Mars is 4×10^8 kilometres away from Earth. The Moon is 4×10^5 kilometres away from the Earth.

a) How many kilometres further is Mars than the Moon?

Standard form: _____

Exponential form: _____

b) Venus is 166×10^6 kilometres away from Earth. How much closer is Venus than Mars to Earth?

c) Mercury is 173×10^6 kilometres away from the Earth. How much further is Mercury than Venus from the Earth?

Name: ______________________ 219

Mixed Operations - BEDMAS

BEDMAS

1. Brackets 2. Exponents 3. Division or Multiplication (whichever is first)
4. Addition or Subtraction (whichever is first)

Example 1

$2 \ldots 6) + 3^3 = ?$

$\ldots ?$

$12 \ldots$

Example 2

$19 - 4 \div (4 \times 1) + 2^2 = ?$

$19 - 4 \div 4 + 2^2 =$

$19 - 4 \div 4 + 4$

$19 - 1 + 4 = 22$

Instructions ... the equations using BEDMAS

1) $4 \times 4 + 3^2$	2) ...00	3) $200 - 3^4$
4) $15 - 11 + 5^3$	5) $(3 \times 2) - 5 + 2^3$	6) ... $+ 4^2$
7) $5 + (3 \times 2) + 2^2$	8) $12 + 3 \times 3 - 10$	9) $15 - 10 + (5 + 5) - 2^2$
10) $4^3 + (3 \times 2) - 9$	11) $48 \div 2^3 \times 2$	12) $10 \times 3^2 \div 30 + 20$

Name: _____ 220

BEDMAS With Exponents - Riddle

Questions Solve the expressions and match the letters to the numbers above.

What 2 things can you never eat for breakfast?

15	5				88

63	13	23

5	80	19	9	11	71

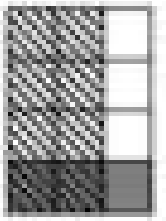
D	5×3		$(\quad + 14) \times 2^2$	L	$30 - 6 + 3$
N	$2^2 \times 5 - 4$	U	$3^$	N	$32 \div 4^2 + 11$
N	$120 \div 24 - 5^3$	R	$85 - 23 + 3^2$		
A	$64 - 8 \div 8$	H	$2 \times 4^3 - 40$	N	$12 \div 2^2 \times 3$
C	$(24 - 14) \div 5^1$			D	$9 \times (18 \div 3) - 7^2$

Name: _____ 227

Multiplying Fractions – Area Models

We can represent two fractions using the same area model. Doing so will allow us to determine the product when we multiply two fractions together.

$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12}$



Example

Step 1: Divide the area model into thirds horizontally to represent 2/3

Step 2: Dr[illegible] diagonal lines that fill in two-thirds of the area model

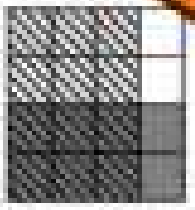
Step 3: Di[illegible] area model into fourths vertically to represent 1/4

Step 4: S[illegible] fourth of the area model

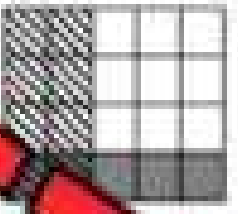
Step [illegible] many squares overlap compared to the total number of squa[illegible]

Questions Fi[illegible]uct u[illegible]area model. Steps 1-4 have been done for you

1)

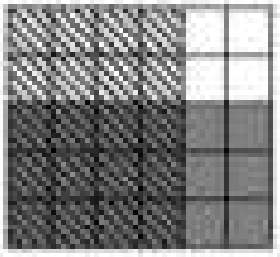


$\frac{3}{4} \times \frac{2}{4} = \_\_\_$



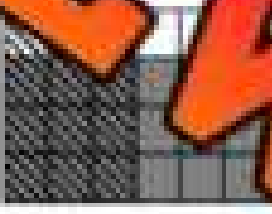
$\frac{2}{3} \times \frac{4}{5} = \_\_\_$

3)



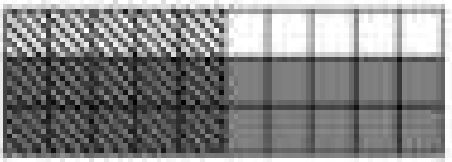
$\frac{4}{6} \times \frac{3}{5} = \_\_\_$

4)



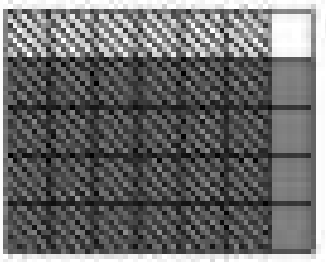
$\frac{3}{7} \times \frac{3}{4} = \_\_\_$

5)



$\frac{5}{10} \times \frac{2}{3} = \_\_\_$

6)



$\frac{6}{7} \times \frac{4}{5} = \_\_\_$

Name: _____ 229

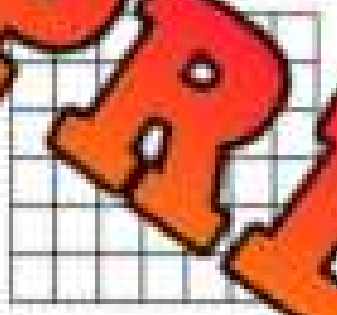
Multiplying Fractions – Area Models

The area models below have been divided to represent the fractions.

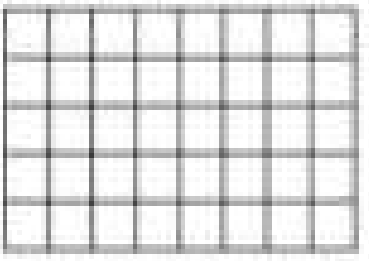
Directions:

1) Use diagonal lines to represent the first fraction
2) Shade in the area model to represent the second fraction
3) Write the answer

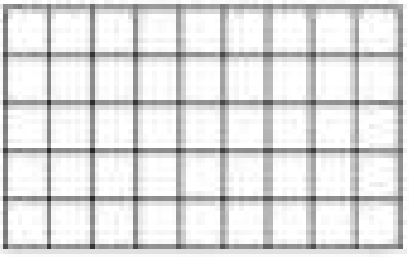
Questions Find the product using the area models below

1) 

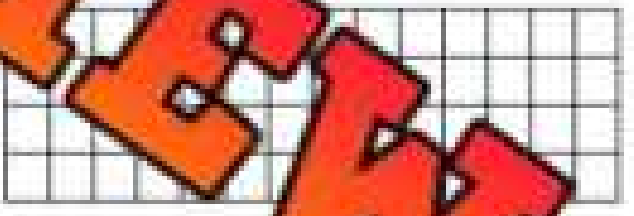
$\frac{3}{7} \times \frac{2}{6} = \_\_\_$

2) 

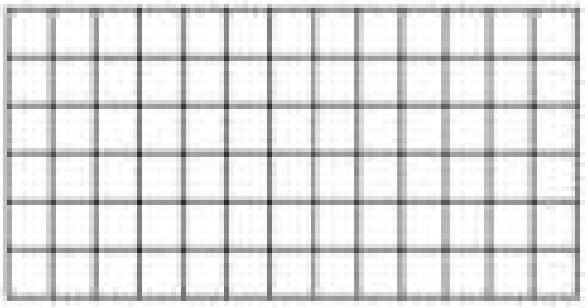
$\frac{4}{5} \times \frac{3}{5} = \_\_\_$

3) 

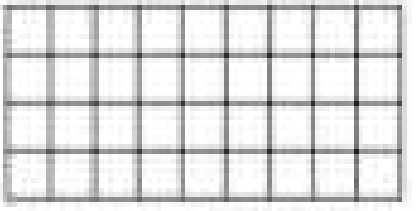
$\frac{3}{9} \times \frac{2}{5} = \_\_\_$

4) 

$\frac{8}{14} \times \frac{2}{4} = \_\_\_$

5) 

$\frac{10}{13} \times \frac{2}{6} = \_\_\_$

6) 

$\frac{7}{9} \times \frac{3}{4} = \_\_\_$

Name: _____ 232

Multiplying Fractions – Word Problems

Questions | Find the products of the fractions below

1) Brian had 5/8 of a kilogram of gummy bears. He ate half of the gummy bears. How much of the gummy bears did he eat?

2) At an animal shelter, [illegible] of the animals are dogs. Of the dogs, 1/3 are female. What fraction of the animals are female dogs?

3) One-tenth of the kids in class wear glasses and half of the students are male. What fraction of kids are male wearing glasses?

Name: _____ 240

Dividing Whole Numbers by Fractions

Steps
1. Change the whole number to a fraction by putting it over a denominator of 1
2. Flip the numerator and denominator of the divident fraction (fraction after ÷ sign)
3. Switch the ÷ sign to a x sign and solve

Questions Follow the steps above to solve. The first one is done for you

1) $\frac{6}{1} \times \frac{4}{2} = \frac{24}{2} = 12$

2) $7 \div \frac{2}{6} = \_\_ \times \_\_ =$

3) $8 \div \frac{3}{6} = \_\_ \times \_\_ =$

4) $4 \div \frac{3}{9} = \_\_ \times \_\_ =$

5) $3 \div \frac{3}{5} = \_\_ \times \_\_ =$

6) $\_\_ \times \_\_ =$

7) $4 \div \frac{2}{3} = \_\_ \times \_\_ =$

8) $5 \div \frac{5}{8} = \_\_ \times \_\_ =$

9) $6 \div \frac{4}{6} = \_\_ \times \_\_ =$

10) $3 \div \frac{3}{6} = \_\_ \times \_\_ =$

11) $5 \div \frac{1}{4} = \_\_ \times \_\_ =$

12) $8 \div \frac{4}{6} = \_\_ \times \_\_ =$

Name: _____ 241

Dividing Fractions Using Models

Dividing Fractions

When we divide a fraction by its unit fraction, we should think, "how many counts of the unit are in the fraction (i.e., how many two-eights are in six-eights?)

$\frac{6}{8} \div \frac{2}{8} = 3$

Solution – We can see that there are 3 two eights in six eights.

Questions ... the fraction bar. How many times does the divisor fit into the dividend

1) $\frac{6}{9} \div \frac{3}{9}$

2) $\frac{4}{6} \div \frac{2}{6} = \_\_\_$

3) $\frac{8}{8} \div \frac{4}{8} = \_\_\_$

5) $\frac{8}{8} \div \frac{2}{8} = \_\_\_$

6) $\frac{10}{10} \div \frac{5}{10} = \_\_\_$

7) $\frac{12}{14} \div \frac{2}{14} = \_\_\_$

8) $\frac{12}{12} \div \frac{7}{12} = \_\_\_$

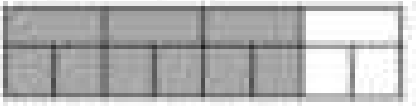
Name: _____ 242

Dividing Fractions Using Models

Dividing Fractions
We can use a bar model to compare fractions to make it easier to divide.

Solution – We can see that 1/8 fits into 3/4 six times.

$\frac{3}{4} \div \frac{1}{8} = 6$



Questions Use the fraction bars. How many times does the divisor fit into the dividend

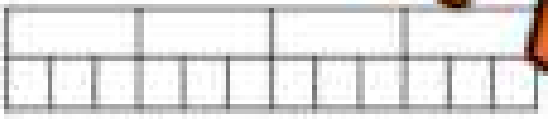
1)

$\frac{2}{4} \div \frac{\quad}{8} = \_\_\_$

2)

$\frac{4}{6} \div \frac{1}{12} = \_\_\_$

3)

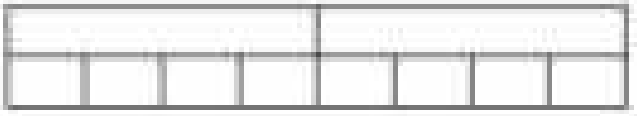


$\frac{3}{4} \div \frac{1}{12} = \_\_\_$

4)

$\frac{\quad}{\quad} \div \frac{\quad}{\quad} = \_\_\_$

5)



$\frac{1}{2} \div \frac{1}{8} = \_\_\_$

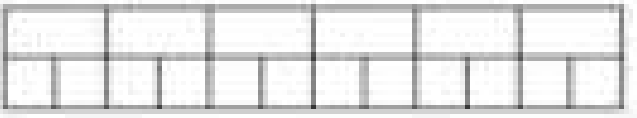
6)

$\frac{2}{3} \div \frac{1}{9} = \_\_\_$

7)

$\frac{3}{3} \div \frac{1}{12} = \_\_\_$

8)



$\frac{5}{6} \div \frac{1}{12} = \_\_\_$

Name: ______________________ 251

Multiplication – 2 x 2 Digits

Part 1 Use the standard algorithm to solve the multiplication problems below

1) 42 x 42	2) 65 x 71	3) 75 x 11	4) 23 x 35	5) 58 x 41
6) 3[illegible] x 34	7) [illegible] x [illegible]76	8) 36 x 65	9) 58 x 27	10) 28 x 21
11) 46 x 27	12) 72 x 21	13) 49 x 37	14) [illegible]	15) 68 x 63

Part 2 Solve the word problems below

1) Avery has 23 bags of candy with 18 candies in each bag. How many candies does she have?

2) Brianna blinks 18 times a minute. How many times does she blink in one hour?

Name: ______________________ 252

Multiplication – 2 x 2 Digits

Step 1: Setup up the Area Model

32 x 17= ______

	30	2
10		
7		

Step 2: Multiply

32 x 17= ______

	30	2
10	30 x 10 300	10 x 2 20
7	30 x 7 210	7 x 2 14

Step 3: Add

32 x 17= 544

	30	2
10	300	20
7	210	14

300 + 210 + 20 + 14 = 544

Questi... ...a model to solve the multiplication problems below

1) 37 ...

2) 24 x 32 = ______

3) 52 x 31 = ______

4) ...2 x ...

5) 92 x 55 = ______

6) 96 x 78 = ______

Name: _____ 256

Multiplying Decimals – Placing The Decimal

Instructions Use front-end estimation to determine where to put the decimal.

1) 7.334 x 7	2) 3.152 x 5
a) 513.38	a) 157.6
b) 51.338	b) 1.576
c) 5.1338	c) 15.76
d) 51	d) 0.1576
3) 6.78	4) 5.31 x 3
a) 53.936	a) 159.3
b) 5.3936	b) 1593.0
c) 539.36	c) 15.93
d) 5393.6	d) 1.593
5) 9.422 x 7	6) 6.3
a) 65.954	a)
b) 6.5954	b)
c) 659.54	c) 50.5
d) 6595.4	d) 5059.2
7) 9.325 x 4	8) 4.627 x 4
a) 37.3	a) 185.08
b) 3.73	b) 18.508
c) 0.373	c) 1850.8
d) 373.0	d) 1.8508
9) 11.624 x 2	10) 10.334 x 3
a) 232.48	a) 310.02
b) 23.248	b) 3.1002
c) 2.3248	c) 3100.2
d) 2324.8	d) 31.002

Name: _____ 261

Multiplication – 1-Digit Multiplier - Wages

Questions | Solve the word problems below

Four friends work at a farm in the summer. They each earn different wages because they have difference job experience. The wages they earn and the hours they worked [illegible]day are listed below

[illegible]	Ava	Mia	Charlotte	Emma
[illegible]	35	15.75	13.40	17.65
Hours	[illegible]	7	8	6
Earnings				

a) Who made the most [illegible]ate [illegible]uch did each friend earn? Fill in the table above

b) How much did all 4 friends earn combined?

Name: ______________________ 267

Multiplying Decimals Numbers

Step 1: Setup up the Area Model

23.5 x 0.3= ______

	23	0.5
0.3		

Step 2: Multiply

23.5 x 0.3= ______

	23	0.5
0.3	6.9	0.15

Step 3: Add

23.5 x 0.3= 7.05

	23	0.5
0.3	6.9	0.15

6.90 + 0.15 = 7.05

PREVIEW

Instr[illegible] area model to solve the multiplication problems below:

1) [illegible] .5 =

2) 31.1 x 0.2 =

3) 36.5 x 0.4 =

4) [illegible] 4.3 [illegible]

5) 18.8 x 0.5 =

6) 52.6 x 0.6 =

Name: _____ 270

Multiplying Decimals Numbers

Instruction Use the standard algorithm to solve the multiplication problems below.

1)

	2	3	.	5
x				3

2)

	1	5	.	6
x		0	.	2

3)

	3	6	.	3
x		0	.	3

4)

		4	5	.	1
x			2	.	3

5)

			9		
x					3

6)

	3	1	.	8
		1	.	3

7)

		6	5	.	4
x			7	.	3

8)

		7	8	.	6
x			5	.	3

9)

		8	9	.	6
x			6	.	3

Name: _____ 271

Multiplying Decimals Numbers

Part 1 Use the standard algorithm to solve the multiplication problems below.

1) 5 x	2) 7.37 x 50	3) 12.17 x 0.30	4) 25.41 x0.60	5) 32.37 x 0.40
6) 43.53 x 0.50	7) 36.42 x0.60	8) 56 x 0.	9) 8.48 x 0	10) 75.23 x 0.70

Part 2 Answer the word problem below.

Ryan bikes for 8.5 hours at a speed of 15.2km per hour. How far did Ryan bike?

Name: _____ 272

Division – Bar Model

Instruction Use the bar model to answer the division questions below.

1) 64 ÷ 4

64

2) 84 ÷ 6

84

3) [illegible]

4) 190 ÷ 10

190

5) 104 ÷ 4

104

6) [illegible] ÷ 6

7) 154 ÷ 7

154

8) 153 ÷ [illegible]

153

9) 126 ÷ 7

126

10) 128 ÷ 4

128

Name: _____ 273

Division – Area Model

Questions Use the area model to answer the division questions below

1) 243 ÷ 6 = 40r3 (16+4)

6	200	40	3
	33	7	0
	19	12	r3

2) 284 ÷ 4

4	200	80	4

3) 513 ÷ 2

2	500	10	3

4) 428 ÷ 6

6	[illegible]	20	8

5) 636 ÷ 6

6	600	30	6

6) 778 ÷ 5

5	700	70	8

Name: _____ 277

Dividing Decimals – Removing Decimal

When dividing a decimal, we can remove the decimal and treat it as a whole number. We can do this as long as we add the decimal at the end.

Steps:

1) Remove the decimal
2) Calculate how many times the smaller number (divisor) fits into the dividend
3) Use front-end estimation to determine an estimated answer and add the decimal back to the final answer

Instructions: Follow the steps above to calculate the answer

1) Question	3.30 ÷ 2 = ?
Step 1 and 2	330 ÷ 2 = 165
Step 3	3.00 ÷ 2 = 1.5 so therefore, put the decimal between the 1 and 6
Answer	1.65

2) Question	?
Step 1 and 2	
Step 3	
Answer	

3) Question	4.24 ÷ 4 =
Step 1 and 2	
Step 3	
Answer	

4) Question	3.39 ÷ 3 = ?
Step 1 and 2	
Step 3	
Answer	

Name: _____ 281

Front-End Estimation – Dividing Using Decimals

Questions	Use front-end estimation to estimate the answer

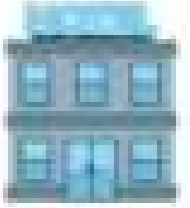
1) Rebecca paid Jrue $96.42 after he worked 8 hours. Approximately how many dollars did Rebecca pay Jrue per hour?

2) Co[illegible] spent [illegible] bags of chips. Approximately how much did each bag of chips cost?

3) Chris earned $88.34 after workin[illegible]ours. [illegible]ow much did he earn per hour?

4) Mark spent $77.82 on 7 hockey cards. On average, approxi[illegible] dollars did each card cost?

5) The Johnson family spent $330.56 on a hotel room for 3 nights. Approximately how much did the hotel cost per night?



Name: _____ 289

Dividing Decimals – Scaling by 10

We can make a division statement easier by scaling it to make both numbers whole numbers.

Example:
70.5 ÷ 0.5 can be scaled by 10 (multiplied by 10), so that the question is 705 ÷ 5 = 141, therefore, 70.5 ÷ 0.5 = 141

***When scaling numbers in a number sentence, we scale them by the same number to keep the sentences to be equivalent.

Instr the division sentence by 10 and then solve.

1) Original Question	10.5 ÷ 0.5 =
Scaled by 10	

2) Original Question	
Scaled by 10	

3) Original Question	8.8 ÷
Scaled by 10	

4) Original Question	12.6 ÷ 0.6 =
Scaled by 10	

5) Original Question	21.7 ÷ 0.7 =
Scaled by 10	

Name: _____ 292

Dividing Decimals – Scaling by 100

Instruction Scale the division sentence by 100 and then solve.

1) Original Question	2.34 ÷ 0.18 =
Scaled by 10	

2) Original Question	5.5 ÷ 0.25 =
Scaled by 10	

3) Original Question	6.12 ÷ 0.36 =
Scaled by 10	

4) Original Question	
Scaled by 10	

Word Problems Answer the word problems below.

1) Roman bought 9.12kg of canned tomatoes. Each can holds 0.48kg. How many cans did he buy?

2) Lillian returned a bag of cans and received $4.85. She received $0.05 for each can she returned. How many cans did she return?

Name: _____ 296

Equivalent Ratios – Scaling Up and Down

Instructions Circle two equivalent ratios for each of the questions below

1) 2:8	2:6	4:8	4:16	1:4	1:2
2) 2:12	1:8	4:22	1:6	1:4	4:24
3) 6:8	8:14	12:18	12:16	3:8	
4) 2:4	4:6	1:7	1:8	1:4	1:2
5) 10:12	20:24	5:15	20:24	5:6	
6) 5:10	1:2	5:20	10:15	10:30	
7) 4:14	2:10	8:28	2:7	7:2	8:24
8) 10:30	10:60	20:15	5:15	20:60	20:10
9) 2:20	6:60	6:80	1:20	1:30	1:10
10) 4:8	8:12	8:16	8:14	2:4	2:6

Name: ______________________ 297

Memory Game: Matching Equivalent Ratios

Objective What are we learning about?

Students will learn to identify and match equivalent ratios through a fun and interactive game.

Materials What you will need for the activity

- Mem y gam ac ard will have a different n an b to another equivalent ratic
- A small table or clea he

PREVIEW

Instructions How you will compl e acti

1. Divide the class into groups of 3 or 4. Giv ory Game cards. (provided)
2. Have each group lay all the cards face down in a grid a
3. The students take turns flipping over two cards at a time, trying a matching equivalent ratio.
4. If a student finds a match, they remove those cards from the grid and keep them.
5. If the cards do not match, they are turned back over, and the next student takes a turn.
6. The game continues until all the cards have been matched.
7. After the game, review the equivalent fractions with the class.

Name: _____ 298

Cards: Memory Game Cards

10:30	5:15
1:4	6:12
8:32	9:8
14:28	7:14
16:40	4:10

Name: _____ 301

Cards: Memory Game Cards

45:90	5:10
42:84	6:12
48:96	6:12
54:108	9:18
60:90	4:6

Name: ______________________ 302

Rates

A **rate** is a **comparison** between two numbers that are in **different** units. We use a colon for ratios, but we commonly use per when we describe a unit rate.

For example – John drove 200 km in 2 hours. His speed is a rate between km and hours. His unit rate is 100km per hour.

Questions Write the rates for the questions below

1) 8 dol[illegible]urgers

Rate [illegible]

Unit Rate = 4 d[illegible] burg[illegible]

2) 5 dollars for 10 pencils

Rate =

Unit Rate = ______________________

3) 10 dollars for 10 ba[illegible]

Rate =

Unit Rate = ______________________

[illegible] 6 dollars for 3 coffees

Uni[illegible] = ______________________

5) 6 dollars for 12 chocolate bars

Rate =

Unit Rate = ______________________

6) [illegible]

Rate =

Unit Rate = ______________________

7) Driving 600km in 4 hours

Rate =

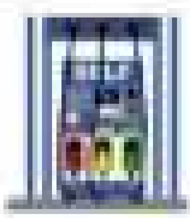
Unit Rate = ______________________

8) Running 15km in 3 hour[illegible]

Rate =

Unit Rate = ______________________

9) 300km on 20 litres of gas



Rate =

Unit Rate = ______________________

10) Growing 52cm every 4 years

Rate =

Unit Rate = ______________________

Name: _____ 303

Equivalent Rates

Multiple Choice Circle the equivalent rates below

1) 3 burgers per person a) 4 burgers for 10 people b) 8 burgers for 12 people c) 15 burgers for 5 people d) 6 burgers for 1 people	2) 5 pencils per 5 people a) 5 pencils for 8 people b) 8 pencils for 8 people c) 6 pencils for 12 people d) 10 pencils for 15 people
3) $ [illegible] a) $30 for 5 p[illegible] b) $25 for 3 pe[illegible] c) $20 for 2 people d) $50 for 10 people	4) 30 minutes per show a) 40 minutes for 3 shows b) 90 minutes for 3 shows c) 60 minutes for 3 shows d) [illegible] minutes for 2 shows
5) 3 games per day a) 12 games in 3 days b) 15 games in 5 days c) 10 games in 2 days d) 6 games in 3 days	6) [illegible] per drink a) [illegible] 2 drinks [illegible] cu[illegible] c) 16 [illegible] 3 d[illegible] d) 6 ice cu[illegible]
7) 8 minutes per book a) 30 minutes for 3 books b) 50 minutes for 4 books c) 20 minutes for 3 books d) 32 minutes for 4 books	8) 2 pillows per pe[illegible] a) 4 pillows for 4 people b) 8 pillows for 8 people c) 16 pillows for 8 people d) 20 pillows for 5 people
9) 7 basketballs per team a) 21 basketballs for 3 teams b) 25 basketballs for 5 teams c) 10 basketballs for 3 teams d) 16 basketballs for 2 teams	10) 5 snacks per student a) 9 snacks for 3 students b) 13 snacks for 3 students c) 25 snacks for 5 students d) 16 snacks for 4 students

Name: _____ 304

Proportional vs Non-Proportional Relationship

A **proportional relationship** is when two variables change at the same rate.

Example – 1 cookie per 1 student (1/1) is proportional to 10 cookies per 10 students (10/10). Both variables (cookie and student), were multiplied by the same number: 10.

A **non-proportional relationship** is when two variables do not change at the same rate.

Example – $100 per 1 month (100/1) is different than $500 per 7 months (500/7)

Question: relationships proportional or non-proportional?

1) $\frac{8}{2}$ and [illegible] Proportional [illegible]	2) $\frac{1}{6}$ and $\frac{4}{24}$ Proportional Non-Proportional
3) $\frac{12}{3}$ and $\frac{88}{21}$ Proportional Non-Proportional	[illegible] and $\frac{70}{140}$ [illegible] Non-Proportional
5) $\frac{4}{7}$ and $\frac{32}{56}$ Proportional Non-Proportional	6) [illegible] Proportional [illegible]
7) $\frac{11}{8}$ and $\frac{66}{48}$ Proportional Non-Proportional	8) $\frac{6}{3}$ and $\frac{120}{90}$ Proportional Non-Proportional
9) $\frac{75}{4}$ and $\frac{225}{12}$ Proportional Non-Proportional	10) $\frac{5}{15}$ and $\frac{25}{60}$ Proportional Non-Proportional
11) $\frac{7}{35}$ and $\frac{35}{175}$ Proportional Non-Proportional	12) $\frac{9}{12}$ and $\frac{72}{96}$ Proportional Non-Proportional

Name: _____ 307

Proportional vs Non-Proportional Relationship

When representing variables, we can use a table to determine if the relationship is proportional or non-proportional.

Example – Erica earned a pay cheque each week from her employer. Her earnings go up $120 each week, which makes the relationship between weeks and earnings proportional.

Weeks (x)	1	2	3	4	5	6
E[illegible]	120	240	360	480	600	720

Ques[illegible] [illegible]ationships proportional or non-proportional?

1)

(x)	1	[illegible]	[illegible]	[illegible]
(y)	10	[illegible]	[illegible]	[illegible]

Proportional Non-[illegible]ional

2)

(x)	2	4	6	8
(y)	14	28	42	56

[illegible]ional Non-Proportional

3)

(x)	30	25	20	[illegible]
(y)	90	50	40	30

Proportional Non-Proportional

4)

[illegible]	[illegible]	12	16	20
[illegible]	[illegible]	[illegible]	48	60

[illegible]ional [illegible]proportional

5)

(x)	1	5	9	13
(y)	11	55	99	130

Proportional Non-Proportional

6)

(x)	[illegible]	[illegible]	[illegible]	12
(y)	300	[illegible]	[illegible]	1200

Proportional Non-[illegible]proportional

7)

(x)	15	45	75	95
(y)	5	15	25	35

Proportional Non-Proportional

8)

(x)	24	40	56	72
(y)	6	10	14	18

Proportional Non-Proportional

9)

(x)	2	8	14	20
(y)	16	64	112	160

Proportional Non-Proportional

10)

(x)	5	8	11	14
(y)	30	48	66	84

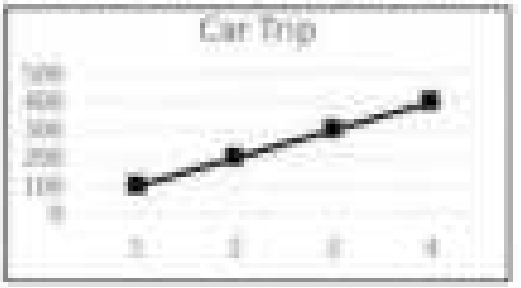
Proportional Non-Proportional

Name: _____ 308

Proportional Relationship - Graph

When a proportional relationship is represented on a graph, the result is a straight line. This is called a linear graph.

Example:
Kim drove from Kingston to Toronto. She kept track of her distance every hour.

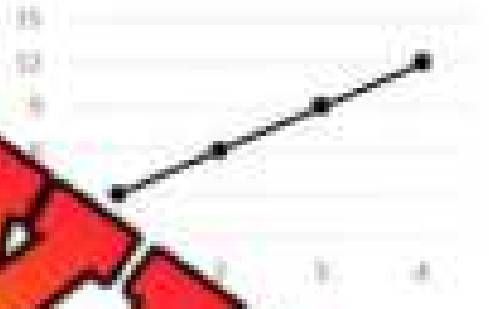


Hours	Distance (km)
1	100
2	200
3	300
4	400

Questions: ...le of values based on the graph, is the relationship proportional?

1)

(x)	(y)
1	
2	
3	
4	



Proportional Non-...

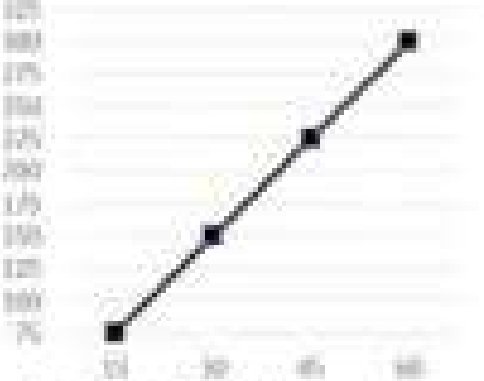
2)

(x)	(y)
5	
10	
15	
20	

Proportional Non-Proportional

3)

(x)	(y)
15	
30	
45	
60	



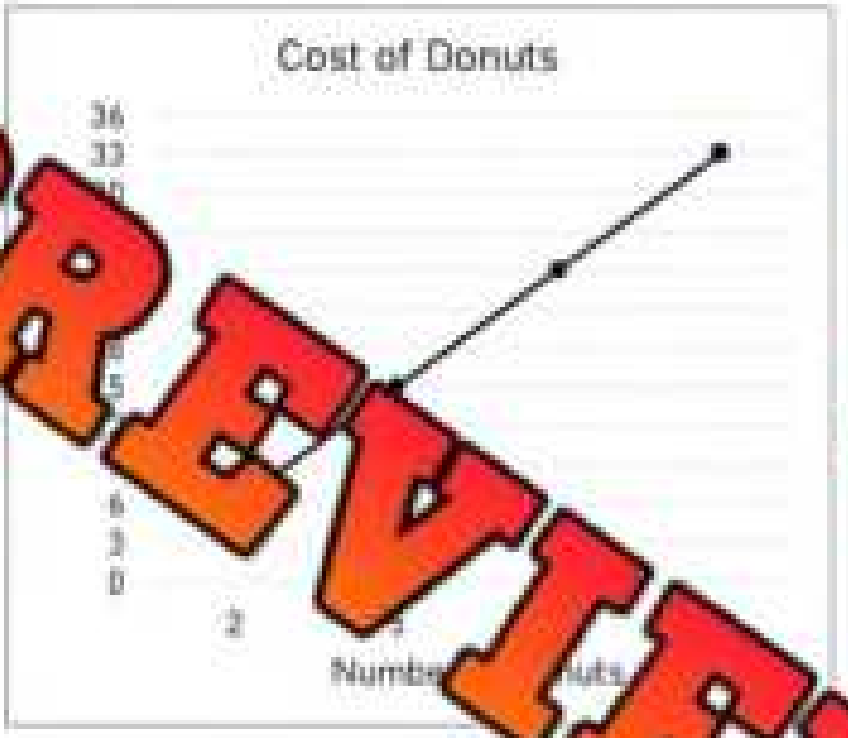
Proportional Non-Proportional

Name: _____ 318

Proportional Relationship – Donut Problem

Questions | Solve the problem below

Hailey is buying donuts for a party. The graph below represents the relationship between the cost of the donuts and the number of donuts.



1) Is the graph proportional or non-proportional?	
2) What is the unit rate? (cost per donut)	
3) How much does 8 donuts cost?	
4) How many donuts could Hailey buy for $33?	
5) Use the graph to determine how many donuts you could buy for $12	
6) Use the graph to determine how much 9 donuts would cost	
7) If Hailey needs 150 donuts for her party, how much will it cost her?	

Name: _____ 313

Multiplication, Division and BEDMAS - Quiz

Part 1 List the factors and write the greatest common factor (GCF)

1)	2)
12 _____	15 _____
18 _____	25 _____
	GCF =

Part 2 F... c...on multiple (LCM) of the numbers below

1) (4, 10)		3) (2, 5)

Part 3 Fill in the tables below

	Exponential Form	Expression	Standard Form – Answer
1)	3^3		
2)	2^4		
3)	5^4		

	Expression	Exponential Form	Standard Form – Answer
1)	4 x 4 x 4 x 4 x 4 x 4		
2)	5 x 5 x 5 x 5 x 5		
3)	7 x 7 x 7		

Part 7 Find the products of the fractions below

1) $\frac{4}{7} \times \frac{2}{7} = \_\_$

2) $\frac{3}{5} \times \frac{2}{5} = \_\_$

3) $\frac{4}{4} \times \frac{2}{4} = \_\_$

4) $\frac{5}{9} \times \frac{4}{9} = \_\_$

Part 8 Solve the division questions below

1) $\frac{7}{9} + \frac{2}{6} =$

2) $\frac{3}{6} + \frac{5}{6} =$

3) $\frac{5}{7} + \frac{2}{4} =$

4) $\frac{}{8}$

Part 9 Use the standard algorithm to solve the multiplication problems below

1)				
	4	2	.	5
x		0	.	3

2)				
	3	6	.	5
x		2	.	2

3)				
	2	3	.	8
x		4	.	6

Part 10 Scale the division sentence by 10 and then solve

1) Original Question	8.4 ÷ 0.4 =
Scaled by 10	

2) Original Question	16.8 ÷ 0.2 =
Scaled by 10	

Part 11 Solve the word problems below

1) Alex worked [illegible] hours and earned $11.35 per hour. How much money did he earn?

2) Courtney has a piece of wood that is 4.2m long. She needs to cut pieces that are 0.3m long. How many pieces can she cut from the piece of wood?

Grade 7
C1. Patterns and Relationships

	Curriculum Expectations	Pages That Cover the Expectations
C1.1	identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values	5 – 7, 10, 44 – 53, 55 – 59
C1.2		, 46,
C1.3	determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns	8 – 9, 11 – 32, 36, 40 – 43, 54 – 59
C1.4	create and describe patterns to illustrate relationships among integers	61 – 75

Name: ______________________

Table of Values – Finding Term N

When finding a random term in a pattern, we can use a variable. Often *n* is used to take the place of the term number. When we use *n*, we can change the value to find the term value for any term number.

We can find the value for *n* by looking at the pattern between the term number and term value (functional relationship). To do this, we look across the table from the term num[illegible] to the term value.

Practi[illegible] [illegible] the pattern rule when you look across the table of values.

Term Number	Term Value
1	[illegible]
2	10
3	15
4	20
5	25
8	

5n

Term Number	Term Value
1	1
[illegible]	[illegible]
[illegible]	[illegible]
4	[illegible]
5	[illegible]
9	

3n – 2

Term Number	Term Value
1	6
2	12
3	18
4	24
[illegible]	30
[illegible]	

____

Term Number	Term Value
1	4
2	6
3	8
4	10
5	12
9	

Term Number	Term Value
1	5
2	15
3	25
4	35
5	45
10	

Term Number	Term Value
1	6
2	9
3	12
4	15
5	18
11	

______________________ ______________________ ______________________

Name: _____ 22

Table of Values – Finding Term N

Practice Find the pattern rule when you look across the table of values.

Term Number	Term Value
1	5
2	12
3	19
4	26
5	33
8	

Term Number	Term Value
1	16
2	17
3	18
4	19
5	20

Term Number	Term Value
1	11
2	17
3	23
4	29
5	35
11	

Term Number	Term Value
1	17
2	24
3	31
4	38
5	45
11	

Term Number	Term Value
2	
3	
4	30
5	40
11	

Term Number	Term Value
1	5
2	14
3	23
	32

Word Problem Use a table of values and find the n^{th} term.

Dennis won 8 points for beating level 1 in a video game. He got 18 for beating level 2 and he received 28 points for beating level 3.

a) If the pattern continues, how many points will he get for beating level 4?

b) How many points will he get for beating level 10?

Name: _____ 23

Using Algebraic Expressions

In the expression $6y + 5$, the 6 is the **numerical coefficient** of the variable and the 5 is the **constant term**. The **variable** is the y, which can represent any number.

Part 1 Use the algebraic expression to fill in the tables.

Term Number	Term Value
1	
2	
3	
4	
5	
8	

$4x + 1$

Term Number	Term Value
1	
2	
3	
4	
5	
9	

Term Number	Term Value
1	
2	
3	
4	
5	
11	

$t + 8$

Term Number	Term Value
1	
2	
3	
4	
5	
11	

$6n - 7$

Term Number	Term Value
1	
2	
4	
5	
10	
20	

$20 - x + 5$

Term Number	Term Value
5	
11	

$8x - 6$

Part 2 Write 4 algebraic expressions using:
Variable = n Constant term = 6 Numerical coefficient = 3

1	
2	

3	
4	

Name: _____ 24

Pattern Rule – Input/Output Tables

Instructions Fill in the input/output tables below by using the expression provided

In n	Out $2n$
1	
2	
3	
4	
5	

In n	Out $2n + 3$
1	
2	
3	
4	
5	

In n	Out $5n - 5$
1	
2	
3	
4	
5	

In x	Out $3x - 3$
10	
20	
30	
40	
50	

In	Out
4	
6	
8	
10	

In x	Out $20 + x$
1	

In p	Out $3p + 10$
20	
40	
60	
80	
100	

In p	Out $10p - 12$
3	
6	
9	
12	
15	

In p	Out $7p + 20$
5	
10	
15	
20	
25	

Name: ______________________ 25

Activity Title: Algebraic Adventure Hunt

Objective | What are we learning about?

To help students understand and practice filling in input/output tables using given expressions involving all four operations through a fun and engaging treasure hunt.

Materials | ...hat will you need for the activity?

- St...ch or ... use a smartphone)
- Index card...
- Markers
- Small prizes ... (fo...
- Tape

Instructions | How will you comp... ...ctiv...

1) Cut out the input/output tables provided. T... ...l be... ...e hunt challenge questions.
2) Hide these cards around the classroom or in a des... ...e o... ...re, taping them under chairs, desks, or tucked into non-obvious ...
3) Divide the class into small teams and give each team a stopwa...
4) Explain the game: each team will hunt for a card, solve the problem ... as quickly as they can, and return to you for verification.
5) Start the timer when you say "Go!" Each team rushes to find their first card.
6) When a team thinks they have the correct answer, they come back to you for verification. If they get it right, the teacher keeps the card. If the answer is wrong, they can try again or hide the card back in its original spot and find a new card.
7) The game continues until all cards are found or you call time. The team with the most correct answers wins.
8) Discuss the game, focusing on the concepts taught on the cards.

Name: ____________________ 26

Instructions | Cut out the cards below.

In j	Out $34j + 2$	In f	Out $f \div 2 + 17$	In c	Out $14c + 2$	In p	Out $10p - 12$
3		12		3			
	102		29				8
9		36		7		3	
12			41			4	
15		60					38

In k	Out $k + 20$	In l	Out 22…	In e	Out $52e - 3$	In x	Out $12x$
100		1		10		2	
150		2			777		48
200		3		20		6	
250		4		25			96
300		5			1557	10	

Name ____________________ 29

Instructions | Cut out the cards below.

In h	Out $h \div 4 + 3$	In f	Out $3f - 45$	In e	Out $15e + 3$	In b	Out $b \div 2 - 1$
8		15		2		[illegible]	
16		20		4		20	
24		25		6		30	
32		30		[illegible]		40	
40		35				50	
In k	Out $k \div 5 - 3$	In g	Out $2g$ [illegible]	[illegible]	Out $d \div 3 - 2$	In c	Out $4c + 25$
	0	1		[illegible]		3	
20		2		6		5	
25		3		9		7	
30		[illegible]		12		9	
35		5			3	11	

Name: _____ 31

Increasing Patterns

Instructions How many blocks are in each term? Sketch the next 3 terms.

A)

1) Describe the pattern rule in your own words.

2) Represent the pattern using an algebraic expression:

3) How many blocks will the 15th term have?

4) How many blocks will the 30th term have?

B)

1) Describe the pattern rule in your own words.

2) Represent the pattern using an algebraic expression:

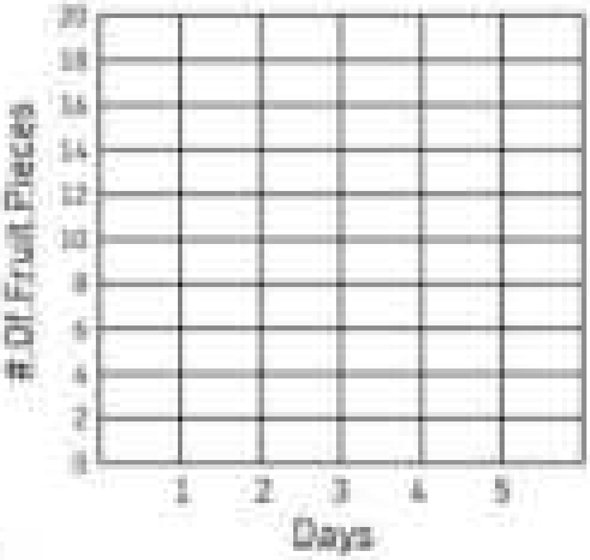
3) How many blocks will the 25th term have?

4) How many blocks will the 50th term have?

Graphing Increasing Patterns

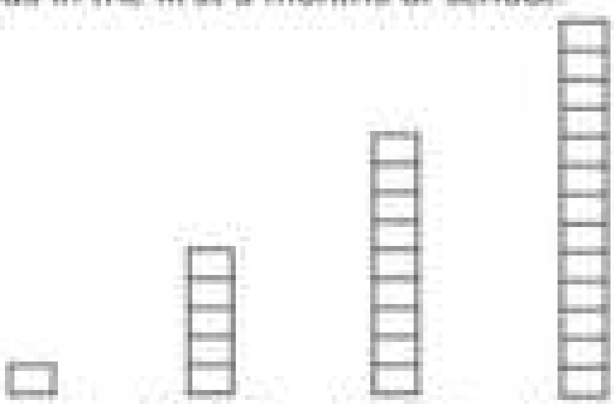
Questions Translate the increasing patterns into a table of values and a line graph.

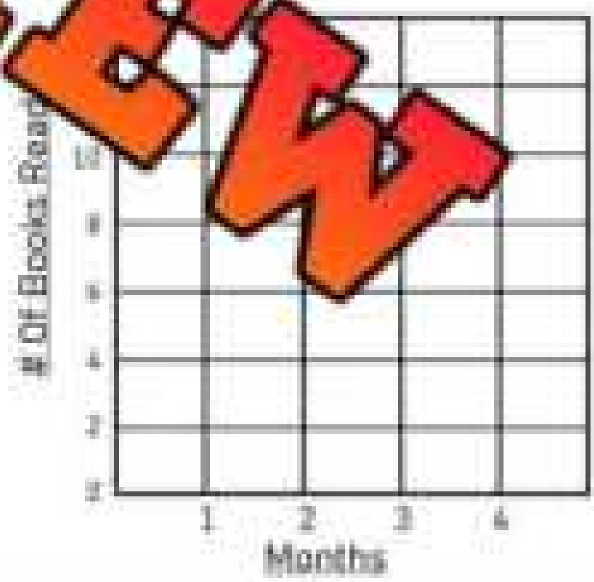
1) Stacy marks an x each day for how many pieces of fruit she eats.



Term Number (Day)				4	5	8	15
Term Value (Fruit Pieces)							

2) Chris puts a rectangle for every book he reads in the first 5 months of school.





Term Number (Month)					7	20
Term Value (Books Read)						

Name: _____ 35

Increasing Patterns

Questions How many shaded blocks are in each term? Sketch the next 2 terms.

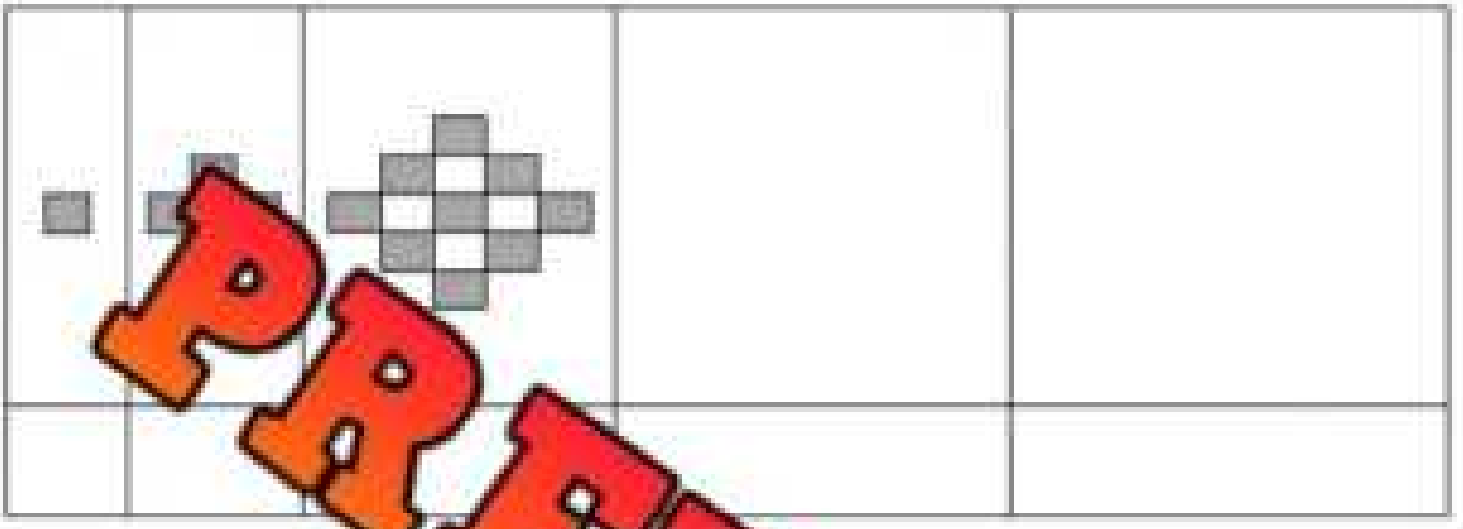
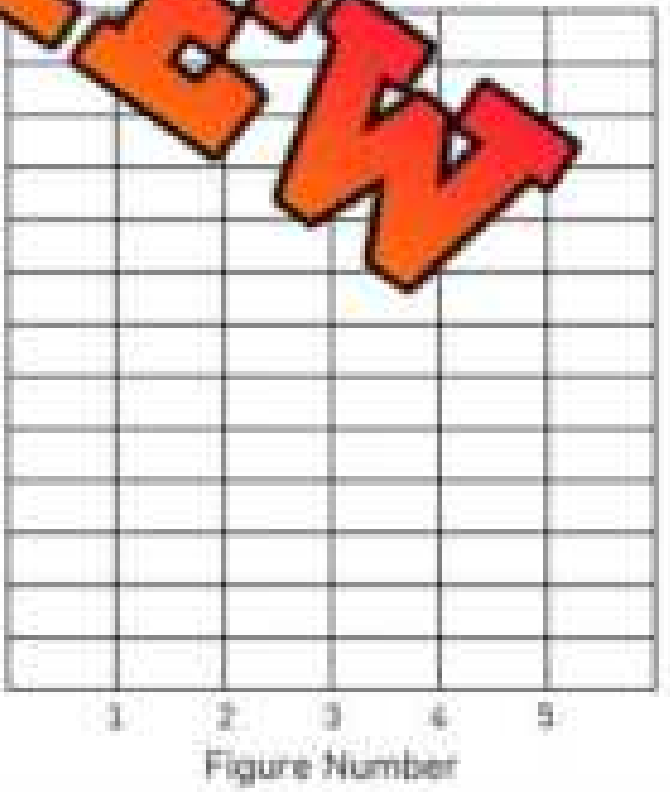


Figure Number	1				5	7	10
Number of Grey Blocks							

1) Describe the pattern rule:

2) How many blocks will the 7th term have?

3) How many blocks will the 10th term have?

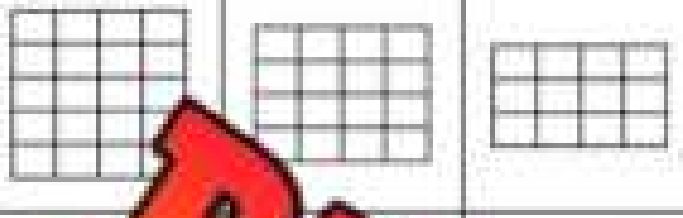


Name: _____ 36

Decreasing Patterns

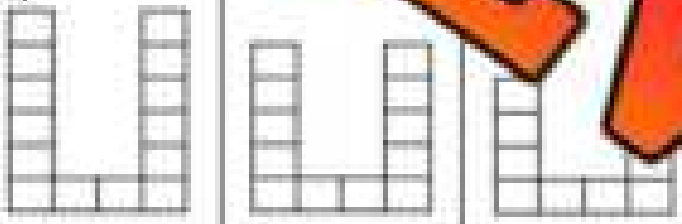
Questions How many blocks are in each term. Sketch the next 3 terms.

1)



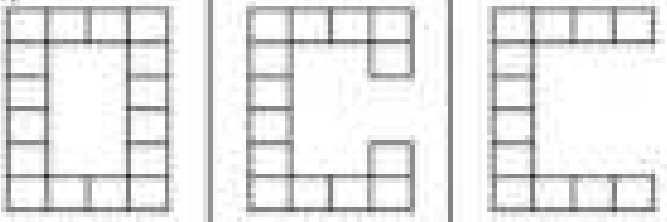
Describe the pattern rule.

2)



Describe the pattern rule.

3)



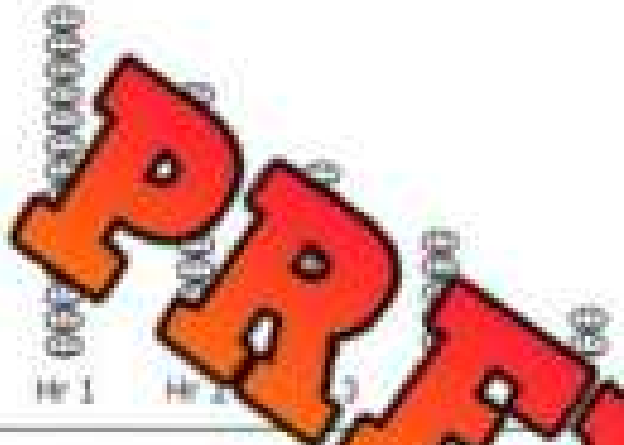
Describe the pattern rule.

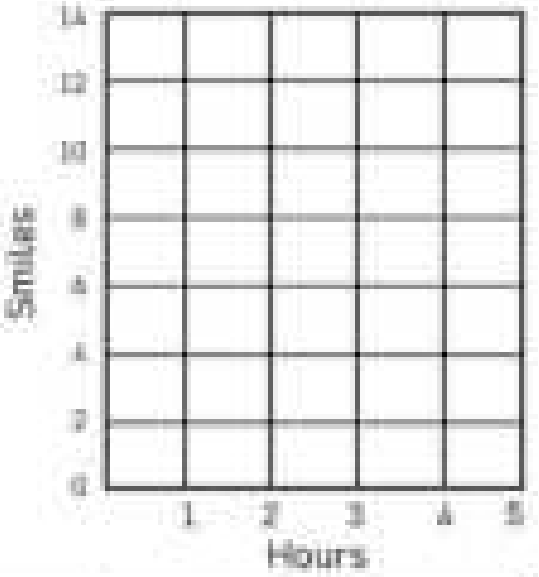
Name: _____ 38

Graphing Shrinking Patterns

Questions Translate each decreasing pattern into a table of values and a line graph.

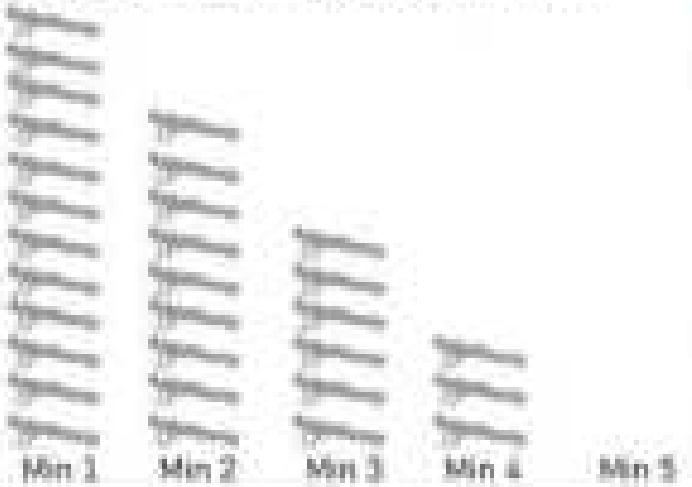
1) Jane kept track of how many times she smiled in an hour.

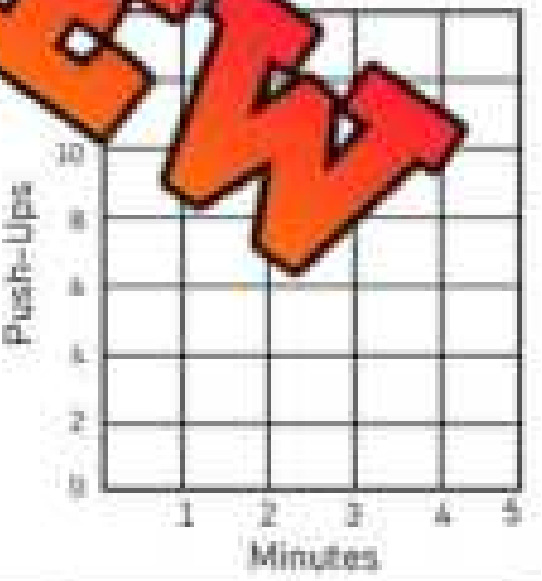




Term Number					
Term Value					

2) Sam counted how many push-ups he could do every minute for 5 minutes.





Term Number					
Term Value					

Name: _____ 39

Decreasing Patterns

Questions How many total blocks are in each term. Sketch the next 2 terms.

1)

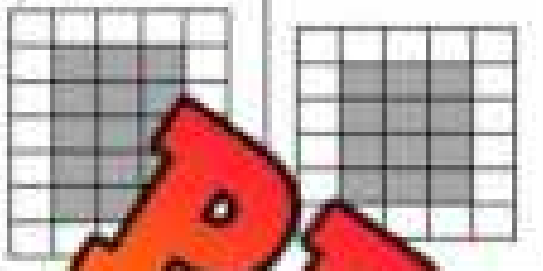
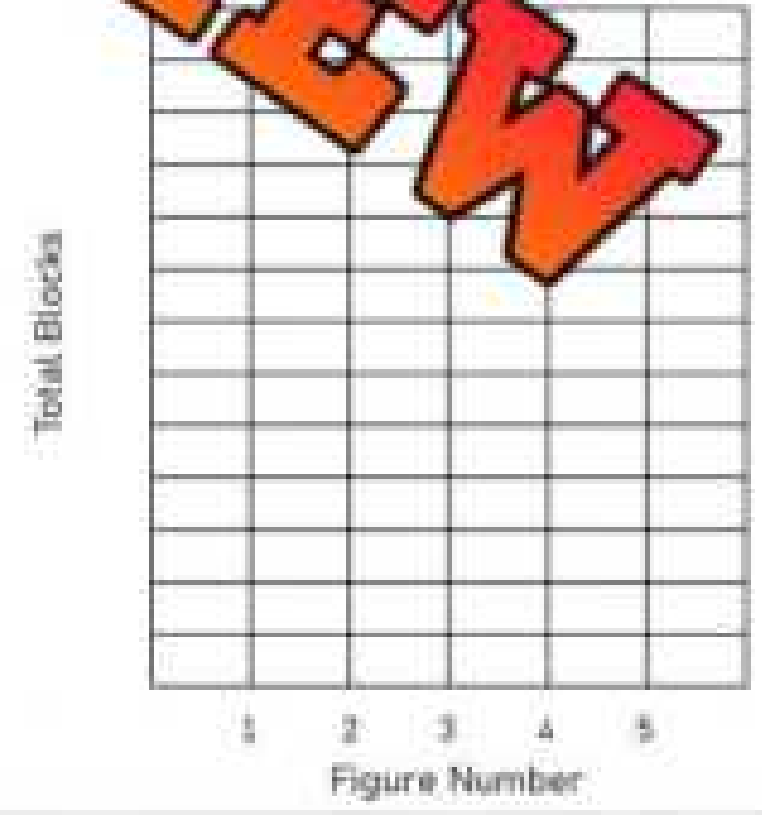


Figure Number	1	2	3	4	5	6
Number Of Grey Blocks						
Number Of White Blocks						
Number Of Total Blocks						

1) Describe the pattern rule for the total blocks.

2) Describe the pattern rule for the white blocks.

3) Describe the pattern rule for the grey blocks.



Name: _____ 40

Writing Algebraic Expressions

Practice Answer the question below.

1)	Situation	Expression/Answer
a)	Blake sells lemonade at his stand. For every sale (s), he earns $5. Write the expression.	
b)	Blake [illegible] sales Monday. How much money did he ma[illegible] expression and the answer.	
c)	[illegible] the week, how much money did he ma[illegible] the answer.	
d)	Blake earned [illegible] lemonade. How many cups (c) did he sell?	

2)	Situation	Expression/Answer
a)	Sandy earns $14 for every hour (h) she work[illegible] spend $2 each time she works to take the [illegible] expression.	
b)	Sandy worked 8 hours yesterday. How much money take home? Write the expression and the answer.	
c)	Sandy worked 12 hours today. How much money did she take home? Write the expression and the answer.	

3)	Situation	Expression/Answer
a)	Jake is driving across Alberta to visit a friend. For every hour (h) he drives, he travels 110km. Write the expression.	
b)	Jake drove 8 hours today. How far did he go? Write the expression and the answer.	
c)	Jake needs to drive 1430km. How many hours does he need to drive? Write the expression.	

Name: _____ 42

Uncovering the Relation Between Variables

When we discover a pattern between two things (variables), we need to identify the term number and the term value.

Example: determine the number of students and adults in a school, if there are 20 times more students than adults.

Clues

- There are two terms to quantify – students and adults
- There are 20 times more students than adults, so the number of students to adults is x 20
- We can use adults as the term number. The letter a will represent the number of adults.
- The number of students is the term value. The letter s will represent the number of students.
- The relation is $s = 20a$ or $20a = s$

Scenarios

Write the relation for each of the scenarios below

		Relation
Ex.	The number of chairs present in a classroom for every 1 student (s)	$c = s$
1)	The number of wheels present in a collection of cars if each car has 4 wheels	
2)	The number of pencils there are in class if each student in class has 3 pencils each	
3)	The number of shoes that are in your class if each student has 2 shoes	
4)	How many total cans collected for a food drive in a school if each class brings on average 25 cans	
5)	The number of students absent today if there is always 1 person absent for every 10 students in a class	

Your Turn

Write your own scenarios and the relation that solves the problem

	Scenario	Relation
1)		
2)		

Name: _____ 44

Constant Rate of Change

A **constant rate** is a rate of change that remains the same and does not go up or down. For example, when you are paid $20 an hour, the rate of change is constant because for every hour you work, your pay goes up by the same amount - $20.

Instructions Fill in the tables below to show a constant rate of change.

1) Phil's [illegible] today has been represented in the table below

	[illegible]	2	3	4	5	6	7	8
Money Earned	[illegible]	42	63					

What is the rate of change? [illegible] Is the rate of change constant? Yes No

2) Laura sells cars. She [illegible] she sells a car. Her earnings for last week are represented in [illegible] There were some days she did not earn commission.

Days Worked	1	2	[illegible]	4	[illegible]	6	7
Money Earned ($)	105	210	315	[illegible]	[illegible]	[illegible]	1300

a) Is the rate of change constant? Yes No

b) What day do you think Laura sold the most cars? _____

c) How much did she earn that day? _____

d) How much do you think Laura made if she didn't sell a car? _____

3) Kim sells necklaces that she made. Her sales have been represented in the table.

Necklaces Sold	10	20	30	40	50	60	70	80
Money Earned ($)	30	60	90					

a) What is the rate of change? _____ Is the rate of change constant? Yes No

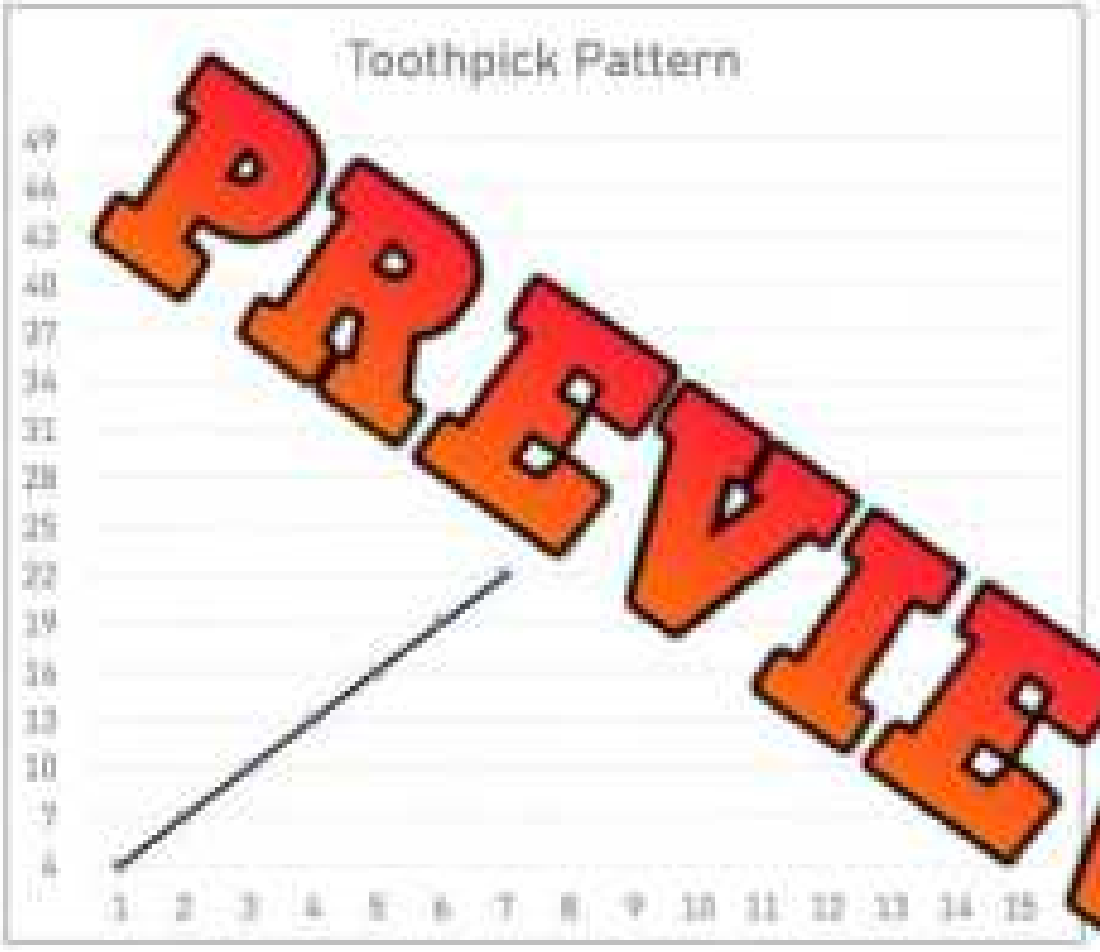
b) How much would Kim sell 1000 necklaces for? _____ 5000 necklaces: _____

Name: _____ 45

Reading a Linear Pattern - Graph

A **linear** pattern displays a constant rate of change. The pattern increases or decreases by the same amount each time.

Instructions Continue the line on the graph and fill in the table of values.



Term Number	Term Value
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

1) Draw the toothpick pattern below for the graph/table of values. Use any design you'd like.

Term 1	Term 2	Term 3	Term 4	Term 5

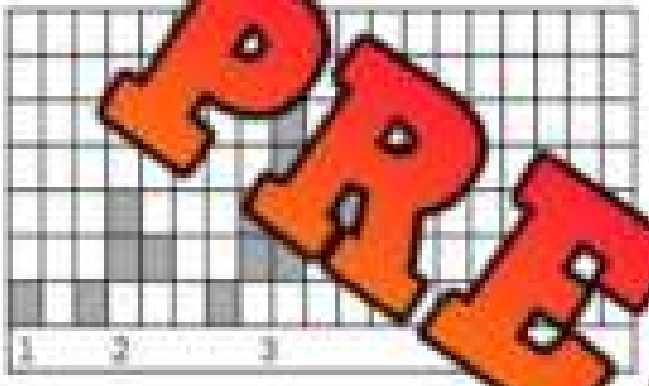
2) What is the constant rate of change?

Name: _____ 46

Linear and Non-Linear Patterns

Not all patterns are linear. Some patterns increase/decrease by the same amount each time, while others grow/shrink at different rates. When the pattern grows or shrinks by different amounts, it is called **non-linear.**

Instruction Look at the patterns below and fill in the table of values. Then complete the graph. Is the line straight?

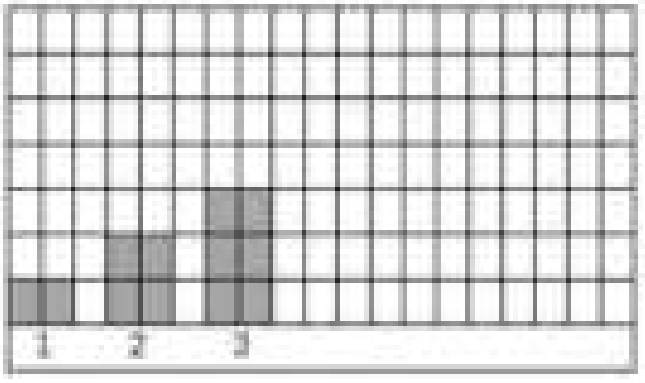


Term Number	Term Value
1	
2	
3	

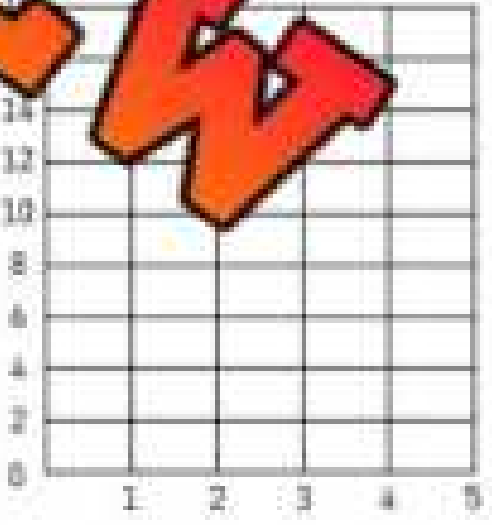
1) Is this pattern linear or non-linear? Explain

_____

_____



Term Number	Term Value
1	
2	
3	
4	
5	



2) Is this pattern linear or non-linear? Explain

_____

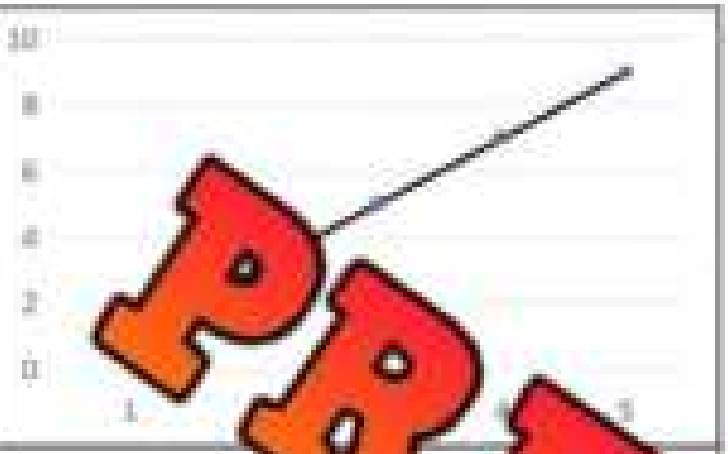
_____

2) How many blocks would be in term number 10?

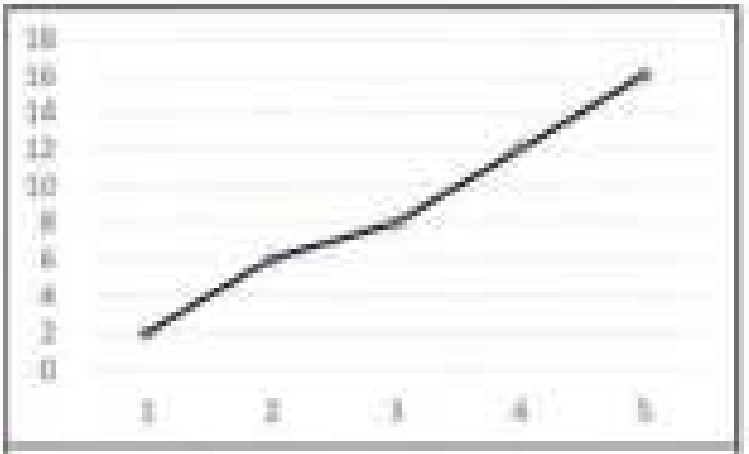
Name: _____ 47

Increasing Linear Patterns – Yes or No?

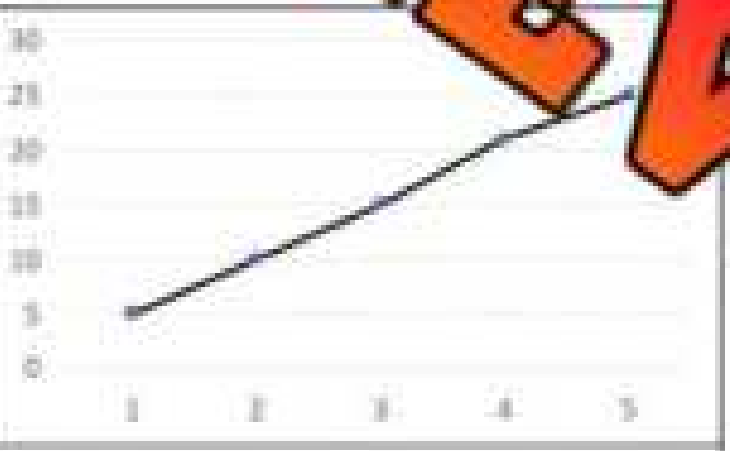
Instructions Circle if the pattern displayed on the graph is linear.



1) Linear Non-Linear

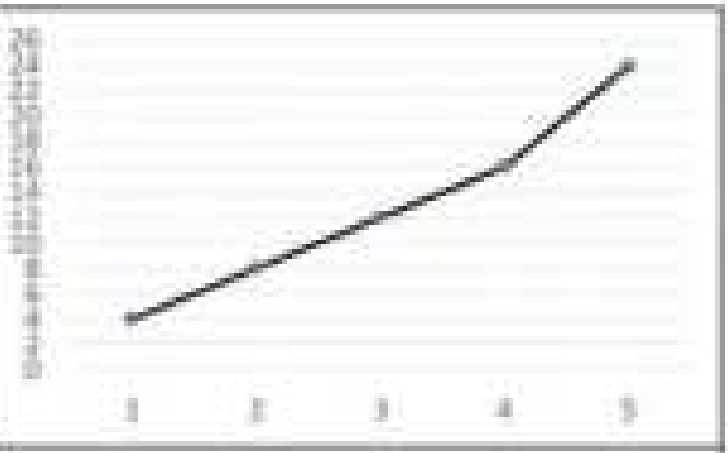


2) Linear Non-Linear

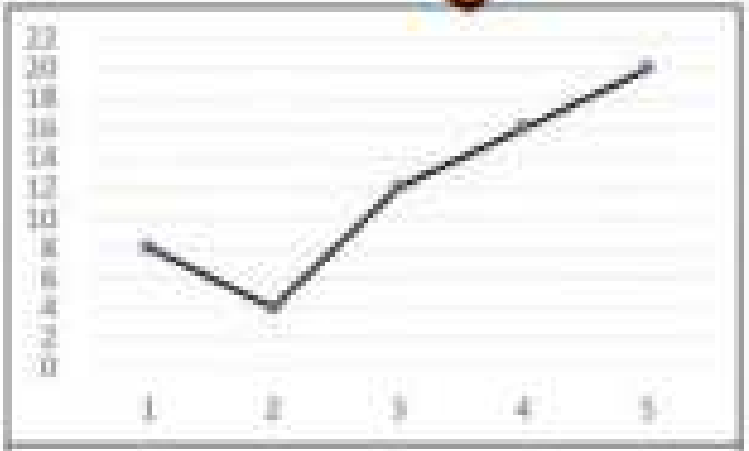


3) Linear Non-Linear

4) Linear Non-Linear



5) Linear Non-Linear



6) Linear Non-Linear

Name: _____ 48

Increasing Linear Patterns – Yes or No?

Instructions Circle if the pattern is linear, based on the table of values.

Term Number	Term Value
1	2
2	6
3	10
4	14
5	18
Linear	Non-Linear

Term Number	Term Value
1	10
2	16
3	20
4	26
5	32
Linear	Non-Linear

Term Number	Term Value
1	15
2	18
3	21
4	25
5	28
Linear	Non-Linear

Term Number	Term Value
1	14
2	19
3	24
4	29
5	34
Linear	Non-Linear

Term Number	Term Value
1	[illegible]
2	[illegible]
3	[illegible]
4	60
5	74
Linear	Non-Linear

Term Number	Term Value
1	25
2	75
3	125
4	175
5	[illegible]
[illegible]	[illegible]-Linear

Term Number	Term Value
1	112
2	126
3	138
4	152
5	166
Linear	Non-Linear

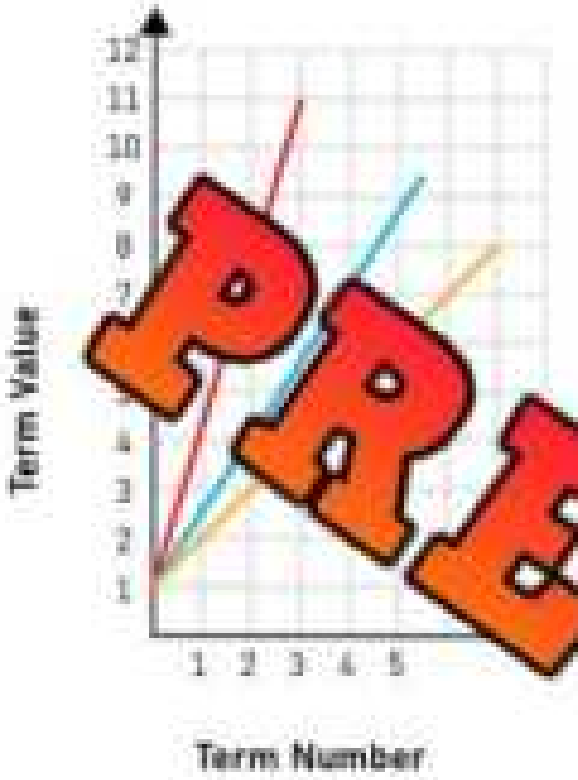
Term Number	Term Value
1	210
2	260
3	310
4	360
5	410
Linear	Non-Linear

Term Number	Term Value
1	500
2	650
3	700
4	850
5	1000
Linear	Non-Linear

Name: _____ 50

Linear and Non-Linear Patterns

Instruction Look at the graphs closely. Answer the questions below.



1) How are the lines the same?

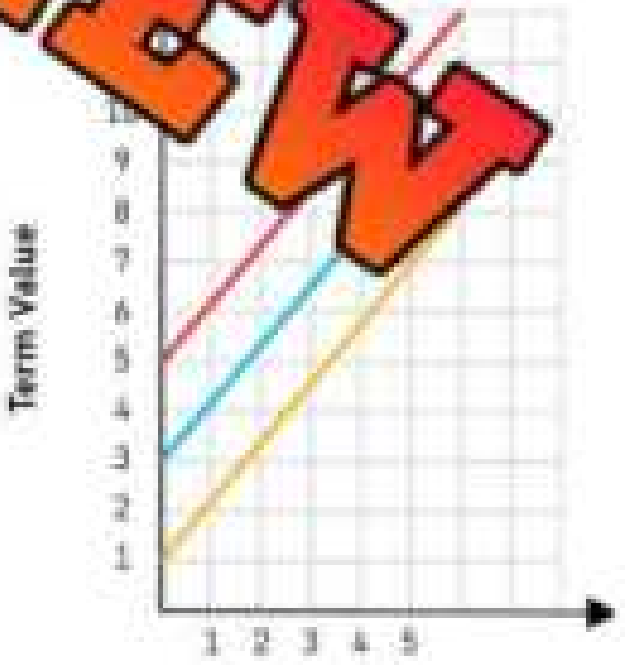
2) How are the lines different?

3) What could these three lines represent?

1) How are the lines the same?

2) How are the lines different?

3) What could these three lines represent?



Name: _____ 51

Comparing Rates of Change

Questions Circle which variable (x or y) increases at a greater rate of change?

1) Term Number	1	2	3	4	5
x	15	30	45	60	75
y	5	25	45	65	85
	x	or	y		

2) Term Number	1	2	3	4	5
x	35	70	105	140	175
y	50	80	110	140	170
		or	y		

3) Term Number	1	2	3	4	5
x	320	360	400	440	480
y	125	200	275	350	425
	x	or	y		

4) Term Number	1	2	3	4	5
x	612	635	658	681	704
y	548	575	602	629	656
	x	or	y		

5) Term Number	1	2	3	4	5
x	315	450	585	720	855
y	438	579	720	861	1002
	x	or	y		

6) Term Number	1	2	3	4	5
x	530	715	900	1085	1270
y	655	829	1003	1177	1351
	x	or	y		

Name: _____ 52

Comparing Rates of Change - Employees

Jeffrey is the boss at his company. He determines how much to pay his employees. Sometimes, Jeffrey pays his employees a starting bonus, where they get a one-time payment for starting their job.

Questions Who will get paid more money over time?

	0	1	2	3	4	5	6	7
Cotton[illegible] ($)	750	1000	1250	1500	1750			
Sp[illegible] ($)	0	400	800	1200	1600			

a) Who will [illegible] _____

b) How much is [illegible] _____

c) How much is Spen[illegible] _____

d) Whose earnings increase[illegible] _____

Weeks	0	1	2	3	4	5	6	7
Jacob's Earnings ($)	1550	2000	24[illegible]	[illegible]				
Jeremy's Earnings ($)	0	650	1300	[illegible]				

a) Who will earn more after 7 weeks? _____

b) How much is Jacob's earnings per week? _____

c) How much is Jeremy's earnings per week? _____

d) If we graphed both of their earnings, whose graph would be steeper? _____

Weeks	0	1	2	3	4	5	6	7
Amelia's Earnings ($)	0	600	1200	1800	2400			
Raven's Earnings ($)	250	825	1400	1975	2550			

a) Who earned a bonus to start their job? _____

b) How much is Amelia's earnings per week? _____

c) How much is Raven's earnings per week? _____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ____________________

Who will plant more trees over time?

Ethan an[illegible] are planting trees in a communi[illegible] They each plant a certain [illegible] each month.

Month	0	1	2	3	4	5	6	7
E	[illegible]	[illegible]	880	[illegible]	[illegible]			
M	0	400	[illegible]	[illegible]	[illegible]			

Who will have pl[illegible] more [illegible] 7 months? ____________________

How many trees does Etha[illegible] month? ____________________

How many trees does Mia plant per week? ____________________

Name: ____________________

Who will plant more trees over time?

Ethan and Mia are planting trees in a community park. They each plant a certain number of trees each month.

Month	0	1	2	3	4	5	6	7
E	360	620	880	1140	1400			
M	0	400	800	1200	1600			

Who will have planted more trees after 7 months? ____________________

[illegible] many trees does Ethan plant per [illegible]

Ho[illegible] does Mia plant per [illegible]

Name: ____________________

Who will plant more trees over time?

Ethan and Mia are planting trees in a community park. They each plant a certain number of trees each month.

Month	0	1	2	3	4	5	6	7
E	360	620	880	1140	1400			
M	0	400	800	1200	1600			

Who will have planted more trees after 7 months? ____________________

How many trees does Ethan plant per month? ____________________

How many trees does Mia plant per week? ____________________

Nam[illegible] ____________________

Who will pl[illegible]or[illegible]

Ethan and Mia are[illegible] community park. They e[illegible] a certain number of trees [illegible] month.

Month	0	1	2	3	4	5	6	7
E	360	620	880	1140	1400			
M	0	400	800	1200	1600			

Who will have planted more trees after 7 months? ____________________

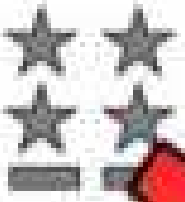
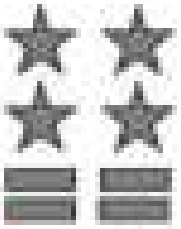
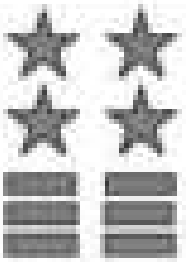
How many trees does Ethan plant per month? ____________________

How many trees does Mia plant per week? ____________________

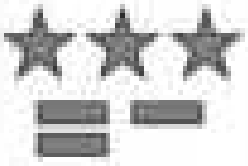
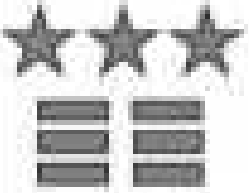
Name: _____ 54

Writing Algebraic Expressions – Growing Pattern

Questions Draw the 4th and 5th term, then answer the questions.

Term 1	Term 2	Term 3	Term 4	Term 5
				

1) Questions	Expression
a) Write an expression that represents how many shapes are in the pattern.	
b) How many shapes will be in the 10th term?	
c) How many shapes will be in the 20th term?	
d) How many **rectangles** will be in the 50th term?	
e) How many **stars** will be in the 1000th term?	

Term 1	Term 2	Term 3	Term 4	Term 5
				

2) Questions	Expression
a) Write an expression that represents how many shapes are in the pattern.	
b) How many shapes will be in the 10th term?	
c) How many shapes will be in the 20th term?	
d) How many **rectangles** will be in the 50th term?	

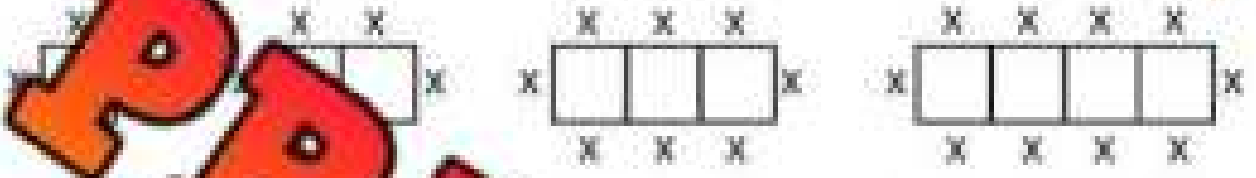
Name: _____ 56

Picnic Word Problem – T-Tables

Challenge Answer the word problem below. Use the T-Table to help.

You have been put in charge of organizing the end of the year banquet for your baseball team. You want to have as many seats as you can.

The diagram below shows how many people can sit at the tables.



a) Fill in the table to learn about the pattern of how many people can attend the banquet.

Tables	1	2	3	5	10	20	50
# of Seats							

b) Write the algebraic expression you used to find the

c) What if you didn't put the tables together? Would 8 tables fit if they were less than 8 tables apart? Draw a diagram to help and fill in the

Tables	1	2	3	4	5	6	20	50
# of Seats	4							

d) Write the algebraic expression you could use to solve any number of tables.

Name: _____ 57

Hockey Tickets – Challenge Problem

Challenge | Answer the word problem below.

Nathan is organizing a trip to see a hockey game with his friends. The cost for the bus rental is $200. The cost per person is $20.

a) Write an algebraic expression that represents the cost if p people go.

b) How much does the trip cost Nathan if 5 people go?

c) How much does the trip cost Nathan if 20 people go?

d) Nathan wants to offer food as well. Suppose food costs $10 per person. Write an algebraic expression that represents the cost of the bus, food, and ticket if p people go.

e) Suppose 20 people attend the hockey game and get food. How much will it cost Nathan?

f) How much will Nathan charge each person if 20 people go?

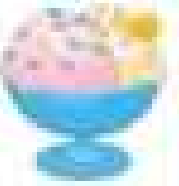
Name: _____ 58

Ice Cream Sundae – Challenge Problem

Challenge Answer the word problem below.

At Ivy's Ice Cream Shop, a plain ice cream sundae costs $5.00. Each extra topping costs $0.50.

a) Write an algebraic expression that represents the cost of a sundae with e extra toppings.



b) Alex wants a sundae with 5 toppings. How much will it cost?

c) Warren ordered a sundae with 8 toppings. How much will it cost Warren?

d) Warren paid with a $20 bill. How much change should he receive?

e) On Thursdays, sundaes are half price! Write an algebraic expression that represents the cost of a sundae with e extra toppings.

f) Dan ordered a sundae on Thursday with 10 toppings. How much did it cost him?

Name: _____ 65

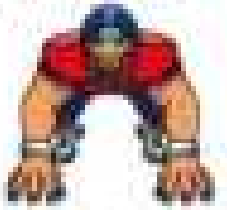
Integer Pattern – Adding Word Problem

-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Instructions Answer the word problem below.

Richard i[illegible] football. He plays defense, so he is often running backwards. He decides [illegible] steps forwards and backwards. For every step forward, he adds [illegible] backward, he adds –1.

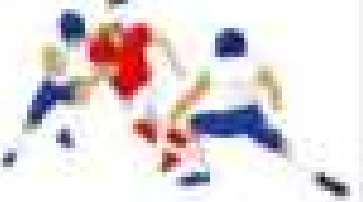
a) E[illegible] quarter[illegible] takes 50 steps forwards, and –100 steps backwards. If every st[illegible] step forward, how many steps did Richard take in the 4 qu[illegible] the



b) Fill in the table of values that r[illegible] how[illegible] steps Richard takes in two games (8 quarters).

1	2	3	4	5	[illegible]

c) Write an algebraic expression to help you solve how many step[illegible]ard took in *n* number of quarters.



d) In 5 games, does Richard take more steps forward or backward?

e) How many steps does Richard take in 5 games?

Name: _____ 66

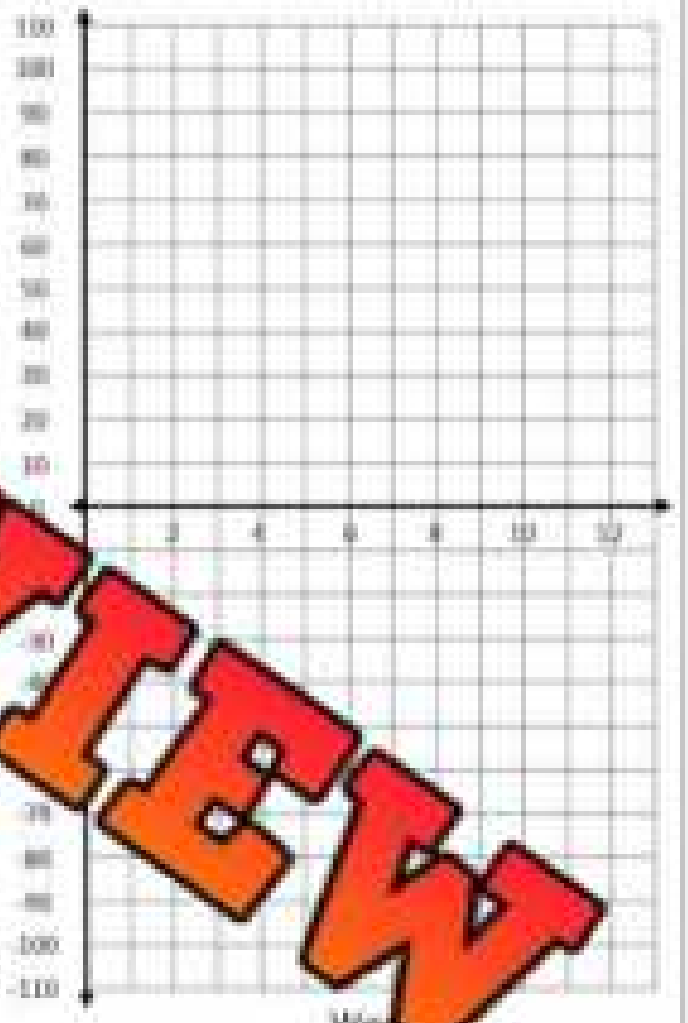
Pattern Using Negative Integers – Olivia's Money

Instructions: Answer the problems below.

Olivia owes her sister $100, and she has no other money. Therefore, she has -$100. Luckily, she gets an allowance of $15 a week.

Fill in the table of values below to learn more about how long it will take Olivia to pay back her sister.

Term	Term Value (Money)



a) Graph the table of values.

b) How many weeks will it take for Olivia to pay back her sister?

c) Is this a linear pattern? Explain how you know.

d) Use the graph to determine how much money Olivia will have in 12 weeks.

e) Use an algebraic expression to determine how much money Olivia will have in 26 weeks.

Name: _____ 68

Integer Patterns – Writing Subtraction Rules

-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Instructions Write a subtraction pattern rule and complete the pattern.

1)

3		-3	-6			

2)

-2			7			

3)

-5	-7	-9				

4)

10	7	4	1			

5)

18	13	8	3			

6)

-19	-13	-7	-1			

7)

-3	-6	-9	-12			

8)

12	9	6	3			

Name: _____ 70

Integer Patterns – Average Temperatures

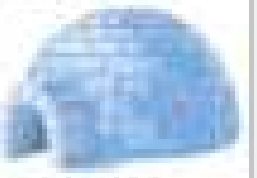
Instructions Fill in the blanks below using the pattern rule.

In one of the coldest cities in Canada, the average temperature in January is -32. Every month after January until August, the temperature warms +8° C. In September, the pattern reverses, with the temperature decreasing each month by -11° C. From December to January, the temperature drops -12° C.

Month	Temperature
January	-32
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

a) Fill in the table to display the average temperatures each month.

b) What is the difference in temperatures between January and August?



c) [illegible] pattern rule from January to

d) What [illegible] September to December?

e) What is the difference in temperatures between February and July?

f) Which month has the biggest change in temperature?

g) If you wanted to escape the coldest winter months, which months would you travel south for?

Name: _____ 71

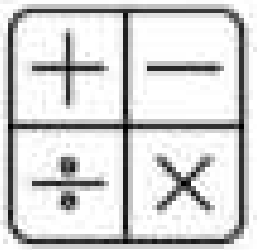
Task Cards: Patterning – All Operations

Objective What are we learning about?

To recognize and create patterns using the four basic mathematical operations.

Materials What will you need for the activity?

- 24 t
- [illegible] for answers
- [illegible]



Instructions [illegible] the activity?

1. Introduce the concept [illegible] operations and their relevance to problem-solving in everyday life.
2. Organize the students into pairs and provide each pair with their sets of task cards.
3. Give each pair an answer recording sheet [illegible] pencils.
4. Encourage teamwork by having students collaborate [illegible] on finding solutions.
5. Allow students to select any task card to begin with, emphasizing that they can complete the cards in any order they prefer.
6. Instruct students to record the letter of their chosen answer (A, B, or C) on their answer sheet beside the task card's number.
7. Consider using a timer to create a dynamic challenge, adjusting the duration to fit the lesson's objectives and complexity.
8. After the activity, review the answers collectively, discussing any challenging patterns and strategies used to solve them.
9. Have students reflect on the activity, sharing the methods they applied and obstacles they overcame.

Name: _____ 72

Task Cards | Cut out the task cards below

Card 1:
Start with 60. Add 20 and then divide by 4 for the next number. What is the second number?

a) 20
b) 15
c) 25

Card 5:
Begin with 25. Subtract 5 and then divide by 2 for the next number. What is the third number?

a) 7.5
b) 10
c) 12.5

Card 2:
Begin with [illegible] then multiply by 2 [illegible] What is the [illegible]

a) 75
b) 150
c) 50

Card 6:
Start at 50 and subtract 10 each time. What is the fourth number?

a) 10
b) 20
c) 30

Card 3:
Start with 30. Divide by 3 and then add 10 for the next number. What is the second number?

a) 20
b) 15
c) 30

Card 7:
[illegible] 2 and then subtract [illegible] What is [illegible]

a) [illegible]
b) 20
c) 32

Card 4:
Start at -10. add 5 each time. What is the third number?

a) 0
b) 5
c) 10

Card 8:
Begin with 200. Divide by 5 and then subtract 15 for the next number. What is the third number?

a) 5
b) 10
c) 20

Name: _____ 14

Task Cards | Cut out the task cards below.

Card 17:
Start with -32. Divide by 8 and then subtract 2 for the next number. What is the second number?

a) -2
b) 6
c) -6

Card 21:
Start with 36. Divide by 6 and then add 7 for the next number. What is the second number?

a) 13
b) 12
c) 15

Start at -20, [illegible] is the [illegible] number?

a) -4
b) 0
c) -8

Card 22:
Begin with 120. Subtract 40 and then divide by 4 for the next number. What is the third number?

a) 20
b) 10
c) 15

Card 19:
Begin with 45. Subtract 15 and then multiply by 2 for the next number. What is the second number?

a) 30
b) 15
c) 60

[illegible] 2 and then subtract [illegible] number. What is [illegible]

a) [illegible]
b) -30
c) -42

Card 20:
Start with 50. Multiply by 2 and then subtract 25 for the next number. What is the second number?

a) 75
b) 50
c) 100

Card 24:
Start at 100, subtract 25 each time. What is the fourth number?

a) 25
b) 0
c) 50

Name: _____ 75

Integer Patterns - Exponents

Part 1 Investigate patterns when squaring integers.

1^2	2^2	3^2	4^2	5^2	6^2	7^2	8^2	9^2	10^2

Part 2 Investigate the use of powers of 10

		10^3	10^4	10^5

10^6			10^9	10^{10}

Part 3 What happens when we multiply by powers of 10?

Number	x 10	10^3	10^2		10^7
3					
5					
9					
15					
22					
52					
103					

Name: _____ 76

Algebra Quiz - Patterning

Part 1 Label the A/B patterns below and then extend the pattern.

1)

1) What ... term in the pattern be?

2) W... in the pattern be?

Part 2 ... each term? Sketch the next 3 terms.

1)

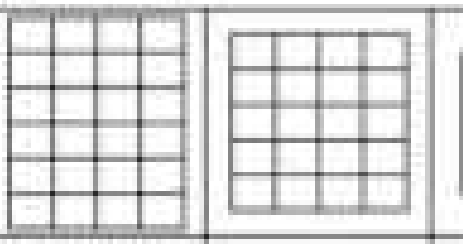
1) Describe the recursive relationship betwe...

2) Represent the pattern using an algebraic expression.

3) How many blocks will the 15th term have?

4) How many blocks will the 30th term have?

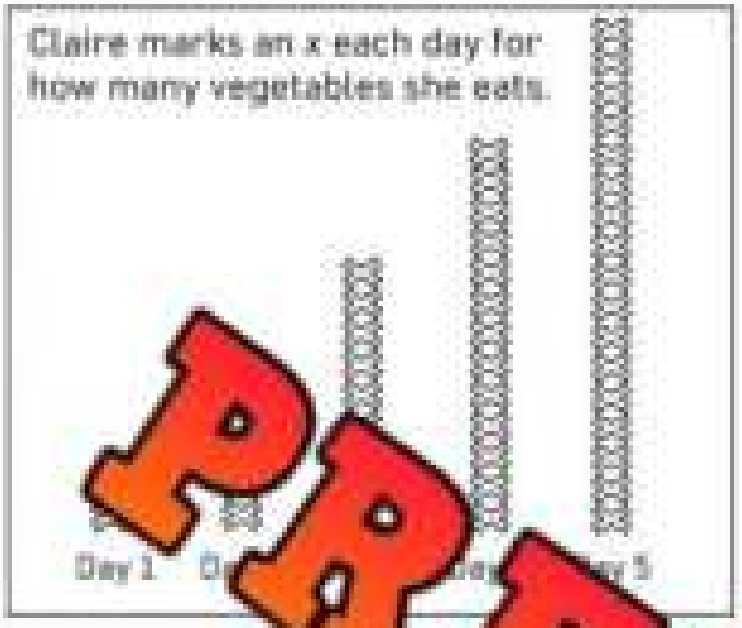
2)

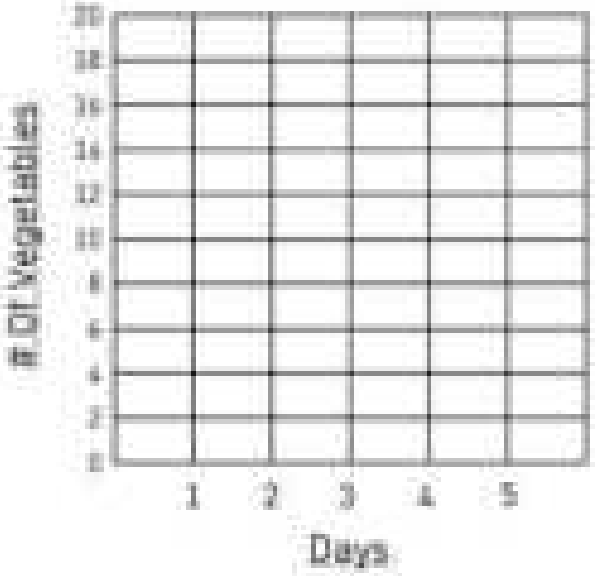


Describe the recursive relationship between the number of blocks.

Part 3 Translate the growing patterns into a table of values and a graph.

Claire marks an x each day for how many vegetables she eats.





Term Number (Day)					10	25
Term Value (Vegetables)						

Part 4 Fill in the input/output tables [illegible]

Rule: add 7	
In	Out
135	
142	
163	
178	

Rule: multiply [illegible]	
In	Out
3	
5	
8	
11	

[illegible] subtract 8	
	Out
453	
488	

In n	Out $2n + 5$
1	
2	
3	
4	
5	

In n	Out $2n + (-3)$
5	
10	
15	
20	
25	

In n	Out $n - (-5)$
-1	
-2	
-3	
-4	
-5	

Part 5 Answer the word question below.

Admission to Fun Haven is $10. For each ride in Fun Haven, it costs an additional $2.

a) Write an algebraic expression that represents the cost to enter Fun Haven and ride extra e rides.

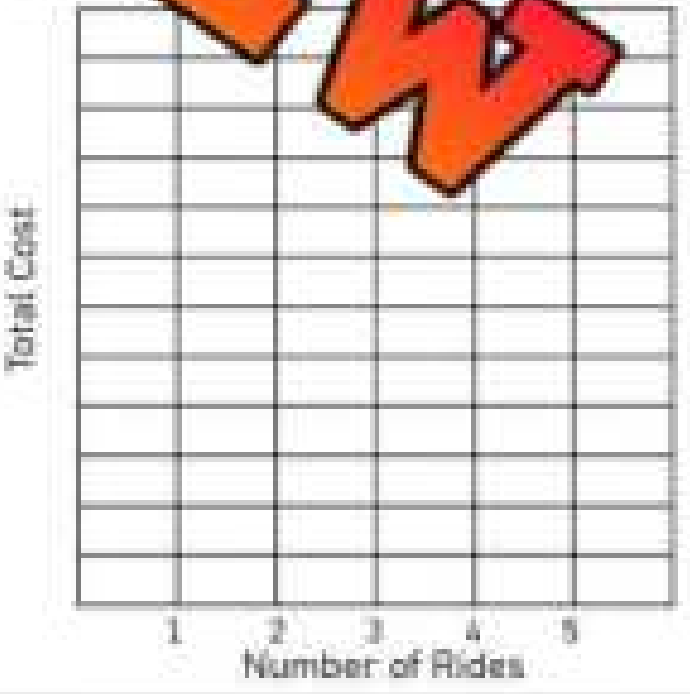
b) Claire entered the park and has gone on 8 rides. How much did it cost her?

c) Claire has $ [illegible] the park. How many rides can she go on?

d) Fill in the table below [illegible] related to going to Fun Haven.

Number of Rides	0	1	2	[illegible]	4	5	6
Total Cost							

e) Translate the table of values into a line graph.



f) Is the rate of change constant?

YES NO

g) What is the rate of change?

Part 6 Who will get paid more money over time?

Weeks	0	1	2	3	4	5	6	7
Sam's Earnings ($)	500	650	800	950				
Logan's Earnings ($)	0	250	500	750				

a) Who will earn more after 7 weeks? _____

b) How [illegible] Sam's earnings per week? _____

c) [illegible] earnings per week? _____

d) Whose [illegible] greater constant rate? _____

e) Who received [illegible] without working? _____

Part 7 Draw the [illegible] nswer the questions.

Term 1	Term 2	Term 3	Term 4	Term 5

Questions	Expression
a) Write an expression that represents how many shapes are in the pattern.	
b) How many shapes will be in the 10th term?	
c) How many shapes will be in the 20th term?	
d) How many rectangles will be in the 100th term?	
e) How many stars will be in the 1000th term?	

Grade 7
C2. Equations and Inequalities

	Curriculum Expectations	Pages That Cover the Expectations
C2.1	add and subtract monomials with a degree of 1 that involve whole numbers, using tools	81 - 88
C2.2	evaluate algebraic expressions that involve whole numbers and decimal numbers	89 - 102
C2.3	solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions	103 - 159
C2.4	solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions	160 - 178

Name: _____ 61

Adding Monomials

Questions | Add the monomials together.

1) 5n + 2n = _____n	2) 7p + 2p = _____p	3) 16t + 11t = _____t
4) [illegible] = _____	5) 27n + 34n = _____n	6) 24p + 39p = _____p
7) 5y + 11y + 13y = _____y	8) [illegible] = _____n	9) 27x + 36x + 34x = _____x
10) n + n + 91n = _____n	11) 14y + 9y + 18y = _____y	12) [illegible] 24p + 21p
13) 15y + 14y + 29y = _____y	14) 22n + 34n + n + 9n = _____n	15) 8y + 12y + 7y + 23y = _____y
16) 17y + 24y + 35y + 25y = _____y	17) 33t + 27t + 13t + 7t = _____t	18) a + 94a + 15a + 21a = _____a

Name: _____ 82

Adding Monomials

Multiple Choice Circle the correct answer

1) 10s + 6s	6) 22p + 7p
a) 16s	a) 29
b) 15s	b) 28
c) 16	c) 29p
d) 16s²	d) 29p²
2) 59x + 2b	7) 65n + 37n
a) 59x	a) 97n
b) 59b²	b) 102n
c) 59b	c) 102n²
d) 59	d)
3) 12y + 9y + 8y	8) 2n + 6n + 15n
a) 28y	a)
b) 28y²	b)
c) 29y	c) 67n
d) 29y²	d) 67n
4) n + 63n + 46n	9) 18y + 19y + 14y +
a) 110	a) 59y
b) 111n	b) 58y
c) 110n	c) 59y²
d) 111	d) 58y²
5) 22y + 13y + 28y + y + y	10) 27n + 22n + 11n + 8n
a) 64y	a) 68n
b) 65y²	b) 68n²
c) 65y	c) 67n²
d) 66y	d) 67

Name: _____ 83

Adding Monomials

Questions | Add the monomials together.

1) 6n + 2c + 3c + 5n	2) 9s + 2r + 7s
= _____n + _____c	= _____s + _____r
3) 18n + 22n	4) 15n + 11c + 13c + 15n
= _____n = _____	= _____n + _____c
5) 15s + 21r + 13s	6) 7s + 11r + 15s + 8r
= _____s + _____r	= _____
7) 9n + 14c + 11c + 25n	8) 21n + 2
= _____n + _____c	= _____n + _____c
9) 32y + 54b + 41b + 35y	10) 48n + 63c + 71c + 85n
= _____y + _____b	= _____n + _____c

Name: ______________________ 85

Simplifying Expressions - Adding Monomials

Questions Simplify the expressions by solving one step at a time.

1) 3m + 9m + (7y + 10y)
3m + 9m + 17y
12m + 17y

17y

2) 15s + (2r + 9r) + 7s

= ______s = ______r

3) 8n + 1 + 28p)

= ______n = ______

4) (19n + 11n) + 14c + 21c

______n = ______c

5) 25s + 22s + (21r + 16r)

= ______s = ______r

6) (21r + 18r) + 8r + m

= ______s m

7) 11y + 13n + 17c + 13c + 28n + 3y

= ______n = ______c = ______y

8) 26n + (31y + 16 + 22n

= ______n = ______c = ______y

9) c + 41y + 36b + 31b + 35y + c

= ______y = ______b = ______c

10) 51n + (65c + 51c) + 35n + (11y + 9y)

= ______n = ______c = ______y

Name: _____ 8b

Adding Monomials – Missing Addend

Part 1 What is the value of the missing addend?

1)	3y + 6y = 9y	11)	32y + ☐ = 46y
2)	8m + ☐ = 15m	12)	41t + ☐ = 59t
3)	[illegible] = 23t	13)	57b + ☐ = 66b
4)	[illegible] 29b	14)	43k + ☐ = 75k
5)	[illegible]	15)	72y + ☐ = 89y
6)	15r + ☐ = [illegible]	[illegible]	87n + ☐ = 109n
7)	18t + ☐ = 27t	[illegible]	105b + ☐ = 129b
8)	46y + ☐ = 52y	[illegible]	☐ = 115y
9)	19n + ☐ = 35n	19)	[illegible] 107r
10)	33b + ☐ = 59b	20)	[illegible]

Part 2 Write an addition equation using the monomials provide[illegible]

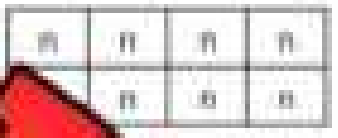
1)	9y	23y	14y	2)	24n	16n	8n
3)	22b	35b	13b	4)	19c	26c	45c
5)	54y	73y	19y	6)	41n	33n	74n

Name: _____ 87

Subtracting Monomials - Tiles

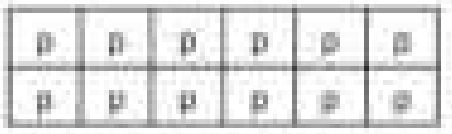
Questions Subtract the monomials by crossing out the tiles you've subtracted.

1) 8n – 4n – 3n



= _____n

2) 12p – 5p – 4p

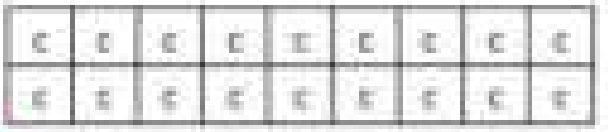


= _____p

3) 1[illegible]4s

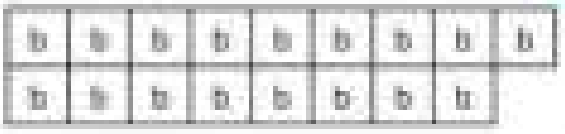
= _____s

4) 18c – 12c – 3c



= _____c

5) 17b – 9b – 3b

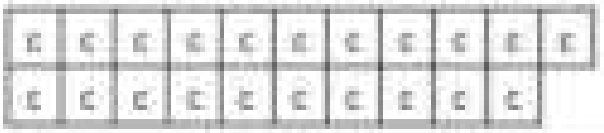


= _____b

6) 20y – 5y – 3y

= _____y

7) 21c – 7c – 11c

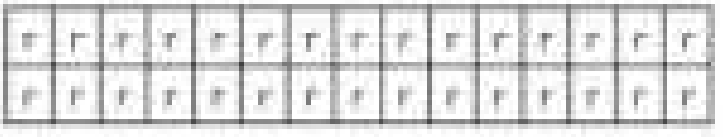


= _____c

8) 24n[illegible]

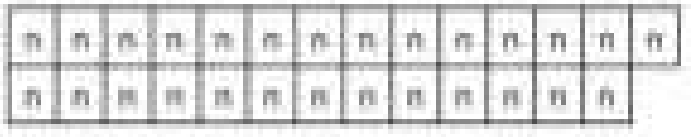
= _____n

9) 30r – 5r – 3r



= _____r

10) 27n – 17n – 8n



= _____n

Name: _____ 88

Subtracting Monomials

Questions | Subtract the monomials.

1) 7n - 2n = _____n	2) 9p - 4p = _____p	3) 15t - 10t = _____t
4) [illegible] = _____	5) 28n - 14n = _____n	6) 34p - 19p = _____p
7) 21y - 11y - y = _____y	8) [illegible] = _____n	9) 29x - 16x - 4x = _____x
10) 33n - 11n - 11n = _____n	11) 39y - 7y - 8y = _____y	12) [illegible] - 24p = _____p
13) 65y - 24y - 15y = _____y	14) 52n - 34n - n - 11n = _____n	15) 57y - 12y - 7y - 9y = _____y
16) 77y - 24y - 25y - 25y = _____y	17) 63t - 17t - 13t - 7t = _____t	18) 94a - 25a - 21a - a = _____a

Name: _____ 90

Equation or Expression?

Questions Is the number sentence an expression or equation?

1) Paul has 5 cookies but needs enough for 10 people. $5 + c = 10$	Equation	Expression
2) The pa[illegible] the following rule: [illegible]$3n - 1$	Equation	Expression
3) Maria want[illegible] week. She has already run 22km. [illegible]22	Equation	Expression
4) The cost to enter an a[illegible] p[illegible] ticket. $20t$ or $(t \times 20)$	Equation	Expression
5) Jeff works at a garden centre and earns $[illegible] hour. He can figure out his pay by using the follo[illegible] $15h$ or $(h \times 15)$	[illegible]	Expression
6) Bailey made $200 last week working with her mom. She worked 10 hours. $10 \times w = 200$	E[illegible]	[illegible]ion
7) Jane had 150 candies to give away on Halloween. She has 30 left. $150 - c = 30$	Equation	Expression
8) Ashley had 200 candies to give away on Halloween. She will give 2 candies to each kid. How many kids can she give candy to? $200 \div 2 = k$	Equation	Expression
9) Candy bags come in 30 packs. The total number of candies is represented below: $30b$	Equation	Expression

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Is the number sentence an expression or equation? Circle the answer:

1) The total cost of bananas at $0.30 per banana can be calculated using the following: 0.30b

Expression Equation

2) Jake has 48 marbles and wants to divide them equally among his 6 friends. The number of marbles each friend will get is represented by: 48 ÷ 6 = m

Expression Equation

Name: _____

Is the number sentence an expression or equation? Circle the answer:

1) The total cost of bananas at $0.30 per banana can be calculated using the following: 0.30b

Expression Equation

2) Jake has 48 marbles and wants to divide them equally among his 6 friends. The number of marbles each friend will get is represented by: 48 ÷ 6 = m

Expression Equation

Name: _____

Is the number sentence an expression or equation? Circle the answer:

1) The total cost of bananas at $0.30 per banana can be calculated using the following: 0.30b

Expression Equation

2) Jake has 48 marbles and wants to divide them equally among his 6 friends. The number of marbles each friend will get is represented by: 48 ÷ 6 = m

Expression Equation

Name: _____ 92

Writing Algebraic Expressions

Using algebraic expressions helps us understand mathematical situations. We can use a variable to replace a changing number, like how many tickets are sold to a game – t x 10

Part 1 Write each algebraic expression in words.
Use the words "a number" in place of the variable.

1) $7 - t$

Seven s… number

2) n

3) $8 + b$

4) $9r$

5) $\frac{y}{5}$

Part 2 Write an algebraic expression for ea… nt.

1) Nineteen add a number

2) Divide a number by three

3) A number is subtracted by nineteen

4) Triple a number and add seven

5) Subtract 19 from a number, then multiply by four

Name: _____ 93

Writing Algebraic Expressions - Treats

A mathematical expression is similar to an equation, but it does not have an equal sign. We use expressions to describe a mathematical situation.

Instructions Write the expressions for the situations below.

1) Lindsay has y amount of cookies. She gives 27 cookies away to the students in her class.

Expression:

2) Carl cuts b brownies into b pieces. She eats 3 brownies.

Expression:

3) Alyse makes b cookies b equally with her 5 friends.

Expression:

4) Hani gives 3 candies to each of his b friends.

Expression:

5) Scott has 14 sodas in his fridge and buys b sodas.

Expression:

6) Dan buys 3 dozen donuts and eats d number of donuts.

Expression:

7) Steve buys x number of cookies and gives 31 to his staff.

Expression:

8) Alexa has 100 suckers that she shares equally with her f number of friends.

Expression:

9) Brian has 250 gummy worms and takes n number of gummies from his brother.

Expression:

10) Howard gives 4 books each to s number of students.

Expression:

Name: _____ 9k

Finger Signals Quiz - Understanding Algebraic Expressions

Objective What are we learning about?

Students will reinforce their understanding of algebraic expressions through an interactive finger signals quiz.

Materials What will you need for the activity?

- A list of q

Instructions How will you explain the activity?

1. Prepare a list of questions with answer choices labeled A, B, C, and D.
2. Explain the finger signals for each answer choice: one finger for A, two fingers for B, three fingers for C, and four fingers for D.
3. Inform the students they will show their answer using finger signals when you read each question.
4. Read the first question aloud clearly and repeat if necessary.
5. Give students a few moments to think about their answer and decide independently.
6. After a countdown (e.g., "3, 2, 1"), have all students show their answer simultaneously by raising the appropriate number of fingers.
7. Reveal the correct answer and explain why it is correct.
8. Repeat with different questions to reinforce understanding of algebraic expressions.

Name: _____ 95

Question	A	B	C	D
A teacher has s students and divides them evenly into 5 groups. How many students are in each group?	$5s$	$5 - s$	$s + 5$	$5 \div s$
A gardener plants f flowers in each of 8 rows. What is the total number of flowers planted?	$8+f$	$8-f$	$8f$	$f \div 8$
A farmer has c cows and buys 14 more. How many cows does he have now?	$c-14$	$c+14$	$c=14$	$14c$
A painter u[illegible] litres of paint each day for 10 days. H[illegible] paint does he use in total?	$p+10$	$p-10$	$10p$	$p \div 10$
A pain[illegible]nt each day, for 10 da[illegible] then [illegible]. How much paint is [illegible]?	$10p-2$	$10+p-2$	$10p+2$	$p \div 10-2$
A cyclist rides [illegible] and [illegible] more kilometres. What is [illegible]	$b+10$	$b-10$	$10b$	$b \div 10$
A baker uses b cups of [illegible] and more cups. How much flour	[illegible]$+7$	$b-7$	$7b$	$b \div 7$
A writer types w words each minute for minutes. What is the total number of wo[illegible]	[illegible]$+30$	$w-30$	$30w$	$w \div 30$
An artist splits a litres of paint into 6 containers and then uses 2 more litres in each container. How much paint is used in each container?	[illegible]$+2$	[illegible]	[illegible]$\div 6+2$	$6a+2$
A factory produces p parts and then packages them into 4 boxes. How many parts are in each box?	$p+4$	$4p$	[illegible]	$p \div 4$
Lily has m marbles. She buys 5 more and then gives away 2. How many marbles does she have now?	$m+5-2$	$m-5+2$	[illegible]	$m-2+5$
A baker bakes b batches of cookies, each with 12 cookies. What is the total number of cookies?	$12+b$	$12-b$	$12b$	$b \div 12$
Sam has p pencils. He buys 3 packs of pencils with 4 pencils each and then loses 2 pencils. How many pencils does he have now?	$p+3+4-2$	$p+3-2+4$	$p-3+2+4$	$p+3+4-2$
A gardener plants g flowers in each of 7 rows. He then plants 3 more flowers in each row. How many flowers are there in total?	$7g+3g$	$g+7+3$	$g+7+3g$	$7g-3g$

Name: _____ 96

Evaluating Algebraic Expressions - Addition

Part 1 Evaluate the following expressions for $x = 8$

1) $x + 12$	2) $8 + x$	3) $23 + x$	4) $x + 24$
5) 41	6) $63 + x$	7) $82 + 13 + x$	8) $92 + x + 11$

Part 2 Evaluate the following expressions for $y = 8$ and $n = -2$

1) $y + (n)$	2) $5 + y$	$+ (n)$	4) $y + 12 + (n)$
5) $43 + y + (n)$	6) $(n) + y + 20$	7)	$+ (n) + y$

Part 3 Evaluate the following expressions for $x = -5$ and $p = 5$

1) $(x) + (p) - 10$	2) $10 + (x) + (p)$	3) $15 + (x) + (p)$	4) $(x) + 11 + (p)$
5) $(p) + 20 + (x)$	6) $(x) + 18 + (p)$	7) $(x) + 5 + (p)$	8) $22 + (p) + (x)$

Name: _____ 98

Evaluating Algebraic Expressions - Subtraction

Subtraction Integers Rule

To subtract integers, it is easiest to change the operation to addition and then follow the addition rules. We can do this by using the rule – Keep, Flip, Change. We keep the first number the same, flip the operation from subtraction to addition, and then change the third number's sign.

Example: 5 – (-6) = 7 becomes 5 + 6 = 11

- **Keep** the first integer
- **Flip** the operation
- **Change** the sign of the next integer

Part 1

Evaluate the following expressions for $x = 5$

1) $x - 12$	2)	3) $23 - x$	4) $x - 24$
5) $41 - x$	6) $63 - x$	7)	8) $92 - x - 11$

Part 2

Evaluate the following expressions for $y = 10$ and $n =$

1) $y - (n)$	2) $11 - (n) - y$	3) $15 - y - (n)$	4) $y - 6 - (n)$
5) $21 - y - (n)$	6) $(n) - y - 13$	7) $y - (n) - 3$	8) $32 - (n) - y$

Name: _____ 99

Evaluating Algebraic Expressions - Cafe

Whitney works at a café selling muffins, coffee, tea, and scones. She uses algebraic expressions to determine the cost of her customer's orders.

Menu	
Scone (s)	$3.50
Muffin (m)	$2.25
Tea (t)	$2.00
Coffee (c)	$2.50

Solve Write an algebraic expression and then evaluate using the menu prices.

Customer Order	Expression	Answer
1) 2 coffees, 1 muffin	$2c + m$ $2 \cdot 2.25$	$7.25
2) 3 teas, 1 scone		
3) 4 coffees, 2 teas		
4) 2 coffees, 2 teas, 2 muffins		
5) 3 teas, 4 muffins, 2 scones		
6) 10 coffees, 10 muffins		
7) 5 teas, 3 muffins, 2 scones		
8) 3 coffees, 3 scones		

Name: _____ 100

Evaluating Algebraic Expressions - Canteen

Brad works at a canteen selling chips, drinks, and gummies. He calculates the cost of orders (c) and subtracts it from the payment (p) he is given - to determine how much change to give his customers.

Menu	
Chips	$1.50
Drinks	$2.50
Gummies	$1.00

Evaluate Solve the subtraction expressions below.

Variable Values		Expression - Customer's Change
	p	$p - c$
[illegible]	$20.00	
$17.50	$2[illegible]	
$9.25	[illegible]	
$35.65		

Evaluate Calculate the order and [illegible] customer's change.

Order			Expression	Payment	Change (c)
c	d	g			
1	0	2	$c + (2 \times g)$ $1.50 + (2 \times 1.00)$ $1.50 + 1.00$ $2.50	$5[illegible]	
3	1	0		$10.00	
1	2	1		$10.00	
2	2	2		$20.00	
3	3	5		$20.00	

Name: _____ 105

Addition – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal.

8 + 4 = 12 23 + 15 ≠ 36 47 + 13 = 60

Part 1 Put a slash through the equal sign (≠) if it is not balanced.

	2) 51 + 15 = 67	3) 47 + 13 = 60
4) 65 + [illegible]	[illegible] + 13 = 87	6) 92 + 11 = 103
7) 95 + 25 = 110	[illegible]	9) 144 + 17 = 171
10) 155 + 26 = 181	11) [illegible] 144 = [illegible]	12) 212 + 12 = 224

Part 2 Fill in the missing number to bal[illegible] equation.

1) ☐ + 12 = 95	2) ☐ + 25 = 50	3) ☐ [illegible]
4) 72 + 14 = ☐	5) 64 + ☐ = 80	6) ☐ + 50 = 65
7) 68 + ☐ = 82	8) 83 + 15 = ☐	9) 89 + ☐ = 102
10) 105 + ☐ = 116	11) 121 + 14 = ☐	12) 145 + ☐ = 160

Name: _____ 106

Addition – Find the Variable

When we write an algebraic expression with an equal sign, it becomes an equation. An equation is a statement that two expressions are equal.

We can solve for a variable by balancing an equation, making sure both sides of the equal sign have the same value.

Part 1 Find out the value of the variable.

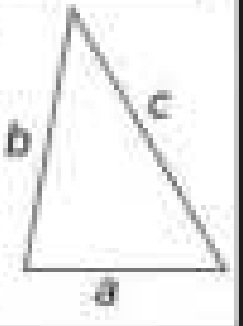
n =	2) $n + 15 = 22$ n =	3) $32 + n = 41$ n =
4) 45 =	5) $41 + p = 62$ p =	6) $p + 63 = 81$ p =
7) $77 + y = 96$ y =	8) [illegible] [illegible]	9) $132 + 15 = y$ y =
10) $157 + t = 192$ t =	11) [illegible] t =	12) $236 + t = 248$ t =
13) $123 + a = 243$ a =	14) $165 + a$ = [illegible] a =	[illegible] $a = 308$
16) $238 + 449 = s$ s =	17) $311 + n = 445$ s =	

Part 2 The formula for calculating the perimeter of a shape is to add the side lengths.

Use the following equation to find the perimeter of a triangle: $p = a + b + c$

1) a=6 b=12 c=10	p=
2) a=7 b=15 c=19	p=
3) a=9 b=17 c=23	p=

4) a=22 b=15 c=41	p=
5) a=19 b=32 c=49	p=
6) a=25 b=23 c=46	p=



Name: _____ 110

Adding Decimals – Solve The Variable

Practice Find the value of the variables below.

1) $4.5 + n = 6$ $n =$	2) $n + 5.5 = 7$ $n =$	3) $s + 5.3 = 8$ $s =$
4) [illegible] [illegible]	5) $9.2 + p = 11$ $p =$	6) $10.1 + r = 11.5$ $r =$
7) $15.3 + n$ [illegible] $n =$	[illegible] $= 20.5$	9) $t + 14.4 = 18$ $t =$
10) $24.6 + n = 28.2$ $n =$	11) [illegible] $= 4$ $t =$	12) $31.6 + 5 = p$

Word Problem Write the equations below and find the

1) Jake has 1.25 pizzas left over from last night. His friend brings over some more pizza. They now have 4.25 pizzas. How much pizza did his friend bring?

2) Kelly is 1.5 meters tall. She hopes to grow to be 1.75 metres tall. How much will she have to grow?

3) Carter has $1.33 but needs $1.88 to buy a bag of chips. How much more does he need?

Name: _____ 111

Addition Equations – Golf Tournament

Zack hosted a 2-round golf tournament. He has the results and needs to find out who won the tournament. The leaderboard is below but is missing numbers.

Instructions Fill in the leaderboard.

Player	Round 1	Round 2	Final Score
[illegible]	-2	-3	
Charlie			-5
Dominic		-2	-6
Kayden		-1	
Silas			-1
Lillian	3		
Brooklyn	-2		-3
Natalie			-1
Andrew	-4	6	
Santiago		5	

Results Who won the golf tournament?

1) Who won the golf tournament?	
2) The entry fee for the tournament was $100. All the money went to the prize (p). Write an equation that determines the value for (p).	
3) More golfers joined the tournament. The prize ended up being $1400. Write an equation that determines how many golfers (g) participated in the tournament.	

Name: _____ 112

Addition Equations – Golf Tournament - Challenge

Zack hosted a 4-round golf tournament. He has the results and needs to find out who won the tournament. The leaderboard is below but is missing numbers.

Instructions Fill in the leaderboard.

Player	Round 1	Round 2	Round 3	Round 4	Final Score
R		-5	3	-6	
Charlie		1	3		-5
Dominic				7	-6
Kayden	-1	1	-2	-4	
Silas	3	2			-1
Lillian	3	7			2
Brooklyn	-2	-1			-5
Natalie		5		-4	-1
Andrew	-4	6	2		
Santiago		5	1		2

Results Who won the golf tournament?

1) Who won the golf tournament?	
2) The entry fee for the tournament was $100. All the money went to the prize (p). Write an equation that determines the value for (p)	
3) More golfers joined the tournament. The prize ended up being $1400. Write an equation that determine how many golfers (g) participated in the tournament.	

Name: _____ 114

Addition Equations – Perimeter of a Rectangle

When we calculate the perimeter of a rectangle, we need to add all the sides together. The order of how we decide to add the sides together will not affect the answer due to the communitive property of addition.

Formula 1 – $p = a + b + a + b$
$p = 12 + 4 = 12 + 4$
$p = 32$

Formula 2
$p = 2(a + b)$
$p = 2 \times (12 + 4) = 32$

Part 1 uations for the side lengths below.

#	Side le	ength b	Equation 1	Equation 2
1	5			
2	7			
3	11			
4	15	12		
5	17	15		
6	23	21		
7	28	31		
8	41	46		
9	55	24		
10	35	43		

Part 2 Using multiplication and addition, write two equations for the side lengths.

#	Side Length a	Side Length b	Equation 1	Equation 2
1	7	3	$2 \times (7 + 3) = 20$	$2 \times (3 + 7) = 20$
2	6	8		
3	9	4		
4	5	7		

Name: _____ 115

Subtraction – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal.

16 – 8 = 8 95 – 11 = 86 105 – 12 = 93

Part 1 Put a slash through the equal sign (=) if it is not balanced.

	2) 58 – 11 = 45	3) 59 – 16 = 42
4) 72 –	66 – 27 = 49	6) 79 – 16 = 64
7) 126 – 20 = 109		9) 174 – 13 = 161
10) 181 – 15 = 166	11) 186 – 20 =	12) 195 – 30 = 165

Part 2 Fill in the missing number to balan

1) 36 – 6 = ☐	2) 53 – 7 = ☐	3) ☐ = 71
4) 58 – ☐ = 45	5) 48 – ☐ = 39	6) 65 – ☐ = 55
7) 105 – ☐ = 99	8) 146 – 15 = ☐	9) 91 – ☐ = 75
10) 158 – ☐ = 136	11) 185 – 17 = ☐	12) ☐ – 12 = 67

Name: _____ 117

Subtraction – Find the Variable

A **variable** is a letter that represents an unknown number. When we don't know a number, we can use a letter to take the place of the unknown number.
Example: 39 – *n* = 25
We can figure out the unknown number by balancing the equation. In this equation, *n* = 14.

Part 1 Find out the value of the variable.

1) [illegible] – *n* = [illegible] *n* =	2) *n* – 21 = 35 *n* =	3) 52 – *n* = 41 *n* =
4) 73 – [illegible] *p* =	[illegible] – *p* = 53	6) *p* – 32 = 58 *p* =
7) 87 – *y* = 61 *y* =	8) [illegible]	9) 102 – 13 = *y* *y* =
10) 109 – *t* = 94 *t* =	11) 124 – [illegible] *t* =	143 – *t* = 129
13) 158 – *a* = 127 *a* =	14) 174 – *a* = 142 *a* =	15) [illegible]

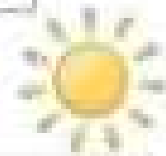
Part 2 Calculate the change a customer gets when they buy something.

When a customer buys something, the formula for calculating their change (*c*) is money given (*m*) subtracted from the price (*p*) of the item. Therefore, *c* = *m* – *p*

m = 20 *p* = 12	*c* = 20 – 12	*c* = 8
m = 40 *p* = 19	*c* = ___ – ___	*c* =
m = 60 *p* = 27	*c* = ___ – ___	*c* =

m = 80 *p* = 61	*c* = ___ – ___	*c* =
m = 100 *p* = 68	*c* = ___ – ___	*c* =
m = 100 *p* = 44	*c* = ___ – ___	*c* =

Integer Patterns – Average Temperatures



Instructions Answer the questions below.

The table below shows the average temperatures in four Canadian cities. We can use the table to compare the average temperatures in February and October.

City	October (o) Temperature	February (f) Temperature	Temperature Difference (d)
[illegible]	6	-7	
[illegible]	10	-3	
Victoria [illegible]	12	6	
Yellowk[illegible]	[illegible]	-21	
Winnipeg (M[illegible]	[illegible]	-14	
Ottawa (ON)	[illegible]	-8	
Eureka (NU)	[illegible]21	[illegible]	
Quebec City (QC)	7	[illegible]	

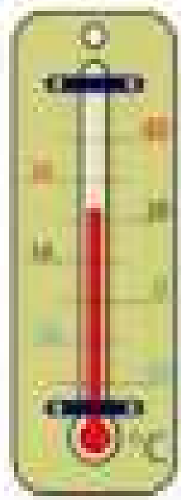
a) Fill in the table with the temperature d[illegible] fr[illegible] to February.

b) Write an equation using the variables: f, o, an[illegible] the difference between the temperatures in each city from Oc[illegible]

c) Which city had the largest difference between their October an[illegible]ary months?

d) What is the difference between Victoria's February temperature and Eureka's February temperature?

e) What is the difference between Yellowknife's October temperature compared with Eureka's October temperature?

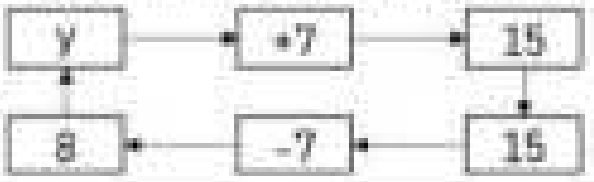


Name: _____ 124

Adding and Subtracting Equations – Flow Chart

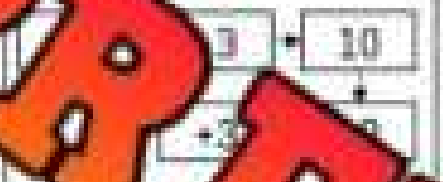
We can use a reverse flow chart to calculate the value of a variable in an equation.

Example: $y + 7 = 15$



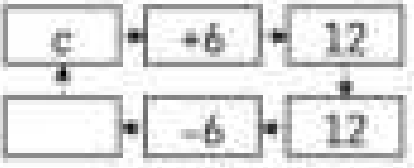
Instructions: Use the flow chart to find the value of the variable.

1) $t - 3 = 10$

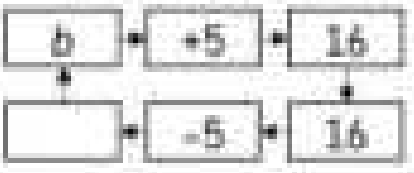


2) $r - 5 = 8$

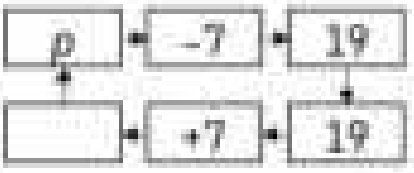
3) $c + 6 = 12$



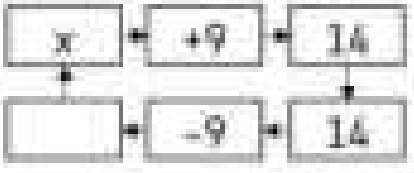
4) $b + 5 = 16$



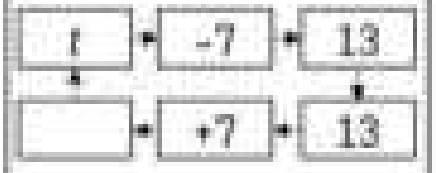
5) $p - 7 = 19$



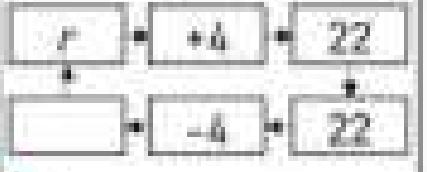
6) $x + 9 = 14$



7) $t - 7 = 13$



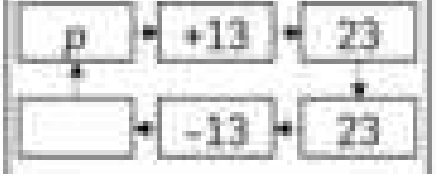
8) $r + 4 = 22$



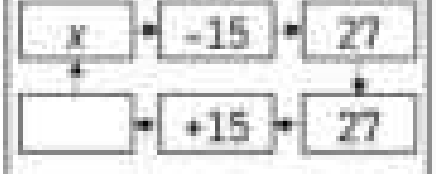
9) $x - 9 = 26$

10) $b + 11 = 31$

11) $p + 13 = 23$



12) $x - 15 = 27$



Name: _____ 128

Multiplication – Find the Variable

When we multiply a number by a variable, we do not need to use the multiplication sign. It is known that any variable next to a number means the operation we are using is multiplication.

Example: $7n = 14$ means $7 \times n = 14$

We can figure out the unknown number by balancing the equation – $n = 2$.

Part 1 Find out the value of the variable.

1) $n =$	2) $4n = 16$ $n =$	3) $8(s) = 48$ $s =$
4) $9 \times 4 = p$ $p =$		6) $7k = 21$ $k =$
7) $3n = 21$ $n =$	$n =$	9) $n \times 7 = 77$ $n =$
10) $5n = 45$ $n =$	11) $8 \times t = t$ $t =$	$9 \times 4 = p$
13) $8n = 96$ $n =$	14) $10n = 100$ $n =$	$7d$
16) $9(s) = 27$ $s =$	17) $8 \times 8 = s$ $s =$	18) $t =$

Part 2 Calculate the area using the variables for length and width.

The formula for calculating area is: $A = L \times W$

Calculate the area in the questions below using the values for the variables L and W

$L = 3$ $W = 9$	$A =$
$L = 8$ $W = 7$	$A =$
$L = 10$ $W = 11$	$A =$

$L = 5$ $W = 9$	$A =$
$L = 11$ $W = 7$	$A =$
$L = 4$ $W = 13$	$A =$

Name: _____ 130

Writing Multiplication Equations – Bakery

Jasmine works at a bakery. She sells bread, muffins, cakes, and donuts. When a customer orders from Jasmine, she uses an equation to figure out their total (t) – how much they owe for their order.

Bread (b)	Muffin (m)	Cake (c)	Donut (d)
$5.00 	$3.00 	$14.00 	$2.00 

Instruct plete the table below. The first one is done for you.

#	b	m	c	d	Equation	Answer
1	1	2	0	2	$t = 5 + 6$	$t = 11$
2	1	0	0	1		
3	0	2	1	0		
4	1	1	0	2		
5	2	2	0	0		
6	3	1	1	0		
7	0	2	1	2		
8	2	0	1	3		
9	1	2	1	4		

Name: _____ 131

Multiplying Decimals – Solve the Variable

Practice Find the value of the variables below.

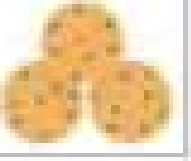
1) $2.5n = 12.5$ $n =$	2) $5.5n = 11$ $n =$	3) $2.2s = 8.8$ $s =$
4) [illegible] $p =$	5) $6.3p = 18.9$ $p =$	6) $11.1r = 55.5$ $r =$
7) [illegible] $n =$	8) $10.1s = 50.5$ [illegible]	9) $6.7n = 20.1$ $n =$
10) $6.5n = 45.5$ $n =$	11) [illegible] [illegible]	12) $7.5s = 45$ $s =$

Word Problem Write the equation using the [illegible] and solve the equation.

1) It rained 4.1mm every hour. In total, it rained 28.7mm [illegible]. How long did it rain?

2) Parker earns $13.50 per hour working on a farm. He made $81 today. How many hours (h) did he work?

3) River bought 3 cookies. The 3 cookies have a total of 9.9 grams of sugar. How much sugar (s) is in each cookie?



Name: _____ 132

Math Basketball: Multiplication Equations Challenge

Objective What are we learning about?

To reinforce students' understanding and application of multiplication of decimals through engaging word problems and a fun basketball shooting game.

Materials What will you need for the activity?

- Index cards with problems
- Recording sheets
- Paper balls
- Bins or baskets
- Desks (one per team)

Instructions How will you complete the activity?

1. Arrange the classroom so that there is enough space for multiple teams to work simultaneously. Place a desk about 6 feet from the bin.
2. Place a stack of index cards with problems on the desk.
3. Provide each team with a recording sheet and a pencil.
4. Divide the students into teams of about five members each.
5. Each team stands in a line behind their respective desk.
6. The first student in line flips over an index card and solves the problem.
7. Once the answer is recorded, the student attempts to shoot the paper ball into the bin.
8. If the student makes the shot, they place a tally mark on the team's tally sheet for a point. If they miss, no tally is given.
9. The student then goes to the end of the line, and the next student steps up to the desk to repeat the process.
10. The activity continues until all index cards have been solved.
11. Once all index cards are completed, the teacher collects the recording sheets and reviews the answers with the class.
12. For each incorrect answer, the team loses one point.
13. The team with the highest number of points after deductions is declared the winner.

Name: _____ 134

Index Cards | Use the following table for the game.

A machine produces 9.3 parts per minute and produced a total of 74.4 parts. How many minutes (m) did the machine run?
A delivery truck travels at a speed of 10.2 kilometers per hour and travelled a total distance of 71.4 kilometers. How many hours (h) did it travel?
A worker [illegible]7.8 per hour and earned a total of $62.4. How many hours (h) did the wor[illegible]
A stud[illegible]eads [illegible]er minute and read a total of 37.6 pages. How many minutes (m) [illegible]
A train travels at a [illegible] hour and traveled a total distance of 92 miles. How many hour[illegible] tra[illegible]
A farmer plants 5.6 seeds per [illegible] a[illegible] [illegible]f 44.8 seeds. How many rows (r) did the farmer plant?
A construction worker lays 3.9 bricks per m[illegible]d l[illegible] 31.2 bricks. How many minutes (m) did the worker lay bricks?
A hairdresser cuts 2.4 heads of hair per hour and cut a [illegible] many hours (h) did the hairdresser work?
A dog drinks 1.7 litres of water per day. It drank a total of 13.6 litres[illegible] many days (d) did it take for the dog to drink that much water?
A bus travels at a speed of 12.6 miles per hour and travels a total distance of 88.2 miles. How many hours (h) did the bus travel?
A cook prepares 4.2 dishes per hour and has prepared a total of 33.6 dishes. How many hours (h) did the cook work?
A scientist measures 3.8 grams of a substance per sample and measured a total of 30.4 grams. How many samples (s) were measured?

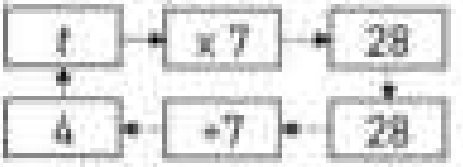
Name: _____ 136

Multiplying Equations – Flow Chart

Steps to fill in a flow chart:

1) Write the variable in the first box.
2) Write the second value in the second box.
3) Write the answer in the third box.
4) We are working in reverse now. Write the answer in the first box.
5) We do the opposite to the next box as we did with the second box.
6) Fill in the last box to find the value of the variable, which it points to.

Example: $7t = 28$



Instructions Fill in the blank in the flow chart.

1) $4t = 12$	6) $11t = 77$
2) $8r = 48$	7) $8r = 48$
3) $5c = 35$	8) $7c = 56$
4) $8b = 42$	9) $12b = 144$
5) $9p = 72$	10) $9n = 63$

Name: _____ 138

Division – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal.

8 ÷ 2 ≠ 5 9 ÷ 3 = 3 15 ÷ 3 ≠ 3

Part 1 ut a slash through the equal sign (≠) if it is not balanced.

	2) 45 ÷ 5 = 9	3) 36 ÷ 4 = 8
4) 48 ÷ 4	7 ÷ 3 = 9	6) 35 ÷ 7 = 5
7) 55 ÷ 5 = 11		9) 42 ÷ 7 = 6
10) 110 ÷ 11 = 10	11) 18 ÷	24 ÷ 6 = 4

Part 2 Fill in the missing number to balance

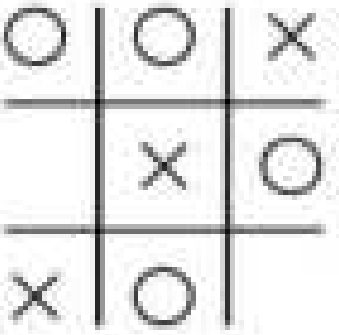
1) 42 ÷ 6 = ☐	2) 49 ÷ 7 = ☐	3) 24 ÷ 4 ☐
4) 28 ÷ ☐ = 4	5) 18 ÷ ☐ = 3	6) 32 ÷ ☐ = 4
7) ☐ ÷ 5 = 8	8) ☐ ÷ 8 = 7	9) ☐ ÷ 4 = 4
10) 63 ÷ 7 = ☐	11) 48 ÷ ☐ = 4	12) ☐ ÷ 8 = 9

Name: _____ 141

Math Tic-Tac-Toe: Solving Variables

Objective What are we learning about?

To help students practice solving division equations involving variables in a fun and interactive way through a Tic-Tac-Toe game.



Materials What you need for the activity?

- Tic-Tac-Toe grid provided

Instructions How will we do the activity?

1. Find a partner to play the game.
2. The goal is to solve and balance the algebraic equation in each square to place your marker (X or O).
3. One player will be "X" and the other will be "O".
4. Take turns choosing a square and solving the equation in that square to find the value of the variable.
5. Write down the solution below the equation and place your marker (X or O) in the square.
6. If a player chooses a square and solves the equation incorrectly, they do not get to place their marker in that square. The other player gets a chance to solve it correctly and place their marker.
7. The first player to get three markers in a row (horizontally, vertically, and diagonally) wins the game. Continue playing with different tic-tac-toe grids on the sheet.

Name: ______________________ 142

Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

96 ÷ t = 12	64 ÷ 8 = x	y ÷ 5 = 6
45 ÷ 9 = z	84 ÷ 12 = t	k ÷ 11 = 4
p ÷ 6 [illegible]	[illegible] ÷ x = 9	30 ÷ y = 5

120 ÷ p = 15	56 ÷ 8 = x	y ÷ 4 = 8
32 ÷ 8 = z	99 ÷ 11 = t	k ÷ 12 = 3
144 ÷ t = 12	80 ÷ x = 10	p ÷ 5 = 8

81 ÷ k = 9	10[illegible] y	[illegible]
50 ÷ 5 = z	33 ÷ 11 = t	k ÷ 8 [illegible]
72 ÷ t = 8	90 ÷ x = 9	p ÷ 10 = 4

144 ÷ p = 12	63 ÷ 7 = x	y ÷ 9 = 7
36 [illegible]	110 ÷ 10 = t	k ÷ 5 = 9
15[illegible]	[illegible]56 [illegible]	p ÷ 8 = 9

36 ÷ a + 7 = 13	90 ÷ b − 5 = 4	c ÷ 3 + 8 = 16
42 ÷ d + 6 = 14	84 ÷ e − 2 = 5	f ÷ 12 + 1 = 9
49 ÷ g − 4 = 3	75 ÷ h + 3 = 10	i ÷ 5 − 2 = 4

60 ÷ j + 6 = 10	108 ÷ k − 3 [illegible]	l ÷ 6 + 5 = 13
45 ÷ m + 7 = 14	64 ÷ n − 4 = 4	o ÷ 8 + 2 = 10
81 ÷ p − 5 = 4	100 ÷ q + 2 = 12	r ÷ 6 − 3 = 5

Name: _____ 144

Writing Division Equations - Sharing

Riley is the best boss! Every week, she brings in treats for her staff to share. Each week, there are different treats and a different number of staff members working at the office.

Question: Use a formula to find out how many treats (*t*) each person gets.

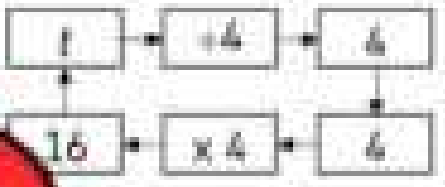
#		# of Staff	Formula	Answer
1	don	8	$\frac{d}{s} = t$	$\frac{16}{8} = 2$
2	12 coo		$\frac{c}{s} = t$	$\frac{12}{6} = 2$
3	24 muffins (m)	4		
4	60 slices of pizza (p)	20		
5	42 bagels (b)	7		
6	36 donuts (d)	12		
7	40 cookies (c)	10		
8	56 muffins (m)	8		
9	27 pastries (p)	9		
10	54 cookies (c)	6		
11	55 slices of pizza (p)	11		
12	60 bagels (b)	15		
13	48 muffins (m)	12		

Name: _____ 145

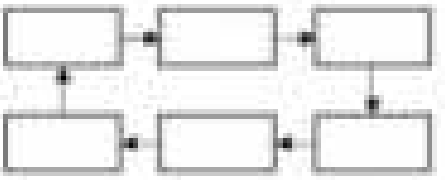
Division Equations – Flow Chart

Instructions Fill in the blank in the flow chart.

1) $\frac{t}{4} = 4$

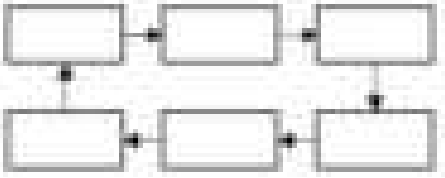


7) $\frac{t}{11} = 7$

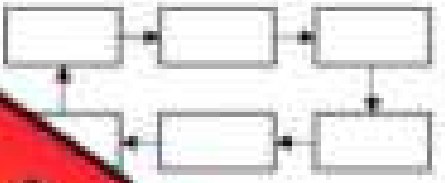


2) $\frac{r}{6} = 8$

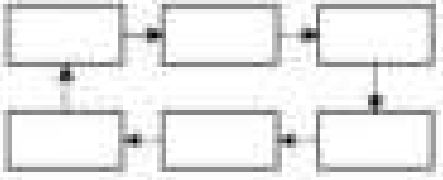
8) $\frac{r}{8} = 9$



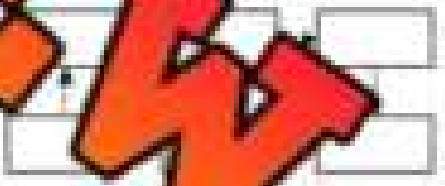
3) $\frac{c}{3} = 9$



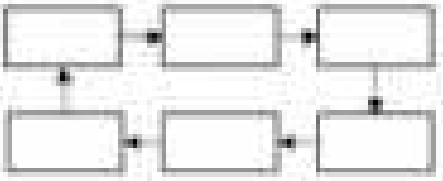
4) $\frac{b}{8} = 7$



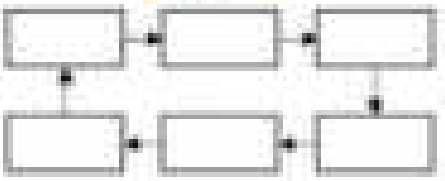
10) $\frac{b}{12} = 4$



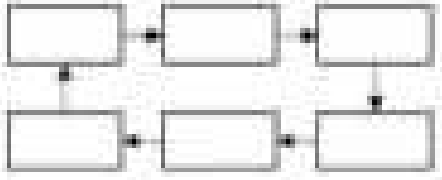
5) $\frac{n}{4} = 9$



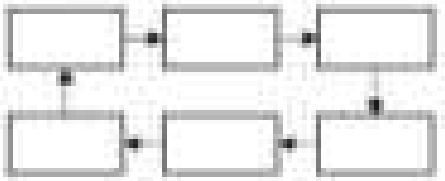
11) $\frac{n}{6} = 8$



6) $\frac{n}{7} = 3$



12) $\frac{n}{9} = 5$

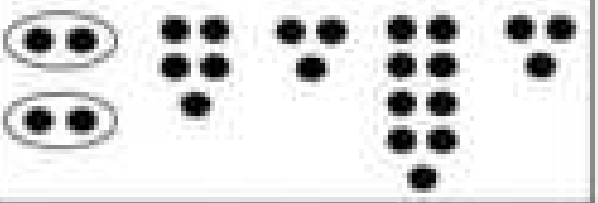


Name: _____ 149

Equivalent Forms of an Equation

When we add or subtract the same amount from both sides of an equal sign, the equation does not change. This is called **preservation of equality.**

Instructions Draw circles to represent the equations.

#	Original Equation	Change	New Equation
1	2n + 5 = 9 	Add 3	2n + 5 + 3 = 9 + 3 
2	7 = n		
3	13 - n = 6	Add 3	
4	2n + 6 = 14	Subtract 5	
5	5 + 3n = 17	Add 7	

Name: _____ 150

Equivalent Forms of an Equation

Instructions Write four equivalent forms of the equations below.

#	Original Equation
1	$5n = 20$
Add [illegible] each side	
S[illegible] side	
M[illegible]	
Divide ea[illegible] by 5	

#	[illegible]
2	[illegible]
Add 6 to each side	
Subtract 11 from each side	
Multiply each side by 2	
Divide each side by 7	

#	Original Equation
3	$7n - 8 = 34$
Add 25 to each side	
Subtract 20 from each side	
Multiply each side by 4	
Divide each side by 2	

Name: _____ 152

Equivalent Forms of an Equation

When we change an equation by adding, subtracting, multiplying, and dividing the same amount from both sides, does the equation change? Investigate below!

Instructions Fill in the table below.

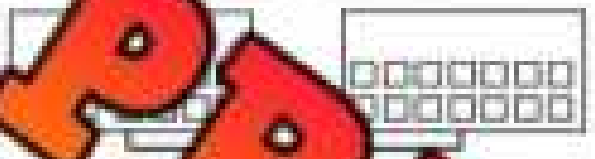
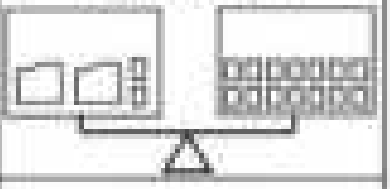
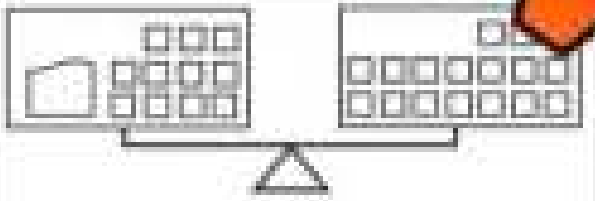
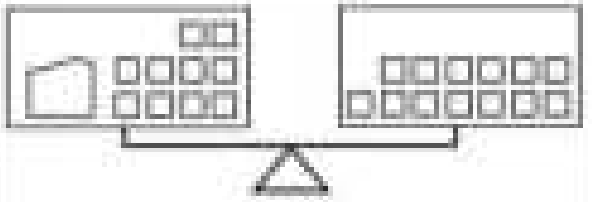
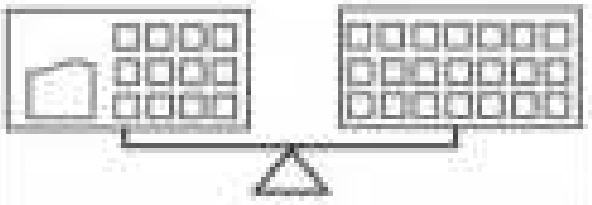
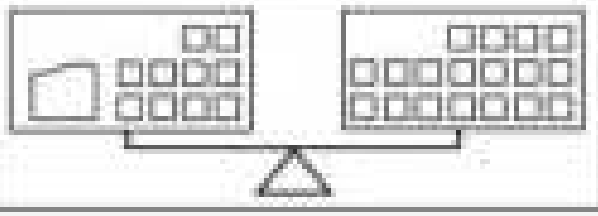
#	Original Equation	Change	New Equation
1	$5n - 8 = 20$	Add 8 to each side	$5n - 8 + 8 = 20 + 8$ $n = 4$
2	$18 + n = 2$ $n =$	Add 6 to each side	
3	$15 + n = 2$ $n =$	Subtract 15 from each	
4	$6n = 18$ $n =$	Multiply each side by 4	
5	$4n = 24$ $n =$	Divide each side by	
6	$52 - n = 38$ $n =$	Subtract 15 from each side	
7	$68 + n = 93$ $n =$	Add 14 to each side	
8	$5n = 50$ $n =$	Multiply each side by 5	
9	$2n = 24$ $n =$	Divide each side by 2	

Name: _____ 153

Representing Equivalent Equations – Balance Scale

Blocks are placed on a balance scale. Some of the blocks on the left side of the scale are put in a bag before being placed on the scale. Use *b* to represent 'bag' in your equation.

Instructions Write 2 different equations for each pictorial representation.

#	Pictorial Representation	Equation # 1	Equation # 2
Ex)		$b + 8 = 14$	$2b + 2 = 14$ 
1)			
2)			
3)			
4)			
5)			

Name: _____ 155

Matching Game: Do The Variables Match?

Objective What are we learning about?

To enhance students' understanding of equivalent variables. Students will identify and match pairs of equations where the variable yields the same value, fostering critical th[illegible]nd problem-solving skills in a collaborative group setting.

Mat[illegible] ou need for the activity?

- Pre-prepa[illegible]re-c[illegible] cards
- Small bags or envel[illegible]d t[illegible]s for each group

Instructions How will you complete the [illegible]

1. Before the class, the teacher will cut out the p[illegible]d m[illegible]g game cards.
2. Divide the students into small groups and give each group [illegible]lope containing a set of the matching cards.
3. In their groups, students will spread out the cards face down on their table.
4. Each person takes a turn to try to match two cards. They will need to solve both equations to see if they match (equal the same).
5. If they find a correct match, they keep the cards out and continue with their next turn. If the cards don't match, they turn them back over in the same place, and the next player takes a turn.
6. The activity continues until all pairs are correctly matched within each group.

Name: _____ 156

Cards | Matching Game Cards

$x + 3 = 7$	$2x - 1 = 7$
$4y - 1 = 15$	$2y + 1 = 11$
$2z + 1 = 11$	$3z - 2 = 13$
$3w - 2 = 16$	$5w - 7 = 23$
$x + 6 = 20$	$2x - 4 = 24$

Name: _____ 159

Cards | Matching Game Cards

$4w + 1 = 37$	$3w + 10 = 37$
x [illegible]	$5x - 4 = 166$
$2y - 1 = 29$	$4y$ [illegible] $= 29$
$3z + 4 = 31$	$5z + 2$ [illegible]
$4w - 8 = 36$	$2w + 14 = 36$

Name: _____ 160

Introduction to Inequalities

Inequalities are used to tell the relative size of two expressions or numbers. We can use the greater than sign (>), or the smaller than sign (<). We can also use a new sign (≥) to show that a value is equal to or greater/less than the other value.

We often use a number line to graph the range of values that hold true for an inequality. An open dot on a number line is used when an inequality involves "less than" or "greater than", and a closed dot is used when it also includes "equal to".

Examples:

X < 7

5 ≥

Questions

Graph the inequality on the number line and write the word form.

1) X ≥ 9

Word Form – x is greater than or equal to 9

2) X ≤ 13

Word Form – _____

3) X < 5

Word Form – _____

4) X > 15

Word Form – _____

5) X ≥ 14

Word Form – _____

6) X ≤ 12

Word Form – _____

Name: _____ 162

Solving Inequalities - Addition

Questions Graph the addition inequalities using the number line.

1) $4 + x > 11$

2) $5 + x \leq$

3) x

4) $x + 3 \leq 15$

5) $7 + x \geq 15$

6) $6 + x > 19$

7) $x + 3 > 8$

8) $13 + x \geq 19$

9) $14 + x > 20$

10) $x + 13 \leq 16$

Name: _____ 163

Inequalities – Multiple Choice

Questions Circle the values that satisfy each inequality.

1) $x > 32$

47 19 25 33

2) $x < 46$

45 50 61 47

3) x

72 [illegible]

4) $x > 61$

60 56 63 61

5) $x < 78$

76 79 75 78

$x \leq 92$

99 91

7) $x > 64$

62 65 64 68

8)

88 90 [illegible]

9) $x \leq 85$

91 85 86 84

10) $x > 98$

97 95 96 99

11) $x < 82$

85 87 80 82

12) $x < 99$

98 100 99 97

Name: _____ 164

Inequalities in a Set - Addition

Questions | Which numbers in the set satisfy the inequality?

1) Solve the inequality x ≤ 8 in the set (6, 10, 7, 8, 13, 15, 0)

Numbers that fit: 0, 6, 7, 8

2) Solve the inequality x + 9 ≤ 19 in the set (9, 12, 7, 16, 13, 6, 5)

Numbers that fit: _____

3) Solve the inequality x + 4 ≤ 13 in the set (1, 5, 6, 4, 8, 9, 3)

Numbers that fit: _____

4) Solve the inequality x + 17 ≤ 25 in the set (8, 6, 4, 2, 7, 9, 1)

Numbers that fit: _____

5) Solve the inequality x + 25 ≤ 33 in the set (8, 13)

Numbers that fit: _____

6) Solve the inequality x + 31 > 36 in the set (3, 5, 7, 6, 9, 2, 4)

Numbers that fit: _____

7) Solve the inequality 48 + x > 63 in the set (15, 14, 17, 19, 22, 12, 28)

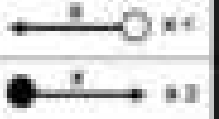
Numbers that fit: _____

8) Solve the inequality 68 + x < 91 in the set (18, 22, 19, 23, 25, 27, 15)

Numbers that fit: _____

Name: _____ 165

Solving Inequalities - Subtraction



Questions Graph the subtraction inequalities using the number line.

1) $15 - x > 8$

2) $19 - x$ [illegible]

3) x [illegible]

4) $x - 11 \leq 6$

5) $15 - x \geq 4$

6) $14 - x > 2$

7) $x - 3 > 10$

8) $13 - x \geq 5$

9) $17 - x > 8$

10) $x - 5 \leq 9$

Name: _____ 167

Inequalities – Adding and Subtracting

Questions Solve the inequalities below

1) $x > 6 + 12 - 5$

$x > 13$

2) $x < 9 \times 3 - 8$

3) $y \leq 3$

4) $t \geq 5 - 4 + 20$

5) $x < 8 + 10 - (4 \times 2)$

6) $p \leq 27 - 7 + 15$

7) $x > 6 \times 5 + 2$

8) 7

9) $x \leq 16 + 4 \times 10$

10) $x > 65 - 6 + 13$

11) $x < 9 \times (4 + 6)$

12) $x < (24 \div 8) \times 6$

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Solve the inequalities below

a) $x \leq 15 \div 5 \times 9$

b) $x \div 80 - 5 \times 10$

Name: _____

Solve the inequalities below

a) $x \leq 15 \div 5 \times 9$

b) $x \div 80 - 5 \times 10$

Name: _____

Solve the inequalities below

a) $x \leq 15 \div 5 \times 9$

b) $x \div 80 - 5 \times 10$

Name: _____

Solve the inequalities below

a) $x \leq 15 \div 5 \times 9$

b) $x \div 80 - 5 \times 10$

Name: _____ 169

Graphing Inequalities – Multiple Operations

Questions Graph the inequalities on the number line.

1) $x > 3 + 9 - 4$

2) $x < 12 - 10 + 5$

3)

4) $x > 18 - 12 + 11$

5)

6) $x \leq 48 \div 6 + 15$

7) $x > 8 \times 7 - 3$

8)

9) $x \leq 40 \div 4 \times 8$

10) $x > 70 \div 13 - 8$

11) $4 \times 11 \times 2 \div 10 < x$

12) $66 \div 6 \times 9 - 3 > x$

Name: ______________________ 170

Inequalities – Isolating the Variable

Steps to isolating a variable

1. Add or subtract the same amount from both sides so that the variable is by itself.
2. If the number that is with the variable is positive, you will subtract the same number from both sides.
3. If it is negative, you will add the number to both sides.
4. Since we want the variable on the left, we might need to flip it to the other side at the end. When we do this, we switch the inequality sign from < to > or from > to <.

Example:

$y - 14 \le 9$

[illegible] $+ 14 \le 9 + 14$

[illegible] ≤ 23

$15 > x + 9$

$15 - 9 > x + 9 - 9$

$6 > x$

$x < 6$

Questions [illegible] low

1) $x - 8 < 13$

2) $x + 13 < 22$

3) $x + 15 \le 27$

4) [illegible]

5) $7 < x + 23$

6) $21 \le x - 11$

7) $x + 32 > 47$

8) $55 < x + 32$

Name: _____ 171

Inequalities – Isolating the Variable

Questions Graph the inequalities on the number line.

1) $4 + x > 10$

2) $x - 5 < 2$

3)

4) $8 + x > 29 - 7$

5) $4 + x \geq 11 \times 3 - 5$

6) x [illegible] $48 \div 4 - 4$

7) $x - 8 > 11 \times 5 - 6$

8) $x - 15 \leq 15$ [illegible] 15

9) $8 + x \leq 9 \times 8 + 13$

10) $16 + x > 68 \div 20 - 3$

Name: _____ 172

Linear Inequalities – Boundary Line

When we graph an inequality on a cartesian plane, we use a dashed line or a solid line depending if the inequality is greater/less than or greater/less than or equal to.

Greater/less than or equal ≤ ≥	Greater/less than < >
———	- - - - - - - - - - - -

Part 1 Does the inequalities require a dashed or solid boundary line?

	Inequality	Dashed or Solid Boundary Line?
1)		
2)	≥ 9	
3)	$4 <$	
4)	$y - 4 \geq 1$	
5)	$y \leq 5 + 6$	

If the inequality uses a greater than or equa we s the line. When we have a less than or equal sign, we shade b

Part 2 Fill in the table below.

	Inequality	Dashed or Solid Boundary Line?	Shade or Below
1)	$x < 6$		
2)	$y \geq 9$		
3)	$8 - 5 < x$		
4)	$7 + x > 29$		
5)	$13 - y \leq 22 + 5$		
6)	$x + 8 - 3 > 29$		
7)	$6 + 4 - y \geq 29 + 3$		
8)	$y - 8 > 11 \times 5 - 6$		

Name: _____ 173

Linear Inequalities – Boundary Line

Questions Fill in the table below

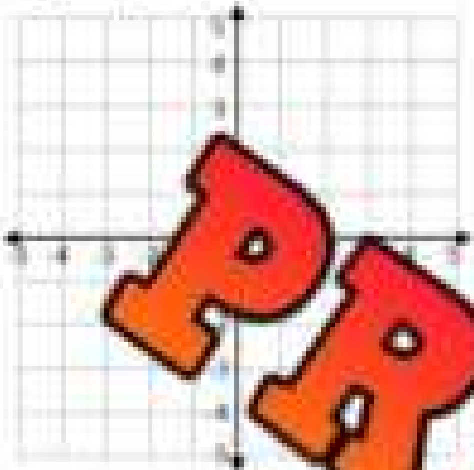
	Inequality	Simplify (if necessary)	Dashed or Solid Line	Shade Above or Below
1)	≤ 11			
2)				
3)	$13 \geq$			
4)	$7 + x \geq 12$			
5)	$9 - y > 21 + 9$			
6)	$8x < 32$			
7)	$4 + y \geq \frac{18}{2}$			
8)	$y - 7 > \frac{56}{7} \times 9$			
9)	$y \geq 20 + \frac{44}{11}$			
10)	$x + 5 - 3 < 7 \times 4$			

Name: ____________________ 174

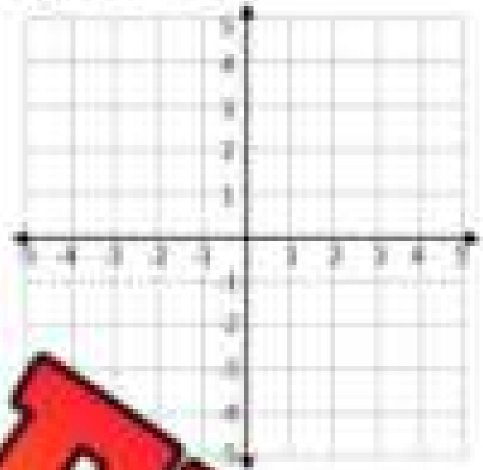
Graphing Inequalities – Cartesian Plane – One Variable

Questions Graph the inequalities on the cartesian plane.

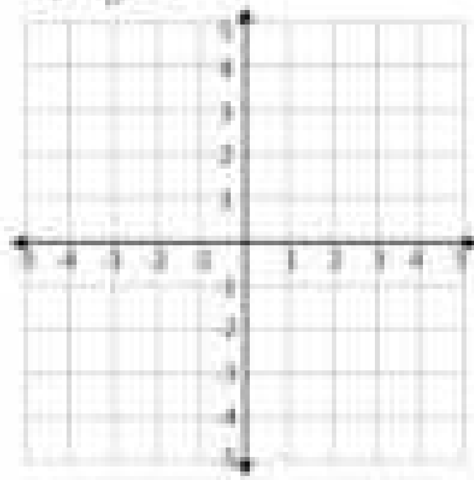
1) $x > 4$



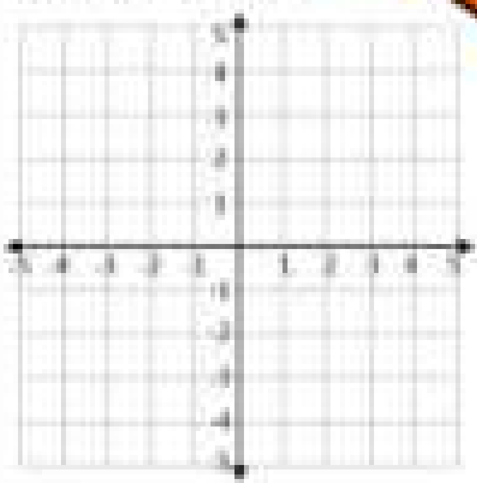
2) $x < -2$



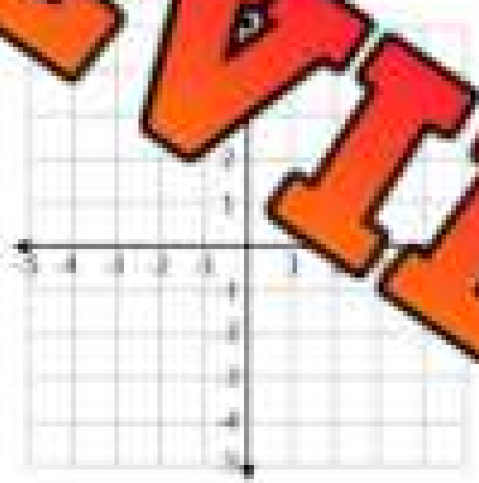
3) $y \leq 4$



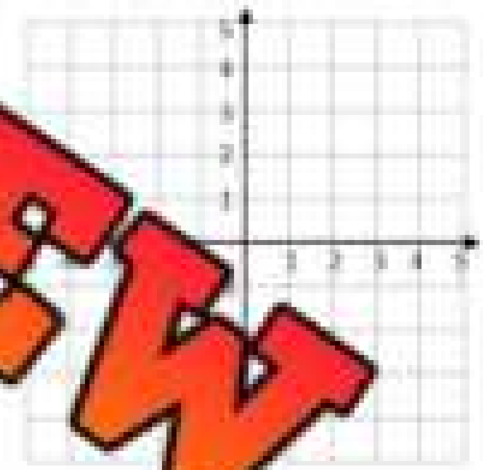
4) $3 + x > 6$



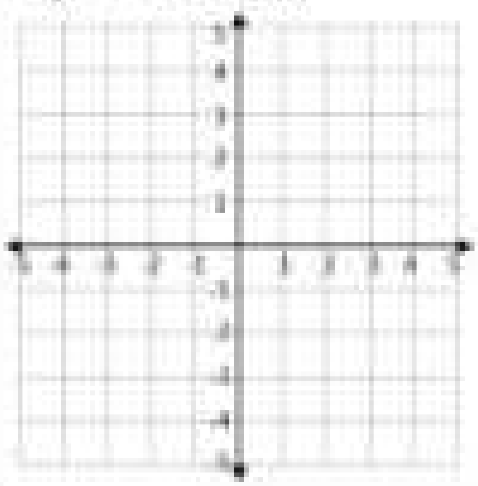
5) x [illegible]



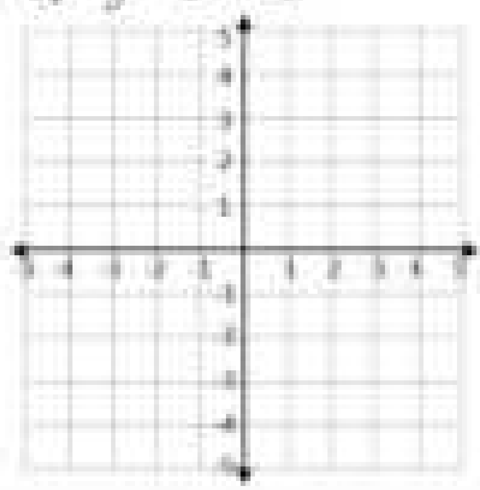
6) $y + 5 \leq 7$



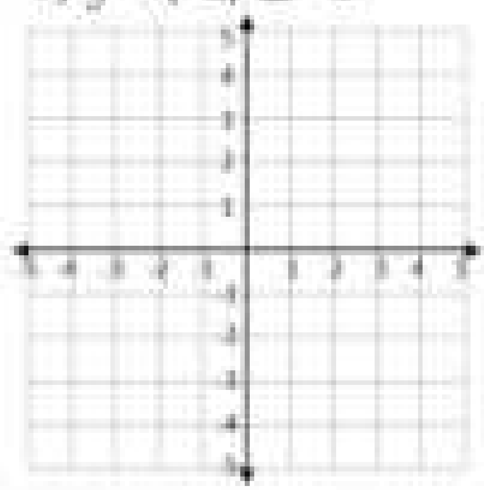
7) $9 + x \geq 11$



8) $y - 6 < -2$



9) $y + (-2) \leq -1$

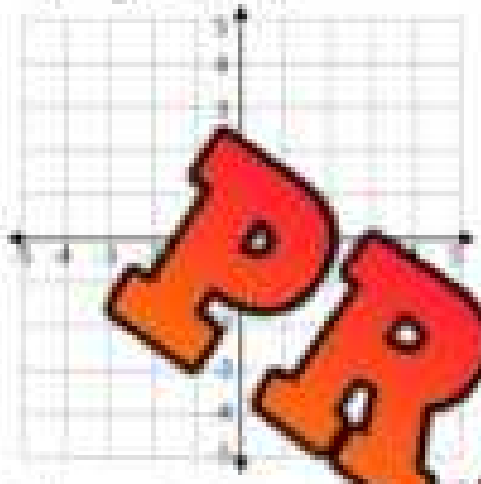


Name: _____ 176

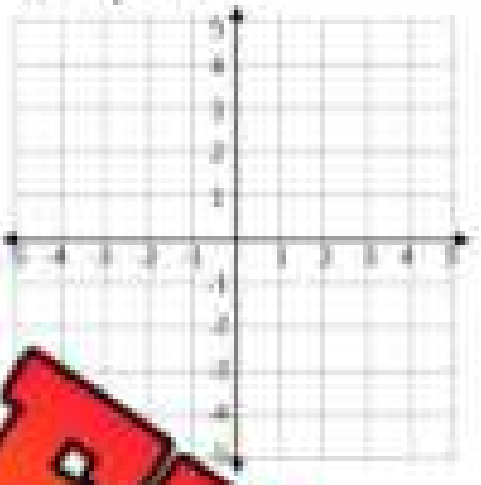
Graphing Inequalities – Two Variables

Questions | Graph the inequalities on the cartesian plane.

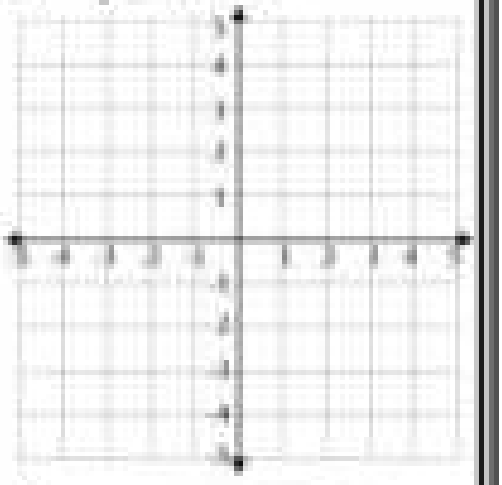
1) $y > x + 1$



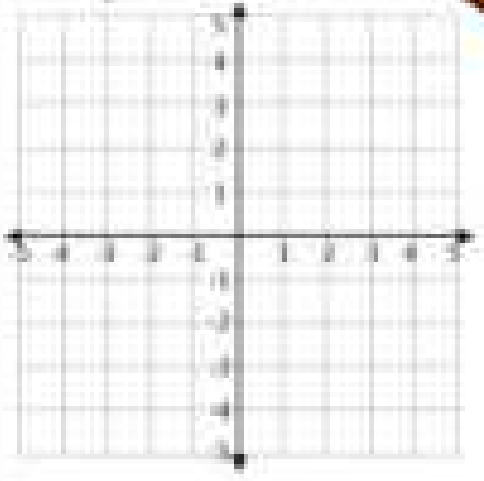
2) $y < x + 3$



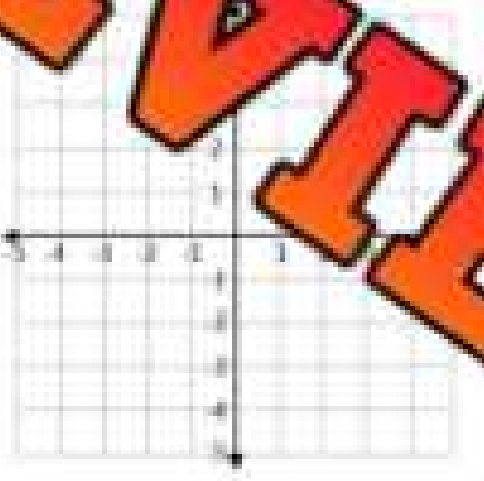
3) $y \leq x - 4$



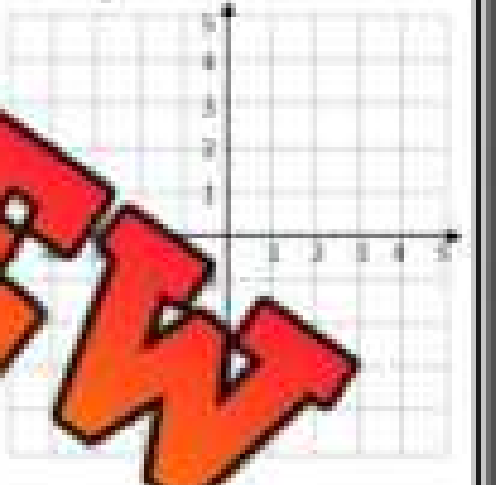
4) $y \geq 2 - x$



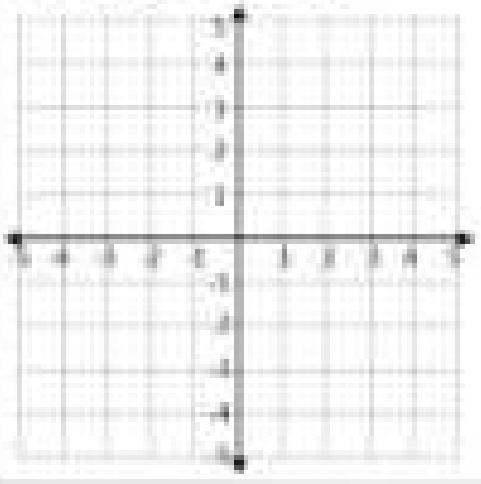
5) $y \geq$



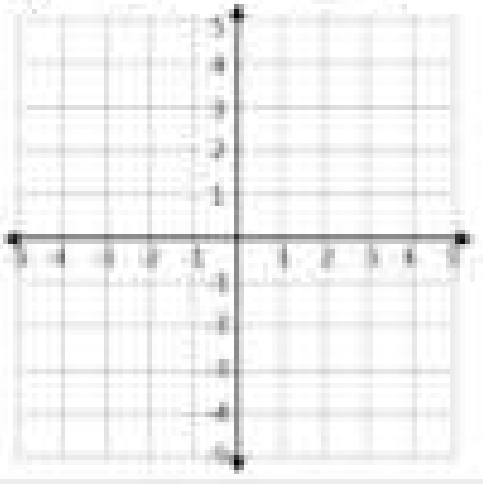
6) $y \leq x + 2 + 1$



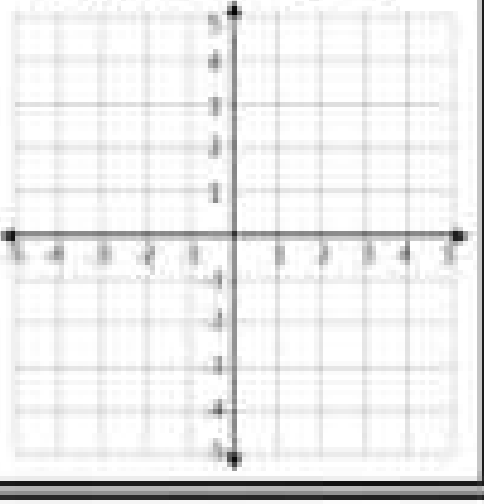
7) $y \geq x + 1 - 5$



8) $y \leq -3 + 1 + x$



9) $y < x - 6 + 3$

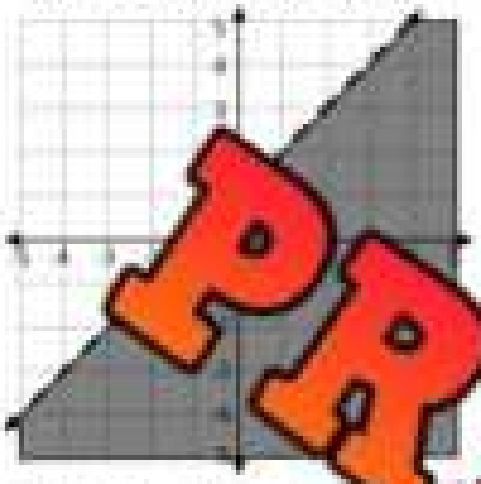


Name: _____ 178

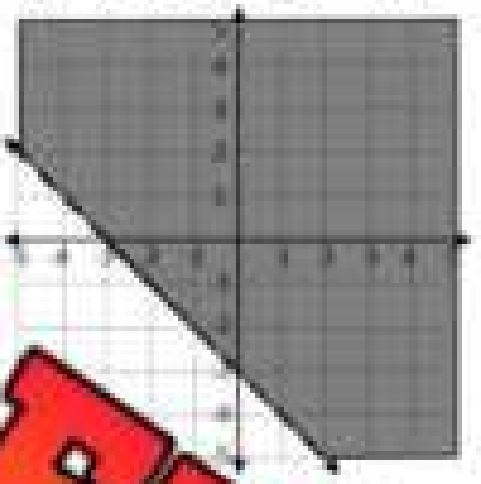
Linear Inequalities – Order Pairs

Questions Circle whether the ordered pair is a solution of the graph

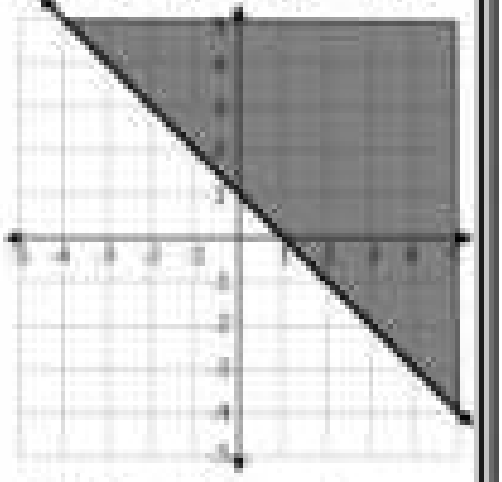
1) (2, 1) Yes No



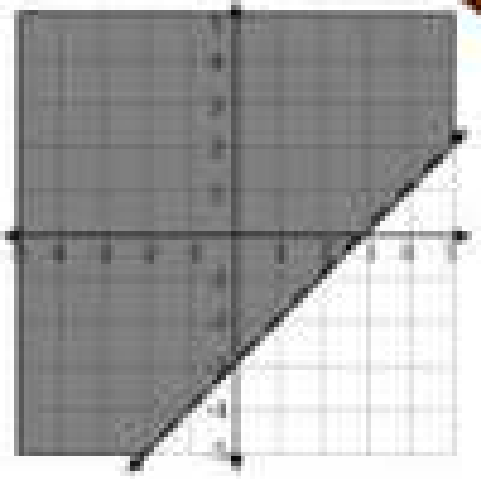
2) (4, -2) Yes No



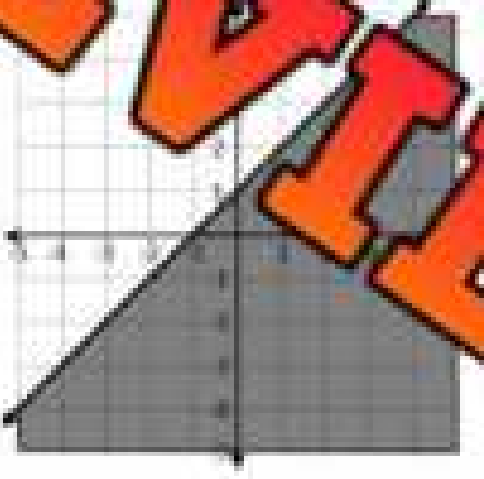
3) (3, -1) Yes No



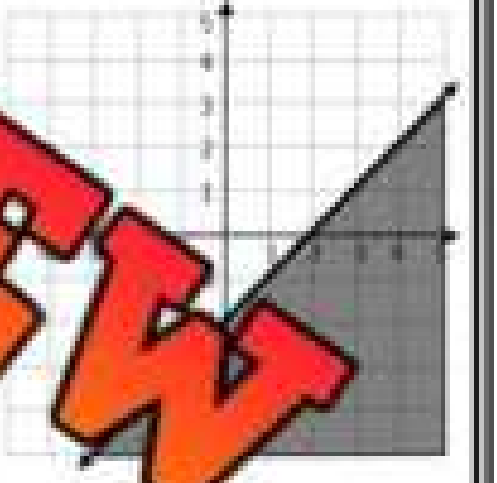
4) (-3, 4) Yes No



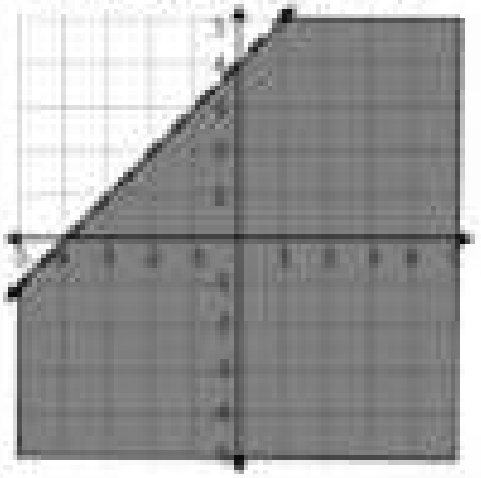
5) (-2, 1) Yes No



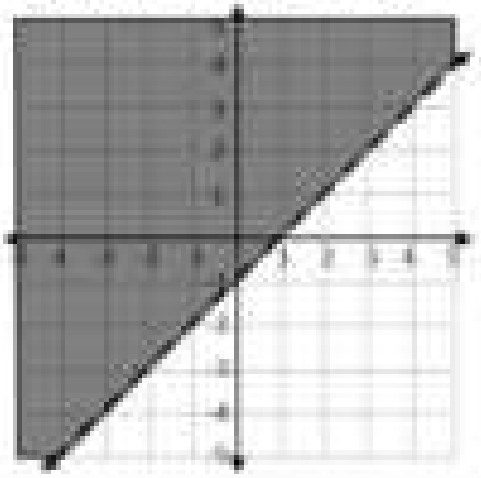
6) (1, -5) Yes No



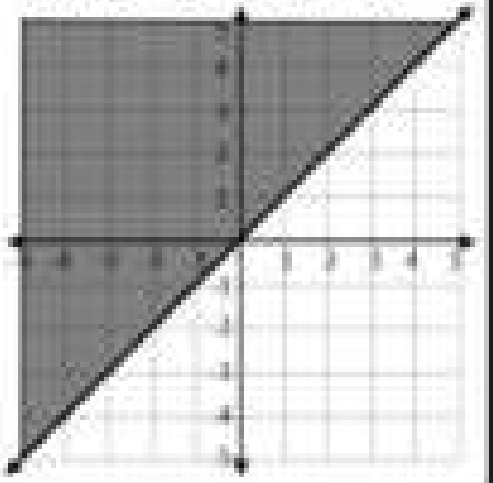
7) (-5, 5) Yes No



8) (3, -4) Yes No



9) (0, -5) Yes No



Name: _____ 179

Algebra Quiz - Equations

Part 1 Add the monomials together.

1) $5n + 6n$ = _____n	2) $12b + 14b$ = _____b	3) $n + 52n + n$ = _____n
4) [illegible]	5) $16p - 4p - 7p$ = _____p	6) $33n - 11n - 11n$ = _____n

Part 2 Evaluate the [illegible] expressions for $x = 5$

1) $x - 10$	2) [illegible]	[illegible]	4) $x - 14$
5) $44 + x$	6) $67 + x$	7) [illegible]	[illegible] $+ x + 11$

Part 3 Evaluate the following expressions for $y = 8$

1) $5y$	2) $9y - 5$	3) $3y + 5$	4) $8y + 6$
5) $\frac{32}{y} + 8$	6) $\frac{64}{y} + y$	7) $\frac{24}{y} - 9$	8) $\frac{y}{y} \times y$

Part 4 Write the expressions using the values/operations below.

6 8 2 n + x - ÷

1) Six times a number, add two	
2) Eight divided by two, subtract a number	
3) A number multiplied by eight, add six	
4) Eight more than six divided by of a number	

Part 5 ...ions for each sentence.

	Equation	Answer
1) Seven less than a number is 21		
2) Twelve more than a number is 21		
3) Six times a number is 48		
4) Eighteen divided by a number is 3		

Part 6 Fill in the missing number to balance the equation.

1) ☐ + 12 = 95	2) ☐ + 25 = 50	3) ☐ = 66
4) 58 - ☐ = 45	5) 48 - ☐ = 39	6) 65 - ☐ = 55
7) 4 x ☐ = 44	8) ☐ x 6 = 30	9) 8 x ☐ = 48
10) 63 ÷ 7 = ☐	11) 48 ÷ ☐ = 4	12) ☐ ÷ 8 = 9

Part 9 Graph the inequalities on the number line.

1) $4 + x > 11$

2) $19 - x \leq 12$

3) $x \leq 15$ [illegible] 11

Part 10 Si[illegible]ies below. Make sure the variable is on the left.

1) [illegible]3

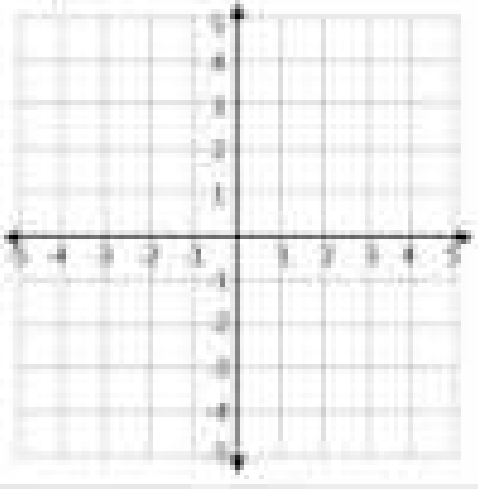
2) $x + 13 < 22$

3) $x + 15 \leq 27$

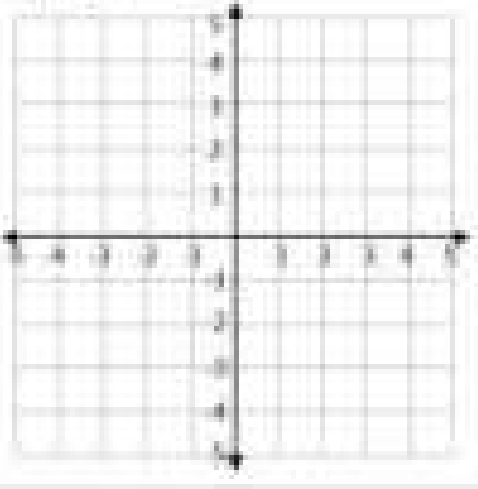
[illegible] > 14

Part 11 Graph the inequalities on the cartesian plane.

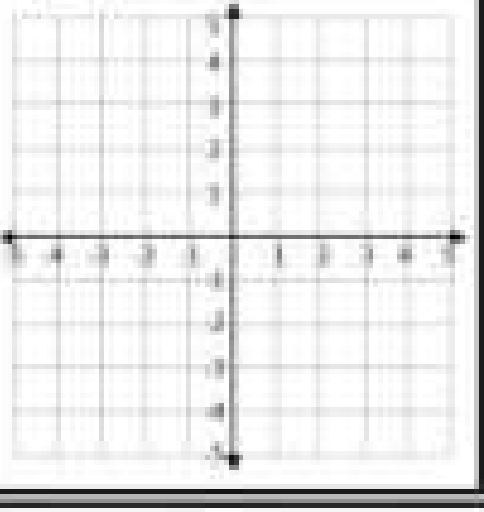
1) $x > 4$



2) $y < -2$



3) $y + x < 3$



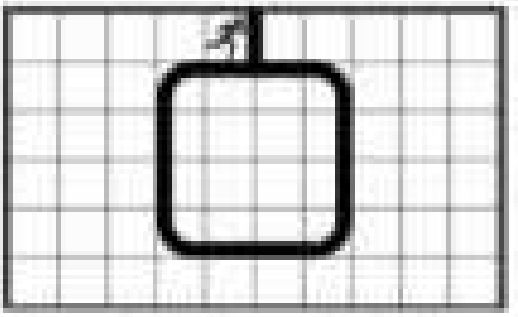
Grade 7
C3. Coding

	Curriculum Expectations	Pages That Cover the Expectations
C3.1	solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures	184 – 189, 191 – 198, 200 - 203
C3.2	read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code	187, 190, 199

Name: _____ 186

Writing Code - Loops

Writing Code – Code Bank
go right (# of spaces)
go left (# of spaces)
go down (# of spaces)
go up (# of spaces)
loop ____ times

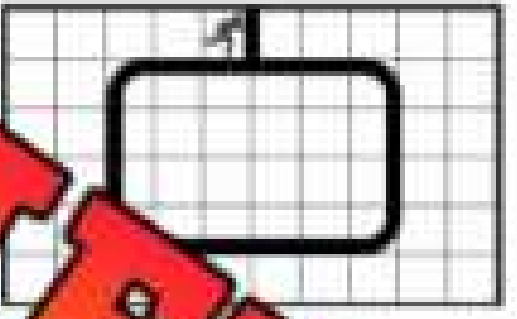


Example
loop 5 times
    go right 3
    go down 5
    go left 5
    go up 5
    go right 2
go right 1

Question code that sends the runner around the track.

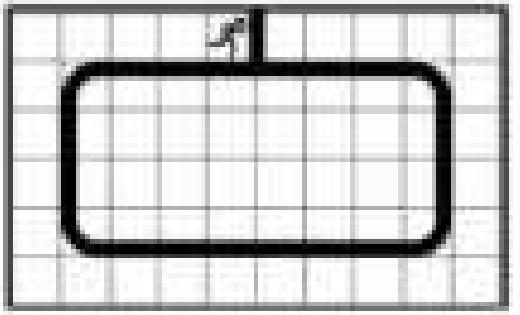
1. Use a loop to send the runner around the track 8 times. (Don't forget to cross the finish line!)

Line 1: _____
Line 2: _____
Line 3: _____
Line 4: _____
Line 5: _____
Line 6: _____
Line 7: _____



2. Use a loop to send the runner around the track 4 times. (Don't forget to cross the finish line!)

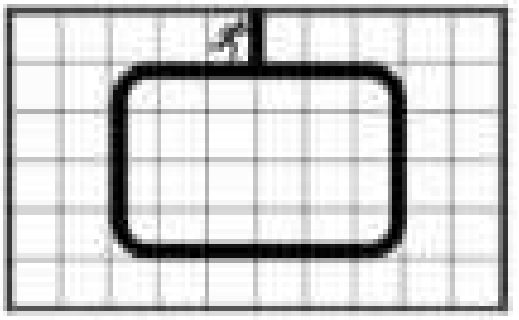
Line 1: _____
Line 2: _____
Line 3: _____
Line 4: _____
Line 5: _____
Line 6: _____
Line 7: _____



Name: _____ 187

3. Use a loop to send the runner 3600 metres.

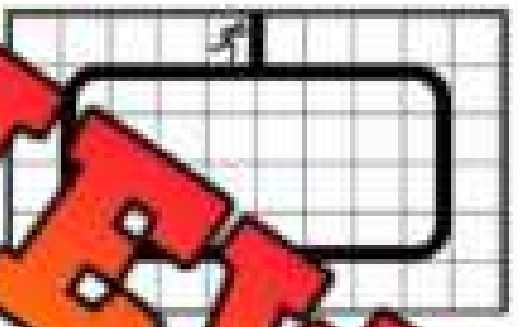
Line 1: _____
Line 2: _____
Line 3: _____
Line 4: _____
Line 5: _____
Line 6: _____
Line 7: _____



1 lap = 450 metres

4. Use a loop to [illegible] metres.

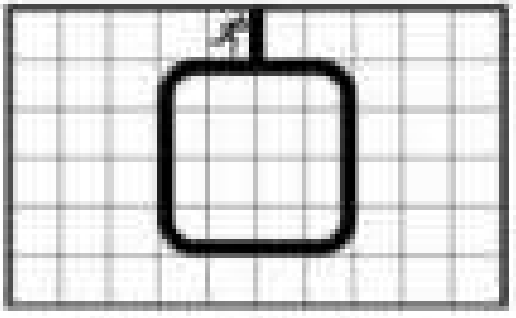
Line 1: _____
Line 2: _____
Line 3: _____
Line 4: _____
Line 5: _____
Line 6: _____
Line 7: _____



5. Read the code and figure out how far the runner went.

Code

go right 1 space
loop 15 times
    go right 2 spaces
    go down 5 spaces
    go left 5 spaces
    go up 5 spaces
    go right 3 spaces
run program



1 lap = 150 metres

My Answer

Name: _____ 190

Introduction to If/Then Statements

An if/then statement is a conditional that is an action that could occur if something specific happens.
For example – If the bell goes at school, then the students go to class.

Questions Fill in the If/Then Statements with outcomes that make sense.

1)	If [illegible] eggs	then _____
2)	If the r[illegible] whistle	then _____
3)	If it is hot	then _____
4)	If the alarm clock goes off in the morning	then _____
5)	If I cross the finish line first	then _____
6)	If the traffic light is red	then _____
7)	If the phone battery is 0	then _____
8)	If the time limit is reached	then _____
9)	If the SHIFT key is pressed when typing a letter	then _____
10)	If the soccer ball goes out of bounds	then _____

Name: ______________________ 191

If Statements – Conditional Coding

An if statement allows a code to be run if an event has happened. If the event does not happen, the code is not run. All interactive games use if statements. For example, when a game has a button in it, the button will have an if code. This means that if the button is pushed, then a code will run that causes something to happen.

Example Code - If player gets 50 points, then print "Great Job!"

Question [illegible]late the answer to the question and then run the code.

[illegible] Written	The Computer Prints...
If answer is > [illegible] print [illegible] If answer is < 90, the[illegible] run 7 x 11 + 12	
If y is < 150, then print "Better luck [illegible]me!" If y is > 150, then print "Wow, great job!" run y = 5 x 20 + 55	
If player has > 500 points (p), then print "You win" If player has < 500 points (p), then print "You lose" run p = 100 + 4 x 10 x 2 – 10	
If student mark (m) is > 80%, then print "Genius!" If student mark (m) is < 80%, then print "Good effort!" run m = 15/20	
If student mark (m) is > 50%, then print "You passed" If student mark (m) is < 50%, then print "You failed" run m = 16/30	

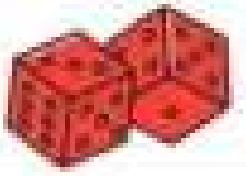
Name: _____ 192

If Statements – Dice Game

The object of the game is to get as many points as you can. Follow the if/then statements to get points.

Instructions:

1. Start at question 1. Read the if/then statement to get points.
2. Go through all 10 questions and add up your points at the end.



Questions Use a dice to play the game below. Follow the if/then codes.

If/Then Code	Point Total
1) If you roll any number, then you get +10 points If you roll [illegible] number, [illegible] get -10 points	
2) If you roll a 6, th[illegible] If you don't roll a 6, [illegible] 0	
3) If you roll a 3 or 4, then you [illegible] If you don't roll a 3 or 4, then you [illegible] points	
4) If you roll a 2, then you start over at 0 po[illegible] If you roll any other number, then you get [illegible]	
5) If you roll 3 or less, then you get +10 points If you roll 4 or more, then you get -10 points	
6) If you roll a 1 or 6, then you get +15 points If you don't roll a 1 or 6, then you get -5 points	
7) If you roll 2 or more, then you get +5 points If you roll a 1, then you get -20 points	
8) If you roll an odd number, then you get +10 points If you roll an even number, then you get -10 points	
9) If you roll a 3, then you get +20 points If you don't roll a 3, then you get 0 points	
10) If you roll a 5 or less, then you get +10 points If you roll a 6, then you get -25 points	

Name: _____ 193

If Statements – Dice Game

The object of the game is to get as many points as you can. Follow the if/then statements and solve any equation from the list you are sent to. Cross out the equation once you have used it because you can only use each equation once. You earn the answer from the equation as points. Record your points in the column on the right.

Instructions Follow the if/then codes to solve equations and earn points.

If/Then Code	Points
1) If you [illegible]ber, then solve an equation from list 1 If [illegible] then solve an equation from list 2	
2) If you [illegible] a 3 [illegible] an equation from list 3 If you roll a [illegible] equation from list 4	
3) If you roll a 6, th[illegible] a[illegible] list 3 If you roll a number [illegible] equation from list 2	
4) If you roll an even numb[illegible] from list 5 If you roll an odd number, th[illegible] list 6	
5) If you roll a 1 or a 6, then solve an e[illegible] from [illegible] If you roll a 2, 3, 4, or 5, then solve an equation [illegible]	
6) If you roll a 2 or 5, then solve an equation fro[illegible] If you roll a 1, 3, 4, or 6, then solve an equation [illegible]	
7) If you roll a 3 or 4, then solve an equation from list 5 If you roll a 1, 2, 5, or 6, then solve an equation from list 1	
8) If you roll a 6, then solve an equation from any list If you roll a 1, 2, 3, 4, or 5, then solve an equation from list 1	
9) If you roll a 1 then solve an equation from any list If you roll a 2, 3, 4, 5, or 6, then solve an equation from list 1	
Total Points	

List 1	List 2	List 3	List 4	List 5	List 6
5 + 5	15 - 5	3 x 2	25 ÷ 5	12 + 12	3 x 3
12 + 6	14 - 6	7 x 5	30 ÷ 10	23 + 5	4 x 6
13 + 8	40 - 32	3 x 6	20 ÷ 4	15 + 13	7 x 3
21 + 13	32 - 21	4 x 5	12 ÷ 2	41 - 13	40 ÷ 4
14 + 22	45 - 15	9 x 4	15 ÷ 3	50 - 10	48 ÷ 8
30 + 20	50 - 21	6 x 6	36 ÷ 6	40 - 15	9 ÷ 3

Name: _____ 196

Concurrent Coding

Concurrent codes are events that happen at the same time. It is the opposite of **sequential codes**, which happen one after the other.

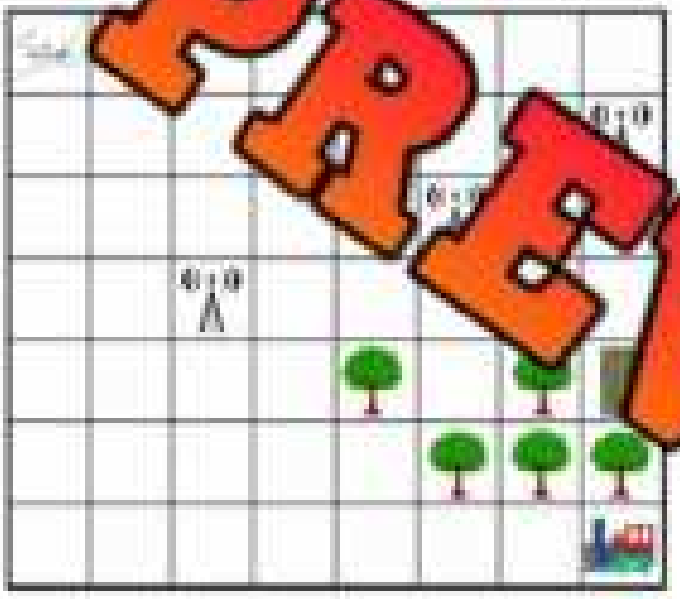
Part 1

Write two separate codes as the train and plane race to the building.

Look out for the towers and trees! Make sure you code around these obstacles.

Plane

Train



Who won?

Train = _____ spaces

Plane = _____ spaces

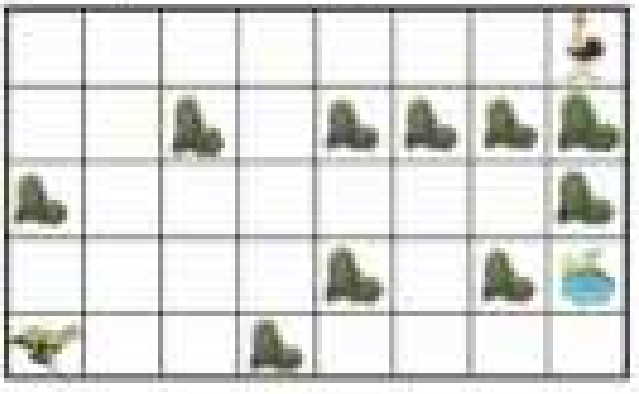
Part 2

Write two separate codes as the cheetah and ostrich race to the hole.

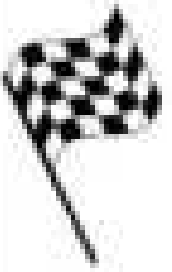
Look out for the bushes! Make sure you code around them.

Cheetah

Ostrich



Who won?



Cheetah = _____ spaces

Ostrich = _____ spaces

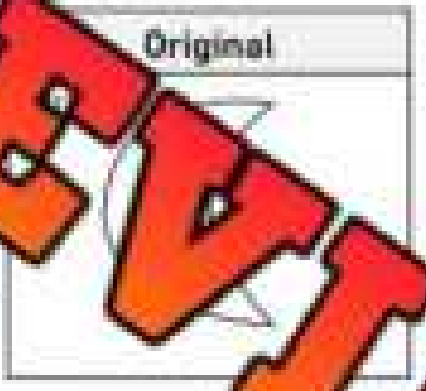
Name: _____ 198

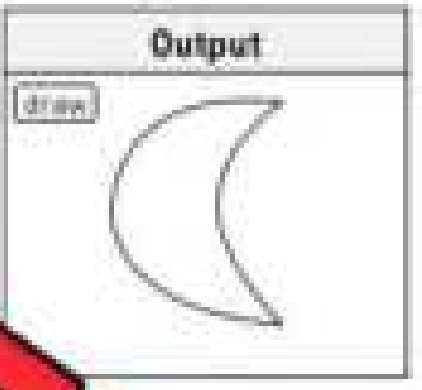
Coding – Defined Count

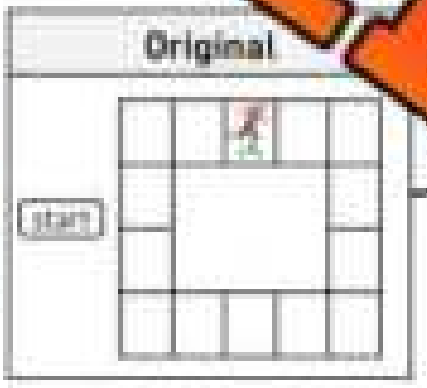
A **defined count** is the number of times instructions are repeated based on a predefined value or until a condition is met.
In the example, if the mouse is clicked, the conditional code is performed until the condition is met. The condition has been predefined - set to 5. When 5 "draw" strokes have been completed, the code ends. This conditional statement could have been ... any number, or until the circle has been coloured ...

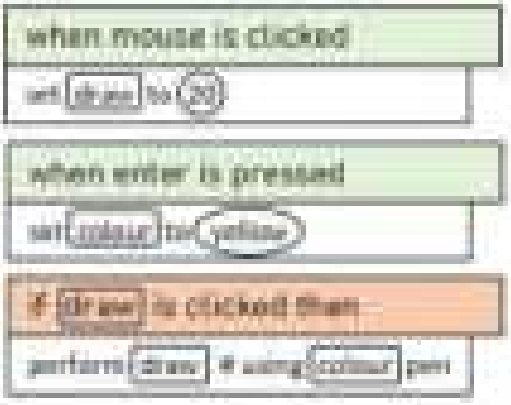
Example:

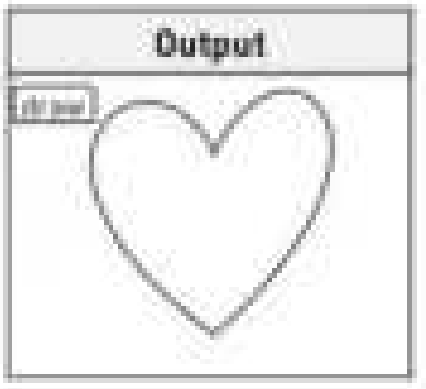
Dra... ... and draw the output pictures or answer the question.











Name: _____ 200

Using Subprograms in Coding

A **subprogram** is a small set of instructions that does one specific job. You can reuse it whenever you need that job done again. It helps keep your code neat and saves time.

For example, if you're programming a robot to turn around, you could make a subprogram called **TurnAround**. Then, instead of writing the turn steps every time, you just call **TurnAround** whenever the robot needs to spin.

Instructions Use a subprogram in your code that gets the truck to the foods below

Example: Pickup some popcorn, a hot dog, and an apple

```
subprogram moveRright
move forward 9 spaces
turn right
```

```
loop 3 times
    run moveRright subprogram
```

```
move forward 4 spaces
```

```
turn right
```

```
move forward 1 space
```

Name _____ 201

Instructions Use a subprogram in your code that gets the truck to the foods below

1) From the truck's starting position, move the truck to the pineapple, then carrot, and then back to its starting position.

2) From the truck's starting position, move the truck to the cupcake, then watermelon, and then back to its starting position.

3) From the truck's starting position, move the truck to the apple, then pretzel, and then chicken drumstick.

Name: _____ 202

Using Subprograms in Coding

Instructions Use subprograms to write efficient code that gets the robot to pick up the toys and return them to the toy bin. The robot can only handle one toy at a time. There may be more than one toy at each location (x2, x3, etc.).

1) Pick up 2 yo-yo's and return them to the toy bin.

2) Pick up 4 dice and return them to the toy bin.

Name: _____ 203

3) Pick up 5 balloons and 2 cars and return them to the toy bin.

4) Pick up 3 kites and 4 balls and return them to the toy bin.

5) Pick up 4 trophies, 3 drums, and 2 guitars and return them to the

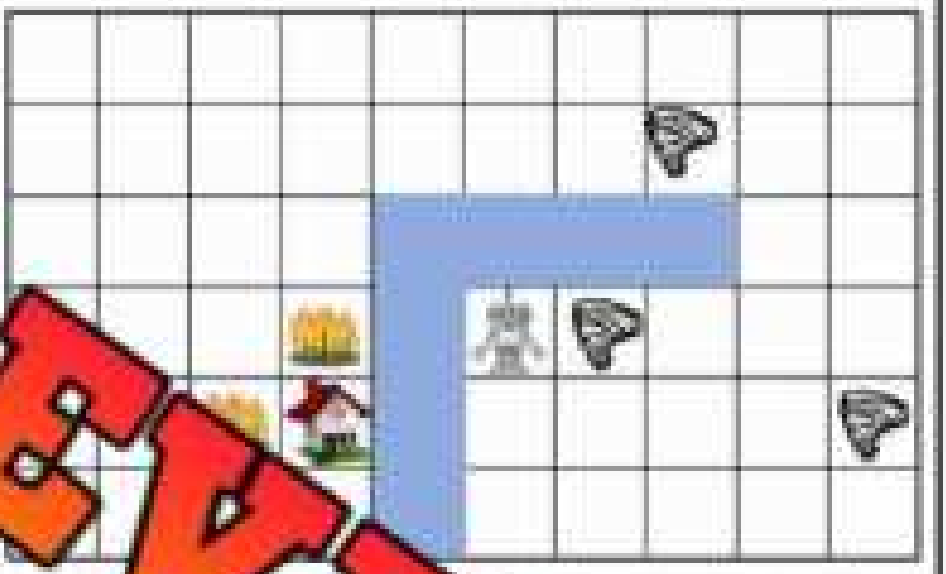
Name: _____ 20__

Unit Test Coding

Part 1 Use as few lines as possible to write efficient code.

Move the robot home by writing the least number of lines as possible.

Code



Lines of code written: _____

Part 2 Write code that sends the runner around the track.

2. Use a loop to send the runner 4500 metres.

Line 1: _____

Line 2: _____

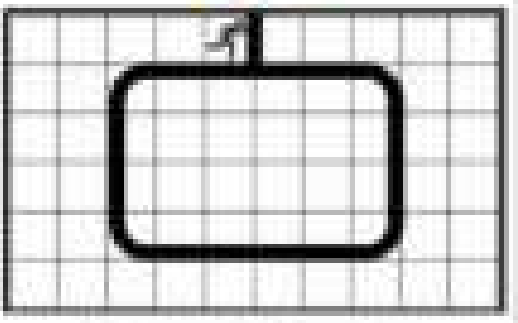
Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____

Line 7: _____



1 lap = 450 metres

Part 3 Write what the computer would reply with based on the code written.

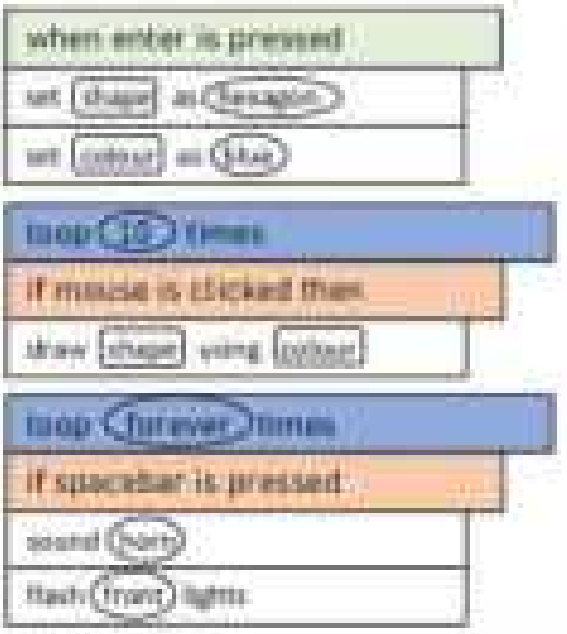
Code Written	The Computer Replied
y = 33 x = y - 85 print (x)	— —
x = 90 x + y = 35 print (y)	—

Code Written	The Computer Replied
y = 8 3y + x - 5 = 20 print (x)	—
x = 63 x + y + 22 = 29 print (y)	—

Part ...e answer to the question and then run the code.

	The Computer Prints...
If answer is >90, ... If answer is <90, then p... try" run 7 x 11 + 12	
If y is <150, then print "Better luck n... el" If y is >150, then print "Wow, great job!" run y = 5 x 20 + 55	

Part 5 Read the code and describe what will h...



Description

Workbook Preview

Grade 7
D1. – Data Literacy

	Curriculum Expectations	Pages That Cover the Expectations
D1.1	explain why percentages are used to represent the distribution of a variable for a population or sample in large sets of data, and provide examples	5 - 7
D1.2	collect qualitative data and discrete and continuous quantitative data to answer questions of interest, and organize the sets of data as	8 – 18, 50 – 51, 53 – 55, 68, 71, 76, 85, 87
D1.3		9, 52, 82 –
D1.4	create an infographic about a data set, representing the data in appropriate ways, including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data	95 - 100
D1.5	determine the impact of adding or removing data from a data set on a measure of central tendency, and describe how these changes alter the shape and distribution of the data	19 - 39
D1.6	analyse different sets of data presented in various ways, including in circle graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	43 – 47, 57 – 67, 70, 73 – 75, 78 – 81, 101 – 118

Name: ______________________ 5

Representing Distribution Using Percentages

Why Use Percentages?
Percentages are used to show the distribution of a variable. Using percentages makes the data easier to read than simply just using the frequency.

For example: Which table is easier to draw conclusions from?

Ways I Get To Work	
Persona[illegible]le	3558
[illegible]	241
[illegible]	[illegible]42
[illegible]	[illegible]
Total	[illegible]000

Ways I Get To Work			
Personal Vehicle	3558	0.71	71%
Bike	231	0.5	5%
Walk	752	0.15	15%
Bus	459	0.09	9%
Total	5000	1.00	100%

Questions Fill in [illegible] a[illegible]ntages and decimals

1) Favourite Colour			
Options	**Frequency**	**Decimal**	**%**
Blue	2560		
Red	2123		
Pink	1575		
Green	3742		
Total			

2) [illegible]vourite Music Genre			
[illegible]	**[illegible]y**	**Decimal**	**%**
[illegible]	[illegible]		
Po[illegible]	[illegible]32		
Rap	[illegible]42		
Country	294[illegible]		
Total			

3) Top 50 Movies All Time – Genres			
Options	**Frequency**	**Decimal**	**%**
Comedy	11		
Action	15		
Drama	22		
Horror	2		
Total			

4) Best Season to Travel			
Options	**Frequency**	**Decimal**	**%**
Summer	12845		
Fall	5207		
Winter	24543		
Spring	7405		
Total			

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

Fill in the relative frequency tables

Favourite Ice Cream Flavour			
Options	Frequency	Decimal	%
Chocolate	125		
Vanilla	920		
Strawberry	500		
Mint	205		
Total			

Name: _____

Fill in the relative frequency tables

Favourite Ice Cream Flavour			
Options	Frequency	Decimal	%
Chocolate	125		
Vanilla	920		
Strawberry	500		
Mint	205		
Total			

Name: _____

Fill in the relative frequency tables

Favourite Ice Cream Flavour			
Options	Frequency	Decimal	%
Chocolate	125		
Vanilla	920		
Strawberry	500		
Mint	205		
Total			

Name: _____

Fill in the relative frequency tables

Favourite Ice Cream Flavour			
Options	Frequency	Decimal	%
Chocolate	125		
Vanilla	920		
Strawberry	500		
Mint	205		
Total			

Name: _____ 7

Relative Frequency Distribution

Frequency Tables Versus Relative Frequency Tables
A **relative frequency table** displays the percent of each option in a data set. These relative frequencies are calculated by dividing the frequencies for each option by the total number of frequencies for all options.

A **frequency table** only lists the frequencies belonging to each group. Frequency tables are harder to generate comparisons between options in a data set.

Questions ...he tables. Is the table a frequency table or relative frequency table?

1) Nu... Ordered Per Order			
Options	Fr...	...cie...	%
0	34		
1-2	99		
2-3	56		
4+	11		
Total			

Relative Frequency Table Frequency Table

2) How Many Trees On Your Property	
Options	Frequency
0	754
1-5	3146
...	6485
...	9616
Tot...	

Rela... ...y Table ...equency Table

3) Musical Instrument You Play	
Options	Frequency
None	154
Guitar	125
Piano	110
Other	111
Total	

Relative Frequency Table Frequency Table

4) Type of V...			
Options	Frequency	...nal	%
Car	26714		
Van	6485		
Truck	11452		
Motorbike	3349		
Total			

Relative Frequency Table Frequency Table

Name: _____ 8

Collecting Data - Sampling a Population

What is a Population?
A **population** is the total set of subjects that fit a particular description. For example, students in Ontario is a population and would include all the students in Ontario.

Sampling a Population
When we want to know something about a population, it is easier to ask a sample of the population versus asking everyone within that population. For example, if we wanted to know if the stude[illegible] Ontario preferred Geography or Science, we could ask 10% of the population instead of [illegible]dent in Ontario. We can assume that the remaining 90% of the population would ha[illegible] the same way.

[illegible] saves us a lot of time and money. It works well if we samp[illegible]y. If we went to a Science and Technology school in Ontario [illegible]asked [illegible]liked Geography or Science better, they would likely all say Science[illegible] [illegible]ple of the population.

Questions Write a sam[illegible] not be a good representation of the population

	Population	[illegible]ey	Bad Sample
1)	Pet Owners in Canada	What is [illegible] pet?	Dog owners in Quebec
2)	Drivers in Ontario	Which is the best t[illegible] vehicle – truck or [illegible]	
3)	Adults in Ontario	Which genre of music is the best?	
4)	Adults in Ontario	Which is better – a hot tub or a pool?	
5)	Teens in Ontario	Which fast food restaurant is the best?	
6)	Kids in Canada	Which food is better – burgers or pizza?	
7)	Grade 7 Students in Ontario	Which school is the best in Ontario?	
8)	Athletes in Ontario	Which sport is the best?	
9)	Teachers in Ontario	Which grade is the best to teach?	
10)	Parents in Canada	Which vehicle is better – SUV or Van?	

Name: _____ 9

Sampling Techniques

Random Sampling
When we select people in a population randomly. Each person in the population has an equal chance to be selected. For example, using a computer generator to randomly choose people from a list.

Stratified Random Sampling
Taking a population and splitting them into groups and then random sampling the groups separately. For example, a school population could be divided into two groups: (1) students who take the bus and (2) those who don't take a bus. A survey could be given to both groups by randomly selecting 10% of the people in both groups. We can learn more information about the groups by using stratified random sampling.

Systematic Random Sampling
Systematic random sampling is when you choose a random sampling strategy before beginning a study. For example, a sample could be chosen from an alphabetized list of names, using a starting name and every fourth name to be randomly chosen.

Part 1 Write which type of sampling technique is being used in the examples below

Example of a Sampling Technique	Sampling Technique
1) Deciding randomly to choose every 5th person who enters the store	
2) Having a computer call 1% of the customers of a business	
3) Handing out surveys to every 10th person who enters the mall	
4) Using a computer to randomly email 5% of the customers in a database	
5) Asking every other grade 1 and every other grade 2 in Mr. Wilson's class	

Part 2 Which sampling technique would you use in the situations below

Situation	Sampling Technique
1) You want to know if more adults or kids in your city like your pizza	
2) You want to find out what 1% of Ontario adults think about your business	
3) You are interested in which subject your classmates like the best	
4) You want to know which teacher is most popular at your school	
5) You are interested in polling 5% of your customer base, asking what their favourite product is.	

Name: _____ 12

Qualitative vs Quantitative Data

Quantitative data	**Qualitative data**
Data that uses numbers (measured, counted) – length, height, area, weight, time, etc.	data that uses words (categories) – choices, favourites, foods, colours, etc.

Part 1 Read the description of the data and circle if it is quantitative or qualitative

1) Length [illegible]'s feet	Quantitative	Qualitative
2) Po[illegible] in North and South America	Quantitative	Qualitative
3) Ani[illegible]hat h[illegible]	Quantitative	Qualitative
4) Number of [illegible]y c[illegible] in the Olympics	Quantitative	Qualitative
5) How many mov[illegible] wa[illegible]	Quantitative	Qualitative
6) Brand of shoes you're [illegible]	Quantitative	Qualitative
7) Favourite drink at a café	Quantitative	Qualitative
8) How many steps you get a day	Quantitative	Qualitative
9) Favourite type of exercise	[illegible]tative	Qualitative
10) How many hours of sleep you get a night	[illegible]	Qualitative

Part 2 Write a quantitative and qualitative desc[illegible]r [illegible]ow

1) Topic – Sports	
Quantitative	
Qualitative	

2) Topic – School	
Quantitative	
Qualitative	

3) Topic – Social Media	
Quantitative	
Qualitative	

Name: _____ 13

Quantitative vs Qualitative Observations

Image #1

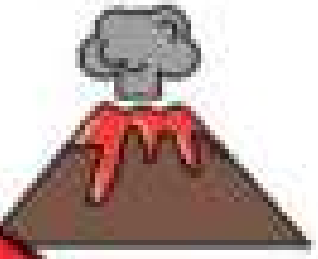


Image #2

Part 1 Write observations about image #1 and put an x if it is quantitative or qualitative

Observations	Quantitative	Qualitative
1) The volcano [illegible] tonnes [illegible] year	x	
2) The volcano rele[illegible]		
3) The volcano released [illegible]		
4) They poured 2 million litres [illegible]		
5) The lava cooled and became igneou[illegible]		
6) The heated water provided heat for 5,000 hom[illegible]		
7) The mountain was brown		
8) 200,000 litres of magma went back underground		
9) The air quality was poor in the surrounding area		
10) Airplanes could not fly in the area as vision was poor		

Part 2 Write quantitative and qualitative observations about image #2

Observations	Quantitative	Qualitative
1)		
2)		
3)		
4)		
5)		

Name: _____ 15

Primary vs Secondary Data

Primary Data Data that you have collected yourself **Example** - asking your classmates their favourite food	**Secondary Data** Data that has been collected by someone else **Example** - finding data on the internet

Part 1 Read the description of the data and circle if it is primary or secondary data

1) You ... what their favourite pizza topping is	Primary	Secondary
2) You ... the teachers in your school	Primary	Secondary
3) You record ... different types of drinks	Primary	Secondary
4) You look up the ... your city	Primary	Secondary
5) You research how many ... per game in his first 10 seasons	Primary	Secondary
6) You record how many sit-ups your ... can do in 1 minute	Primary	Secondary
7) You weigh 5 different cookies you buy from ...	Primary	Secondary
8) You research how many kids in Canada do gymnas...	Primary	Secondary
9) You look up the speeds of 5 different computers for sale	Primary	Secondary
10) You measure the heights of the kids in your class	Primary	Secondary

Part 2 Write your own primary and secondary data descriptions that you are interested in

1) Primary	
2) Secondary	
3) Primary	
4) Secondary	

Name: ______________________ 16

Discrete or Continuous Data?

Discrete and continuous data are both forms of quantitative data. This means both are numerical, meaning the data is acquired through counting or measuring.

Discrete data is collected when the answers to a survey are only numbers. It is quantitative data that has no relationship between the numbers. For example, "how many pets you have" is discrete data because there is no relationship between 1 and 2 pets. You cannot have 1 and a half pets, only 1 or 2. Discrete data is counted.

With **...ntinuous data**, there is a relationship between the numbers. For example, "how muc... there was last week?" You can have 1 and a half millimetres of rain, which m... relationship between 1 and 2. Continuous data is measured.

Questio... Wi... from the research question be discrete or continuous?

Tip: Ask yoursel... n sp... in half.

...on	Discrete/Continuous
1. How many cm of snowfall ...	
2. How many siblings do you have?	
3. What was the average temperature in July?	
4. How many minutes did you read this week?	
5. How many video games do you own?	
6. How many kilometres did you run this week?	
7. How many sports do you play?	
8. What grade are you in?	
9. How many litres of milk do you drink a week?	
10. How many cars does your family have?	

Name: _____ 18

Data – Qualitative, Discrete, or Continuous?

Part 1 Researching a basketball team

You are the manager of a basketball team and are researching your next opponent. You decide to collect data based on the questions below. Is the data qualitative, discrete, or continuous?

Data Collected	Qualitative/Discrete/ Continuous
1) How many players are on the team?	
2) How tall are their players?	
3) How many points do they earn per game?	
4) What colour are their jerseys?	
5) Which teams have they played for?	
6) How many games have they played?	
7) How old are their players?	
8) How many wins do they have this year?	
9) How many seconds do they take before they shoot?	
10) Which type of defense do they play – zone or man?	
11) How many three pointers do they take a game?	
12) What is the name of their mascot?	

Part 2 Write one example of each type of data

Type of Data	Example
Qualitative	
Discrete	
Continuous	

Name: _____ 19

MEAN

When we calculate the mean, we are finding the average of a set of numbers.

Example: Three brothers named Josh, Cameron, and Morgan went 'trick or treating' on Halloween. Josh got 13 candies, Cameron got 11, and Morgan got 9. At the end of the night, their mother told them to split the candy equally. So, they decided to put all the candy in the middle and then divide them equally amongst themselves.

- They had 13 + 11 + 9 = 33 candies and divided 33 ÷ 3 kids = 11 candies each.

Josh	Cameron	Morgan		Total		Josh	Cameron	Morgan
13 Candy Bag		9 Candy Bag	=	33 Candy Bag	=	11 Candy Bag	11 Candy Bag	11 Candy Bag

Mean = 11

Questions

...up the candy and then fair share it

Claire	Katie				Claire	Katie	Ashley
12 Candy Bag	25 Candy Bag		=		_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

Emma	Olivia	Ava		Total			Ava
67 Candy Bag	58 Candy Bag	25 Candy Bag	=	_____ Candy Bag	=		_____ Candy Bag

Mean = _____

Mia	Harper	Charlotte		Total		Mia	Harper	Charlotte
91 Candy Bag	68 Candy Bag	66 Candy Bag	=	_____ Candy Bag	=	_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

Liam	Noah	William		Total		Liam	Noah	William
42 Candy Bag	98 Candy Bag	106 Candy Bag	=	_____ Candy Bag	=	_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

Name: _____ 20

MEAN

Mean = the average in a set of data

Step 1: Add up the numbers in the data set

Step 2: Divide the sum by the amount of numbers in the set.

Example:

Data set: 5, 6, 8, 5

Step 1: 5 + 6 + 8 + 5 = 24

Step 2: 24 ÷ 4 = (6)

Part 1 Find the mean for each data set below

	Data Set	Total – Add Numbers	Mean
1)	13, 18, 23		
2)	49, 75, 35		
3)	17, 26, 13, 44		
4)	3.5, 4.8, 5.2		
5)	15, 84, 53, 48, 40, 48		
6)	53, 67, 45, 19		
7)	71, 84, 98, 103		
8)	117, 125, 132, 154		
9)	35, 45, 27, 33		
10)	11.6, 18.2, 23.8, 44.4		

Part 2 Answer the word problems below

1) Jason has completed 5 math tests this year. His marks as percents are: 81%, 72%, 93%, 68%, and 86%. What was his average mark?

2) Logan bought 6 hockey cards for the following prices: $13, $18, $32, $9, $44 and $52. What was the average price for one hockey card?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ____________________

Find the mean of the data sets below

Data [illegible]	Add Numbers	Mean
192.5, [illegible] 218.[illegible]		
[illegible] 2[illegible] 261		

Answer the w[illegible]ow

Ben's scores in [illegible] vid[illegible] over 5 sessions were[illegible] 1450, and 1325. What is [illegible] per session?

Name: ____________________

Find the mean of the data sets below

Data Set	Add Numbers	Mean
192.5, 204.3, 218.7, 210.8		
221, 234, 248, 239, 255, 261		

Answer the word problem below.

Ben's scores in his favourite video game over 5 sessions were: 1250, 1375, 1100, 1450, and 1325. What is his average score per session?

Name: ____________________

Find the mean of the data sets below

Data Set	Add Numbers	Mean
192.5, 204.3, 218.7, 210.8		
221, 234, 248, 239, 255, 261		

Answer the word problem below.

Ben's scores in his favourite video game over 5 sessions were: 1250, 1375, 1100, 1450, and 1325. What is his average score per session?

Name: ____________________

Find the mean of the data sets below

Data Set	Add Numbers	Mean
192.5, 204.3, 218.7, 210.8		
221, 234, 248, 239, 255, 261		

Answer the word problem below.

Ben's scores in his favourite video game over 5 sessions were: 1250, 1375, 1100, 1450, and 1325. What is his average score per session?

Name: _____ 22

Estimating the Mean

The mean is the average number in a data set. When we understand what the mean of a data set is, we can estimate the mean easily without doing any calculations.

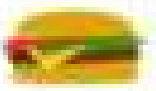
For example, in the data set: 22, 18, 16, 25, 20, we can estimate that the mean will be approximately 20, without doing any calculations. This is because the mean has to be between 16 and 25. We can also see that there are two numbers above 20, and two numbers below 20.

Part 1 Estimate the mean by circling one of the options ... answer by calculating the mean

		Options			
		1	2	3	4
1)	5, 5, 7, 7, 6	4	5	6	7
2)	22, 25, 24, 23, 26	22	23	24	25
3)	13, 18, 16, 14, 19	14	16	18	19
4)	22, 19, 25, 15, 14	16	25	23	19
5)	64, 68, 57, 59, 62		66	67	62
6)	74, 88, 65, 81, 62			82	64
7)	83, 99, 72, 76, 85			78	89
8)	93, 95, 85, 105, 87				93
9)	121, 102, 133, 125, 144	108			134
10)	152, 168, 158, 148, 134	152	16	145	139

Part 2 Answer the word problems below by estimating

1) Meredith bought lunch every day from Monday to Friday last week. She spent: $9, $5, $11, $12, and $8. Approximately how much did lunch cost her per day?



2) Michelle sells popcorn at a festival. She worked for 6 hours, selling the following dollar amounts each hour: $22, $32, $45, $27, $38, and $46. Approximately how much did she earn each hour?

Name: ______________________ 23

Finding Missing Data Point Using Mean

We can determine the missing number in a series if we know the mean by using the following formula:

$$Mean = \frac{Sum\ of\ given\ numbers + (unknown\ number)}{total\ numbers}$$

Example: 25, 27, ?, 30 Mean = 26

Steps

1) Multi[illegible] number of total numbers you have by the mean (26 x 4 = 104)
2) Add [illegible]bers you know (25 + 27 + 30 = 82)
3) Fi[illegible] (subtract) between 104 and 82 (104 – 82 = 22) – Answer = 22

Questions: [illegible]able below to find the missing data point

	Data Set	[illegible]	Calculations	Missing Data Point
Ex)	9, 16, ?, 22, 12, 19	15	1) [illegible] 2) [illegible] 19 = 78 3) [illegible] – 78	12
1)	12, 18, 6, ?, 15	17		
2)	48, ?, 32, 45, 30, 21	32		
3)	61, 35, 51, 23, ?	45		
4)	72, 41, 32, ?, 68, 65	57		
5)	91, 85, 60, 57, ?, 52	75		

Name: _____ 26

Finding Missing Data Point Using Mean

Questions | Answer the word problems below

1) Leah has completed 5 assignments in math this year. She has the following marks (written as percentages) – 79%, 89%, 68%, 77%, and 78%.

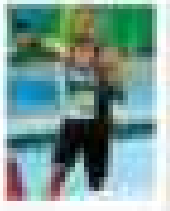
In order to get an A- on her report card, she needs an 80 average or more. She has one more assignment left. What mark does she need to achieve an 80% average?

2) Tyler slept an average [illegible] a week. He slept for 5.5 hours on both Monday and Tuesday. He slept for [illegible] Thursday and 8.5 hours on Friday and Saturday. On Sunday, he slept for [illegible] hours! How long did he sleep on Wednesday?

3) Andre De Grasse was practicing his 100m race. He ran 10 full speed races last week. His average time was 10.2 seconds. His times have been presented in the table, but he is missing his time for race 7.

Race	1	2	3	4	5	6	7	8	9	10
Time	10.1	9.7	9.8	10.3	10.9	9.8		9.9	10.8	10.9

What was his time for race number 7?



Name: _____ 25

Task Cards: Mean Detective

Objective — What are we learning about?

To help students understand and solve for a missing data point in a set by using the mean (average).

Materials — What you will need for the activity

- [illegible]
- [illegible] sheet for answers
- Pencils

Instructions — How to [illegible] activity

1. Introduce the concepts covered in [illegible]
2. Organize the students into pairs and provide each pair with [illegible] their sets of task cards.
3. Give each pair an answer recording sheet [illegible] down [illegible] answers.
4. Encourage teamwork by having students collaborate [illegible] their [illegible] on finding solutions.
5. Allow students to select any task card to begin with, emphasizing [illegible] complete the cards in any order they prefer.
6. Instruct students to record the letter of their chosen answer (A, B, or C) on their answer sheet beside the task card's number.
7. Consider using a timer to create a dynamic challenge, adjusting the duration to fit the lesson's objectives and complexity.
8. After the activity, review the answers collectively, discussing any challenging questions and strategies used to solve them.
9. Have students reflect on the activity, sharing the methods they applied and obstacles they overcame.

Name: _____ 26

Task Cards | Cut out the task cards below

Card 1:
Determine the missing number in the series: 72, ?, 68, 75, 70, 69, if the mean is 71.

a) 73
b) 67
c) 72

Card 2:
The following test scores are missing one score: 85, 92, ?, 77, 81. If the mean is 84, what is the missing score?

a) 86
b) 82
c) 85

Card 3:
[illegible] following in basketball: [illegible], 14. If his average [illegible] the score in the [illegible]

a) [illegible]
b) 18
c) 15

Card 4:
A group of students spent the following hours studying: 4.5, 5, 6, 7, ?, 5.5. The average time is 5.8 hours. What is the missing time?

a) 6
b) 5
c) 7

Card 5:
A bakery sold 45, 38, 30, 41, ?, 50 pastries over six days, and the mean number of pastries sold was 42. Find the missing sales.

a) 48
b) 40
c) 43

Card 6:
[illegible] in percentiles [illegible] 89%, ?, 88%. If the [illegible] the missing [illegible]

a) [illegible]
b) [illegible]
c) 92%

Card 7:
A factory produces an average of 8.4 tonnes of steel per day. On Monday, it produced 8.9 tonnes, on Tuesday 8.3 tonnes, on Wednesday 8.5 tonnes, and on Thursday 7.9 tonnes. How much steel was produced on Friday?

a) 8.6 tonnes
b) 9.0 tonnes
c) 8.4 tonnes

Card 8:
Find the missing number in the series: 4.5, ?, 6.0, 7.2, 4.8, 5.6, if the mean is 5.5.

a) 4.7
b) 6.3
c) 4.9

Name: ______________________ 27

Task Cards | Cut out the task cards below

Card 9:
The average weight of a group of objects is 3.6 kg. Their weights are 3.1 kg, 4.0 kg, 2.9 kg, ?, and 4.4 kg. What is the missing weight?

a) 4.3 kg
b) 3.8 kg
c) 3.6 kg

Card 10:
Rachel scored 67%, 71%, ?, 85%, and 79% on her tests. If her mean score was 75%, what was her missing score?

a) 73%
b) 74%
c) 76%

Card 11:
The [illegible]age d[illegible]ll in a week was 2.8 m[illegible] 2.0 [illegible] 3.5 mm, 3.0 mm, [illegible]m, 2[illegible]d 3.1 mm. What [illegible] rainfall[illegible]

a) 3.0 mm
b) 2.5 mm
c) 2.6 mm

Card 12:
Alex needs a 90% average on five quizzes to get an A. He scored 88%, 92%, 85%, and 94%. What is the minimum score he needs on his final quiz to get the A?

a) 91%
b) 89%
c) 90%

Card 13:
The mean height of 6 plants is 24.5 cm. The heights of 5 plants are 23 cm, 26 cm, 22 cm, 27 cm, and 25 cm. What is the height of the missing plant?

a) 24 cm
b) 26 cm
c) 22 cm

Card 14:
The av[illegible] 7 nu[illegible]s 13.2. The numbers [illegible] 15 [illegible] and 12. What is the [illegible]

a) [illegible]
b) 14
c) 11

Card 15:
The mean of these values is 55: 53, 54, ?, 57, 55, 56. What is the missing number?

a) 55
b) 54
c) 53

Card 16:
Find the missing decimal: 3.1, 3.7, ?, 2.9, 3.5, 3.3, with a mean of 3.4.

a) 3.9
b) 3.6
c) 3.3

Name: _____ 28

Task Cards | Cut out the task cards below

Card 17:
77%, 80%, 84%, 82%, ?, 75%. If the average is 80%, what is the missing percentage?

a) 78%
b) 79%
c) 82%

Card 18:
A student studied for 6.5, 5, 7, ?, and 6 hours in a week. If the average time studied was 6 hours, how many hours did the student study on the missing day?

a) 5.5
b) 7
c) 6.5

5.5, 6.8, 7.4, ... a m... 6.5. Find the m... g n...

a) 6.
b) 5.7
c) 6.2

Card 20:
The mean age of a group of 6 people is 25 years. Their ages are 22, 28, 23, 27, ?, and 24. What is the missing age?

a) 26
b) 25
c) 24

Card 21:
A family spent $350, $420, $410, and $? on groceries over four weeks. If the average weekly spending was $400, how much did they spend on the missing week?

a) $370
b) $380
c) $420

Card 22:
... of 78% to pass. ... 79%, 80%, 77%, and ... ctly 78%, what was ...?

a) ...
b) 76%
c) 77%

Card 23:
A soccer team won their games by 3, 5, ?, 2, and 4 points. If their average points won is 3.5, how many points did they win by in the missing game?

a) 4 points
b) 3.5 points
c) 5 points

Card 24:
In a race, 5 runners had the following times in minutes: 12.5, 11.8, ?, 12.9, 11.5, with an average time of 12.1 minutes. What was the missing time?

a) 12.0 min
b) 11.8 min
c) 12.4 min

Name: _____ 29

Task Cards: Mystery Number Detectives

Answers Record your answers below

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

Name: _____ 31

Outliers in Data Sets

An **outlier** in a data set are values that are significantly different from other measures. They may mean that something has gone wrong in the data collection, or they may represent a valid measure that needs further explanation.

Part 1 Circle any outliers in the data sets below

1)	7, 8, [illegible], 5, 10, 42, 9	5)	1524, 1531, 1585, 1563, 1284
2)	12, [illegible], 04, 25, 72	6)	102.2, 10.5, 103.9, 104.6, 102.5, 62.1
3)	[illegible], 109	7)	2751, 2853, 2623, 3547, 2345, 1258
4)	6[illegible], 5.0, [illegible]	8)	421, 521, 605, 2021, 4452, 506, 572

Part 2 [illegible] the [illegible] below

1) Jonah practiced his [illegible] day [illegible] to the stop watches that automatically record his times on a comput[illegible]. His scores: 55, 49, 51, 52, 132, and 48.

a) Which of his scores was an outlier?

b) What might have caused the outlier [illegible]?

2) Alex looked at how many steps he took last wee[illegible] took over the last 7 days is recorded below.

10425, 12325, 8542, 9875, 2012, 192[illegible]0

a) Which of the values are outliers?

b) Explain why he may have an outlier of 2012 steps?

c) Why might Alex have an outlier of 19252 steps?

3) Kylie has a business where she sells cakes. She recorded her last 15 days of cake sales.

8, 7, 9, 12, 6, 25, 7, 9, 8, 6, 10, 0, 11, 12, 8

a) Which of the values are outliers?

b) Explain what could have led to her selling 25 cakes on day 6.

c) Explain what could have led to her selling 0 cakes on day 11.

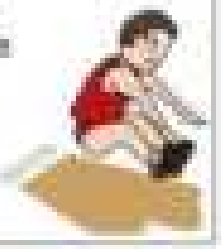
Name: _____ 32

Calculating Mean - Outliers

Outliers have a big impact on the mean of a data set. For example, if John records his last 5 long jumps and jumps the following distances:

6.5m, 6.8m, 1.5m, 6.2m, 6.1m

John explains after that on his third jump, he slipped and didn't perform a full jump. The data set has an outlier that doesn't reflect John's ability to jump. We can see the difference when we use an outlier in our calculation of the mean



Mean W
Mea

Part 1

Find the mean using the outlier and without the outlier

	Data Set	Outlier(s)	Mean Without Outlier(s)
1)	9, 7, 5, 25, 8, 6		
2)	21, 48, 24, 20, 26, 22		
3)	12.2, 15.6, 14.3, 28.4, 16.1		
4)	53, 105, 61, 11, 65, 58, 59		
5)	51, 81, 84, 83, 82, 84, 113		

Part 2

Answer the word problem below

1) Explain what happened in questions 4 and 5. Why was the mean similar with the outliers?

2) Maria's teacher is deciding between an A- and B+. An A- is between 80-84 and a B+ is between 77-79. Maria received the following marks:

78, 85, 81, 82, 77, 88, 52, 84

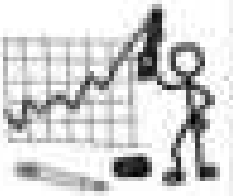
Should the teacher give Maria an A- or B+? Explain using outliers – do calculations!

Name: _____ 33

MODE

Mode: The number that occurs the most in a data set. The mode is used to calculate data in nominal data sets.

Step 1: Order the numbers from least to greatest
Step 2: Find the number or numbers that show up the most - You can have zero mode or more than one mode.



Example: [illegible], 7, 3, 9, 11
[illegible], 7, 9, 11 **Answer:** 3

	Ordered List	Mode
1)	13, [illegible]	
2)	22, 25, 23, 22, [illegible]	
3)	37, 49, 35, 37, 49, 35, [illegible]	
4)	65, 54, 58, 58, 54, 65, 54, 58	
5)	79, 72, 75, 76, 72, 79, 75, 79	
6)	91, 95, 94, 90, 91, 94, 95, 97	
7)	121, 102, 112, 114, 104, 117	

1) Justin tracks what time he goes to bed at for 15 days. His bedtimes are written below:

7, 11, 8, 8, 7, 9, 10, 10, 7, 8, 9, 9, 8, 11, 9

What time did Justin go to bed at most often in the 15 days? _____

2) Adults were asked to choose a number from the food menu. The results are represented in the data set. What is the mode?

4, 1, 2, 4, 2, 2, 4, 1, 2, 1, 4, 2, 3, 1, 2, 2, 3, 2, 3, 4, 1, 2, 3, 1, 2, 2, 1, 3, 3, 4, 1

1	Fish
2	Chicken
3	Steak
4	Vegetables

Which food choice was most popular? _____

Name: _____ 34

MEDIAN

Median: The median is the middle number in a data set.

Step 1: put numbers in order from smallest to largest

Step 2: circle the number in the middle.

*** if there is an even amount of numbers in the data set, add the two numbers in the middle together and divide by 2. This is the median.

Part 1 Find the median of the data sets below

		Ordered List	Median
1)	[illegible] 8	4, 7, (8, 8) 12, 15	8 + 8 = 16 16 ÷ 2 = 8
2)	15, 17, [illegible]		
3)	27, 20, 24, 28, 26, [illegible]		
4)	58, 64, 42, 57, 68, 48		
5)	84, 95, 54, 68, 92, 75, 86, 95		
6)	105, 125, 108, 152, 128, 135, 133		
7)	10.2, 10.8, 12.3, 11.8, 12.5		

Part 2 Answer the word problems below

1) The average temperatures across all 13 provinces and territories are listed below:
11°C, 9°C, 8°C, 9°C, 5°C, 7°C, 2°C, 3°C, 9°C, 10°C, 8°C, 8°C, 6°C

What is the median temperature in Canada? _____

2) Ten students are asked how many hours a day they spend on their phones. The results are as follows: 4, 6, 5, 3, 1, 7, 5, 4, 6, 8

What is the median number of hours the students spend on their phones? _____

Name: _____ 35

Calculating Mode and Median - Outliers

Part 1 Calculate the mode using the outlier(s) and without the outlier(s)

	Data Set	Mode With Outlier(s)	Mode Without Outlier(s)
1)	11, 15, 12, 16, 45, 13, 12, 15, 12, 15		
2)	45, [illegible] 21, 45, 46, 88, 47, 46		
3)	[illegible] 42, 81, 77		
4)	[illegible] 208, 48, 112		
5)	254, 28[illegible] 575,		

Do the outliers infl[illegible] why or why not.

Part 2 Calculate the median using the [illegible] outlier(s)

	Data Set	Median With Outlier(s)	Median Without Outlier(s)
1)	15, 19, 16, 2, 47, 18, 17		
2)	45, 40, 99, 48, 43, 46, 45		
3)	75, 79, 125, 21, 72, 76, 75, 81		
4)	94, 88, 156, 92, 95, 96, 97, 41		
5)	8.5, 8.4, 8.8, 7.9, 8.3, 2.5, 21.5		

Do the outliers influence the median? Explain why or why not.

Name: _____ 36

When To Use – Mean, Median, Mode

In general, we can use the following rules when deciding which measure of central tendency to use.

Mean

- Data without outliers or data sets with many data points to "wash out" outliers
- Provides accurate average of a data set and works well with all sizes of data sets

Mode

- Working with qualitative or nominal data
- Very e… determine the mode and is not impacted by outliers
- Does … give an accurate average of a data set

Median

- W… has outliers and with large data sets
- … accurate average than mode, but less than mean

Questions

… tral tendency will you choose to use? Explain

1) The average point… your team. You have a large data set with no outliers.

2) People vote on their favourite number from … 7, 5, 6, 4, 2, 5, 7, 5

3) The average salaries for Canadians. Your data set has many outlier…

4) The average amount of medicine that is effective. The data set is small with no outliers.

5) People choose which meal number (1-6) they order from a fast-food restaurant.

Name: _____ 37

Mean, Median, Mode – Hourly Rate

Questions | Answer the questions below

You are deciding between 3 jobs to take based on their hourly rates. You have the following data, which shows how much 5 of the employees at each business earn per hour.

	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5
Busine	$45	$16	$17	$45	$15
Bus		$30	$112	$24	$25
		$20	$21	$54	$56

a) Rank the ... hourly rate. Which one would you choose?

b) Instead of using the m... rate ... ode. Which business would you join?

c) You want to make sure you select the best ... s, s... median hourly rate. Which business would you choose?

d) You notice an outlier in business 2's data. What could be an exp... outlier?

e) If you omit the outlier, what is the mean rate of business 2? Does this change your choice? Explain.

f) If you were the business owner, would you include the outliers in your data? Explain.

Name: _____ 38

Mean, Median, Mode – Dinner Out

Questions Answer the questions below

You and your friends are comparing how many times you have been out for dinner in the past year. The following table shows how many dinners each friend has gone out for by month.

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ben			2	1	4	3	2	4	1	2	1	1
				3	2	5	4	3	1	2	2	1
Ava	1				3	2	3	2	2	1	1	2
Max	2					4	2	1	4	8	2	3

a) Calculate the mea[illegible] of times out for dinner. Who went out for dinner the most p[illegible]

b) Compare the medians of each friend. Who[illegible] most per month?

c) Compare the mode of each friend. Who went out for dinner th[illegible]

d) Using the mean, which month was most popular for going out for dinner?

e) What is the mean of the medians for each friend's number of visits out for dinner?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

The table below shows the number of hours you and your friends have studied each week.

	Week 1	Week 2	Week 3	Week 4
Bob	10	8	12	9
Jack	7	11	10	13
Leo	12	15	11	14
Ava	9	6	7	8

1) Calculate the mean for each friend's number of study hours. Who studied the most on average per week?

2) Identify which week was the most popular for studying among all friends? On average, how much did the friends study that week?

Name: _____

The table below shows the number of hours you and your friends have studied each week.

	Week 1	Week 2	Week 3	Week 4
Bob	10	8	12	9
Jack	7	11	10	13
Leo	12	15	11	14
Ava	9	6	7	8

1) Calculate the mean for each friend's number of study hours. Who studied the most on average per week?

2) Identify which week was the most popular for studying among all friends? On average, how much did the friends study that week?

Name: _____ 63

Horizontal Bar Graph - Population

Joel displayed the population of the 13 provinces/territories in Canada in a horizontal bar graph.

a) Which province/territory has the greatest populati	
b) Which provinces/territories have the lowest populations?	
c) Did Joel collect primary or secondary data?	
d) Is the data quantitative or qualitative?	
e) Approximately how many more people live in Ontario than New Brunswick?	
f) Approximately how many more people live in Quebec than Newfoundland and Labrador?	
g) Do more or less people live in Ontario than Manitoba, Saskatchewan, BC, and Alberta put together?	

Name: _____ 44

Vertical Bar Graph – Population Growth

The population growth rates for each province/territory between the 2011 and 2016 census has been displayed in the bar graph.

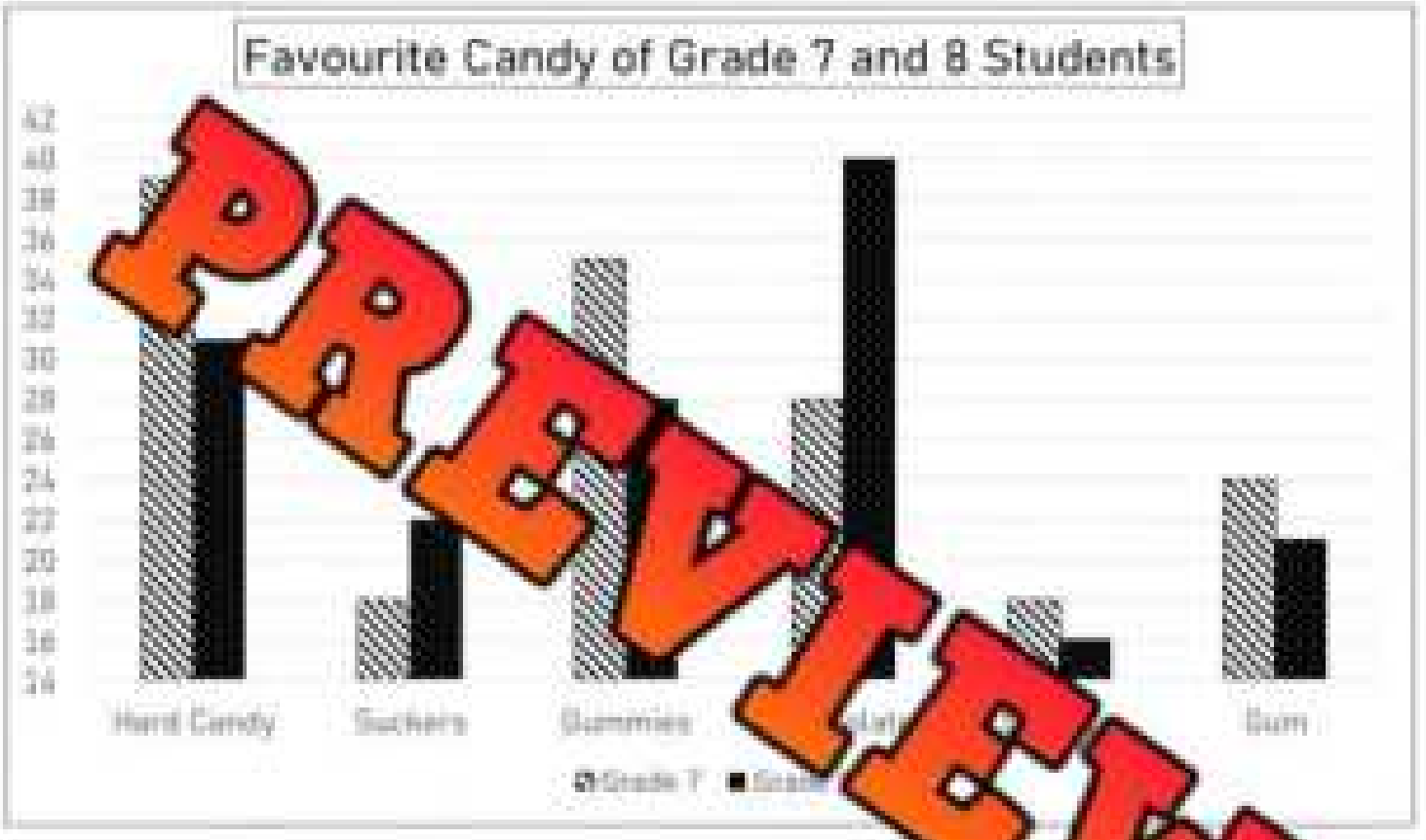
Frequency Table	
NFL	
NWT	
NS	
NU	
ON	
PEI	
QUE	
SK	
YU	
Mean of Canada	
Mode of Canada	
Median of Canada	

a) Which province/territory grew the fastest?	
b) Which province/territory did not grow?	
c) What was the mean growth rate of the provinces and territories?	Provinces =
	Territories =
d) Who had a higher growth rate – the provinces or territories? What could explain the results?	

Name: _____ 57

Interpreting a Double Bar Graph

The students in grades 7 and 8 were asked which candy was their favourite. The results have been sorted by grade in the double bar graph below.



a) Which candy did the grade 7's like the most?			
b) Which candy did the grade 8's like the most?			
c) Which candy got the most votes combined?			
d) How many more votes did gummies get in total over licorice?			
e) How many students participated in the survey?	Gr. 7	Gr. 8	Total
f) What percentage of students chose gum as their favourite?			
g) What percentage of grade 7s chose hard candy?			
h) What percentage of grade 8s chose chocolate?			

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ____________________

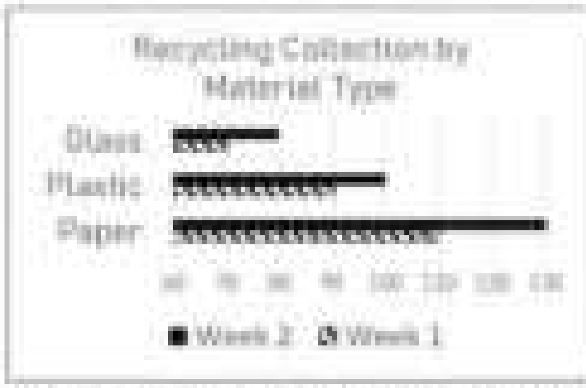
1) Which material showed the greatest increase in the amount collected from Week 1 to Week 2?

____

2) What is the total amount of paper recycled over both weeks combined?

____

Name: ____________________



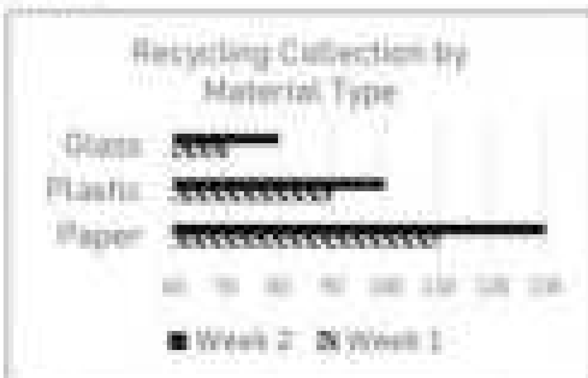
1) Which material showed the greatest increase in the amount collected from Week 1 to Week 2?

____

2) What is the total amount of paper recycled over both weeks combined?

____

Name: ____________________



1) Which material showed the greatest increase in the amount collected from Week 1 to Week 2?

____

2) What is the total amount of paper recycled over both weeks combined?

____

Name: ____________________

1) Which material showed the greatest increase in the amount collected from Week 1 to Week 2?

____

2) What is the total amount of paper recycled over both weeks combined?

____

Name: ______________________________ SY

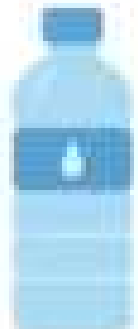
Activity Title: Flip the Data

Objective What are we learning about?

Students will engage in a fun and active game where they read data from a bar graph and answer questions to earn the opportunity to flip a bottle or cup. This activity combines data interpretation skills with a physical challenge, adding excitement and a competitive element to learning.

Materials ...hat you will need for the activity

- B... ...r cup... ...g
- A sm...boa... ...r t... ...play bar graphs
- Timer (sto... ...artp... ...p)
- Question ca... ...on t... ...data
- Scoreboard to k...

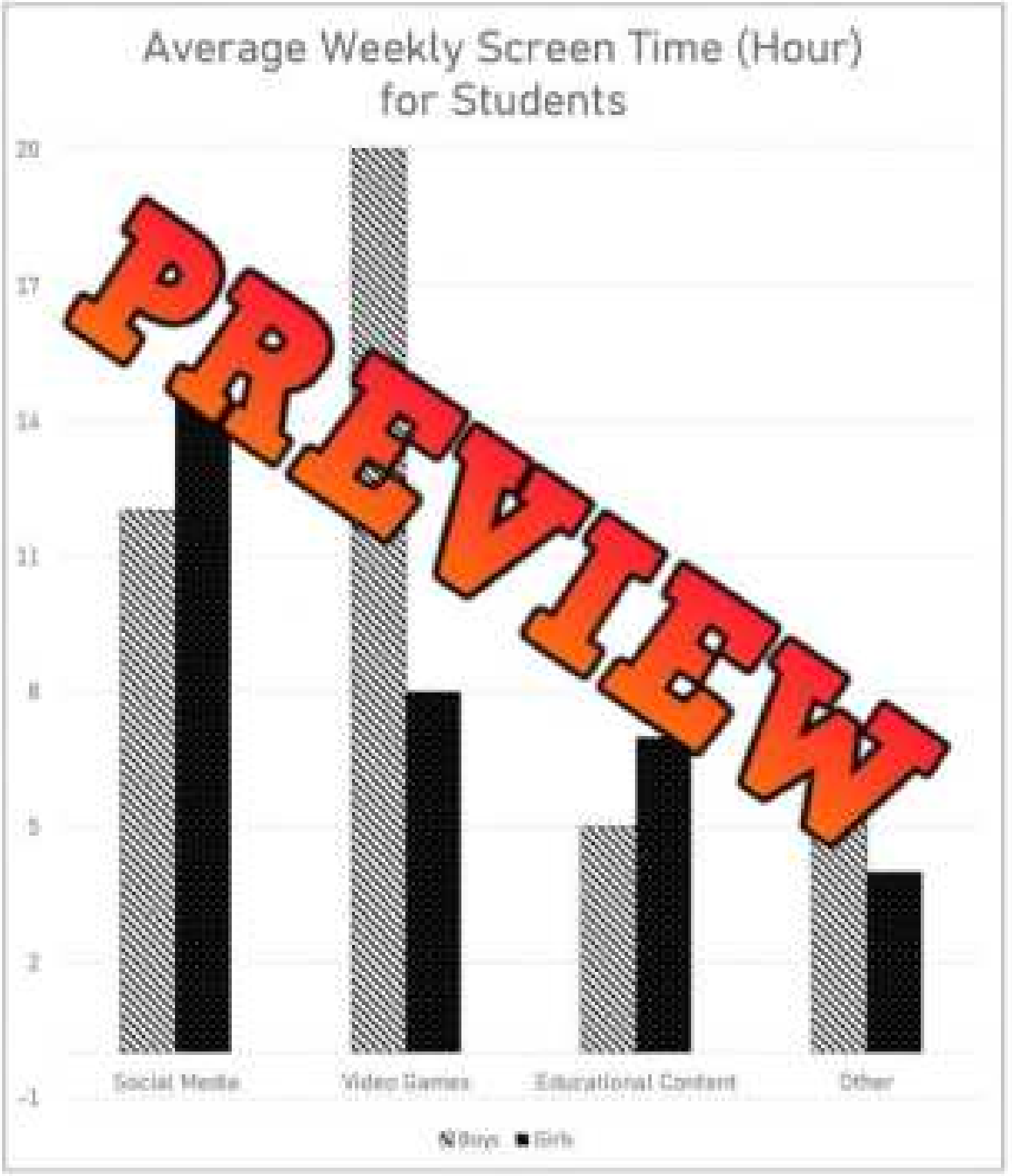


Instructions How you w... ...mp...

1. Divide the class into small teams, ideally of 5 ... ...ude...
2. Prepare a series of bar graphs to display o... ...mar... ...ith corresponding question cards that ask about ...
3. One team at a time comes to the front where the g... ...
4. Display the first bar graph on the smartboard.
5. The first student from the active team reads the graph and sel... ...rd. Start the timer when the question is first shown.
6. The student answers the question based on the data presented in the graph. The teacher checks the answer.
7. If the student answers correctly, they flip their bottle or cup repeatedly until they land it upright. When they do, the next teammate can take their turn.
8. If the student's answer is incorrect, they must try another question card before they can attempt to flip.
9. The team's turn ends either when all members have successfully flipped their bottle/cup or when the timer reaches a set limit (e.g., 3 minutes).
10. Record the team's time or number of successful flips on the scoreboard.
11. Repeat steps 4-10 for each team. The team with the fastest time wins.

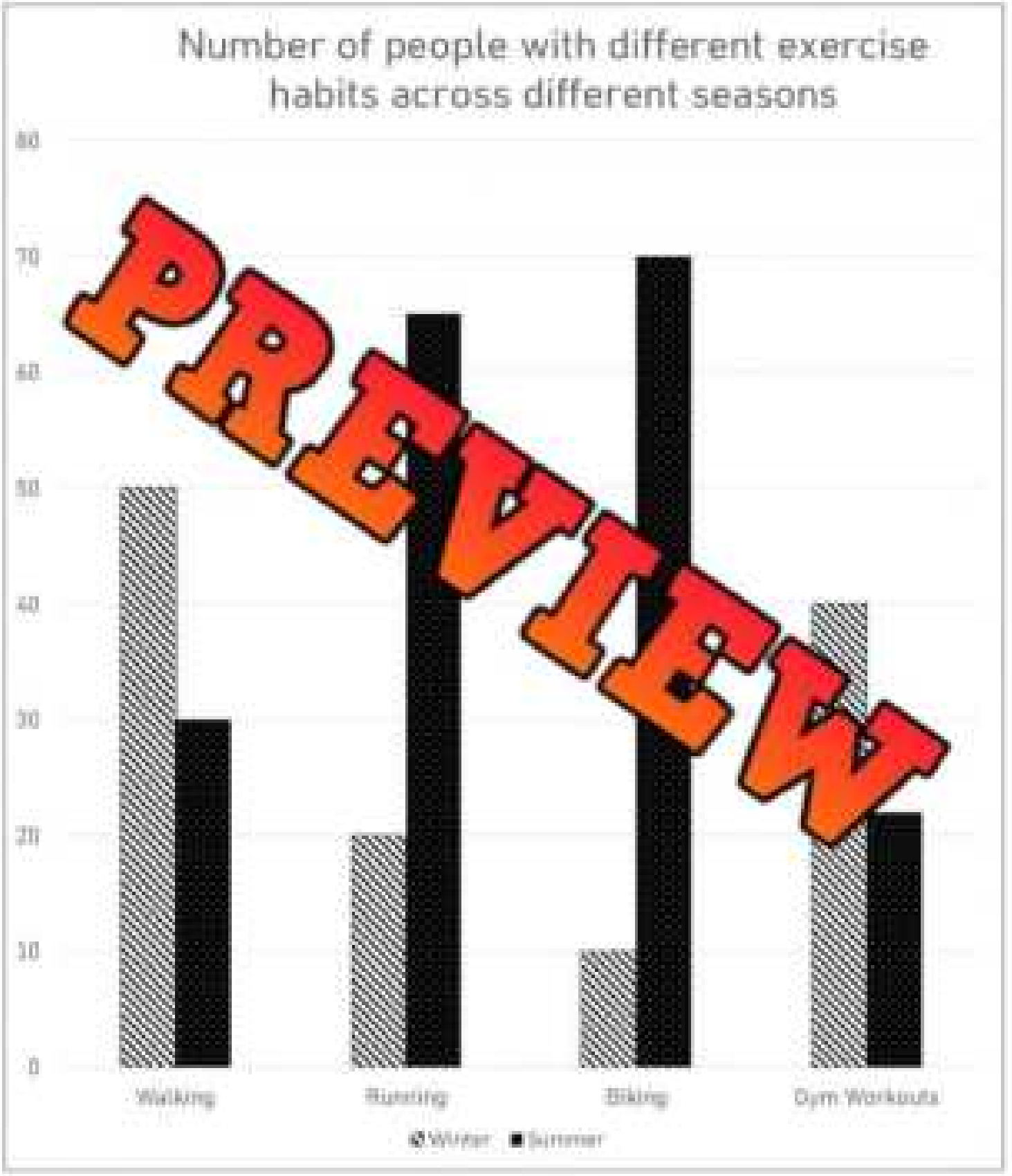
Name: _____ 60

Graph 1	What did you learn from the graph?



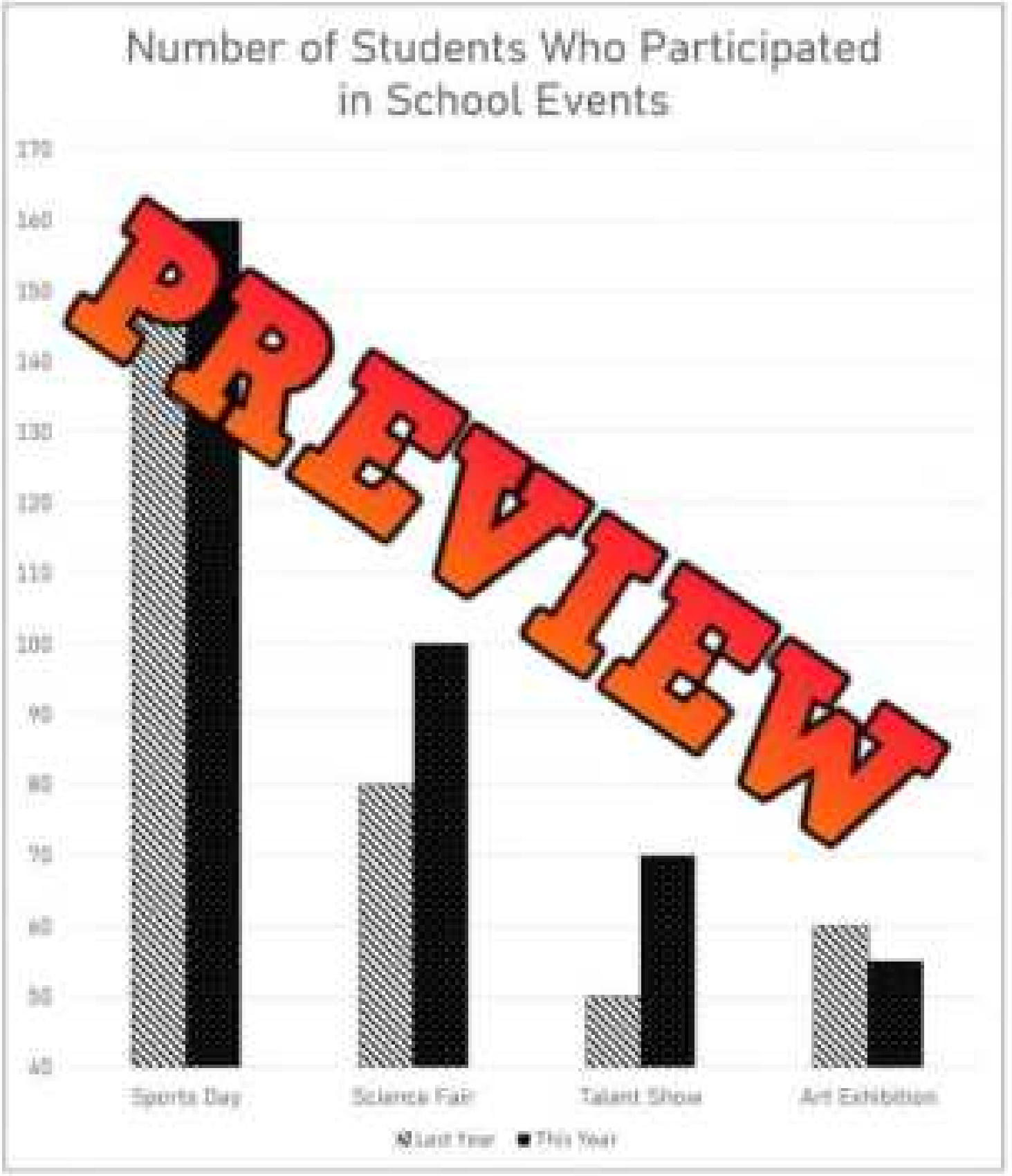
Name: _____ 63

Graph 4 | What did you learn from the graph?



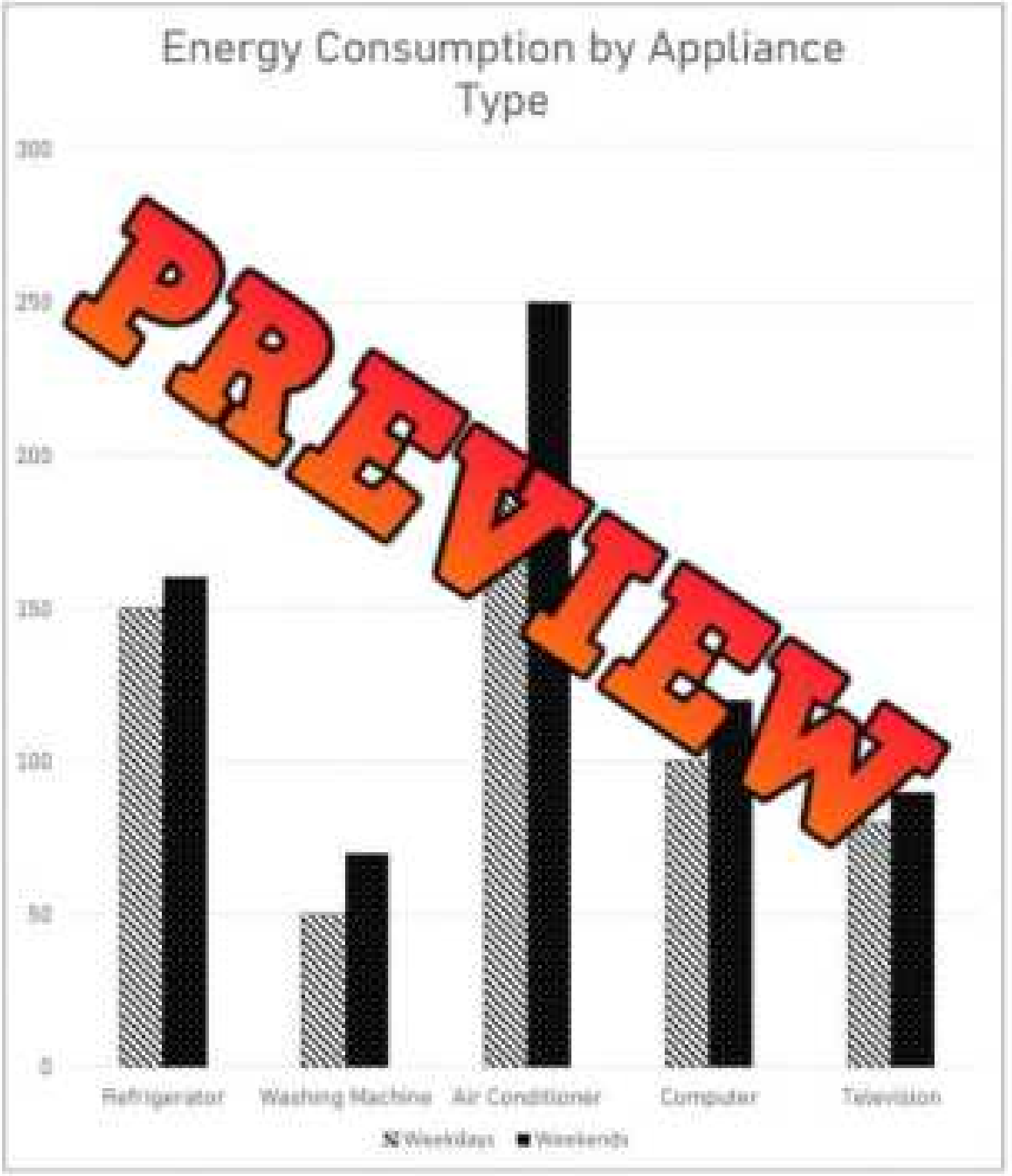
Name: _____ 65

Graph 6 | What did you learn from the graph?



Name: _____ 66

Graph 7 | What did you learn from the graph?



Name: _____ 67

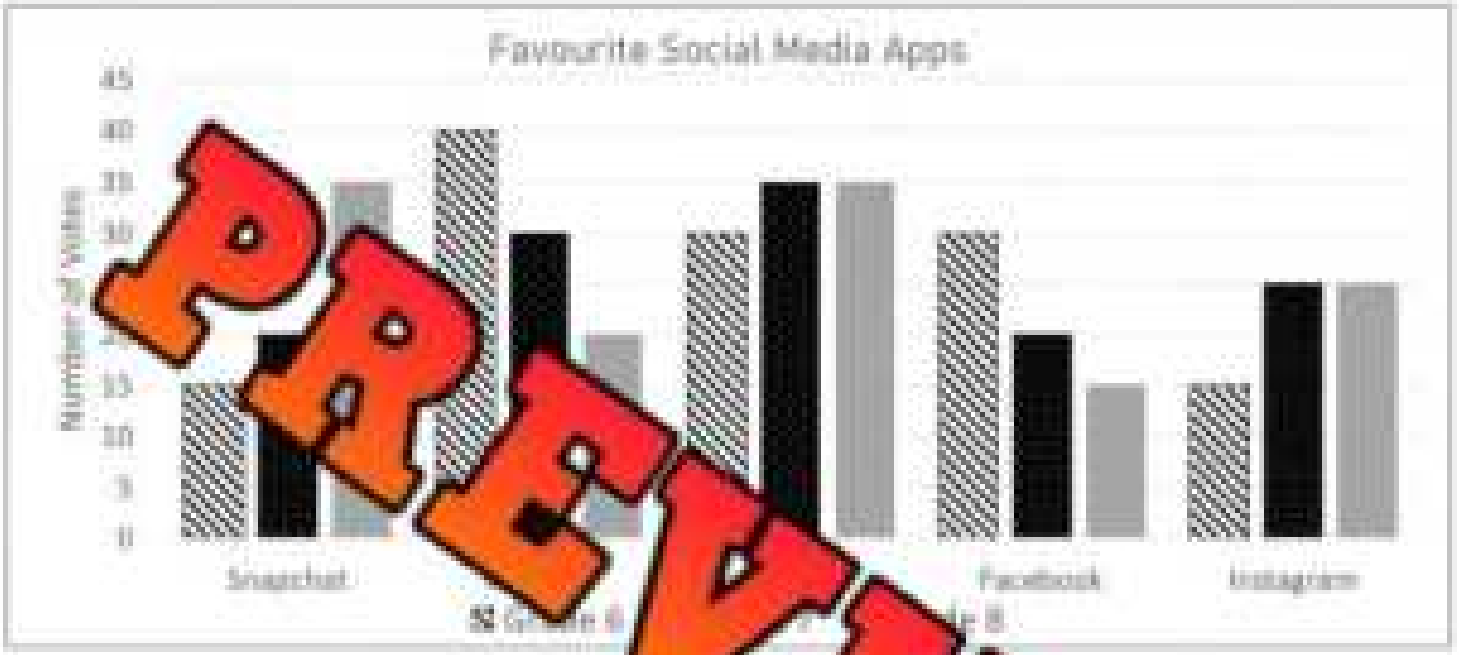
Questions Choose a question to ask the student who is about to flip their bottle

What is the title of the graph?
What is the title of the Y-axis?
What is the title of the X-axis?
What does each bar on the graph represent?
Which category shows the highest values for both bars?
Which category shows the lowest values for both bars?
How are the values displayed on the graph?
What is the range shown on the Y-axis?
What is the total number represented by all bars?
What is the difference between the highest and lowest categories for both bars?
Are there any categories that have similar values? Which ones?
How does the value of one specific category compare to others?
What could be a possible reason for the highest value?
What could be a possible reason for the lowest value?
What trends can you observe from the graph?
How might this data be useful?
If you could add another category to this graph, what would it be?
How would you describe the overall distribution of data?
What insights or conclusions can you draw from this graph?
How might the information on the graph impact decisions or opinions?
If you used a line break for this graph, what would it be?
How does the line break in this graph help show the data?
What is the scale of the graph?
What other scale do you think would work?

Name: _____ 70

Multiple-Bar Graph – Favourite Social Media

The students in grade 6, 7, and 8s were asked which social media app was their favourite. The results have been sorted by grade in the multiple-bar graph below.



Part 1 Fill in the frequency table by re… graph above

	Grade 6		Grade 7		Grade 8	
	#	%	#	%	#	%
Snapchat	15/130	12				
YouTube						
Tik Tok						
Facebook	30/130	23				
Instagram						
Total	/130					

Part 2 Answer the questions below

a) How many students in each grade were surveyed?	
b) Which social media was the most popular? How many votes did it get?	

Name: _____ 71

Creating a Multiple-Bar Graph – 3 Groups

Assignment Create a multiple-bar graph using data you have co

1. Choose a population that you can segment into 3 groups.
Example – Kids with no siblings, kids with 1 sibling, kids with mor

Groups within Population: _____

2. Choose a survey question you would like to learn more ab about how the answers might be different based on your different groups.

Survey Question: _____

Option 1			Option 2			Option 3			Option 4			Option 5		
Group 1	Group 2	Group 3												
Tally	Tally	Tally												

Name: _____ 72

Creating a Multiple-Bar Graph – 3 Groups

Use the data you collected to plot your graph. Remember the following labels:

X axis label ☐ Y axis label ☐ Title ☐ Scale ☐ Categories ☐

Legend

☐

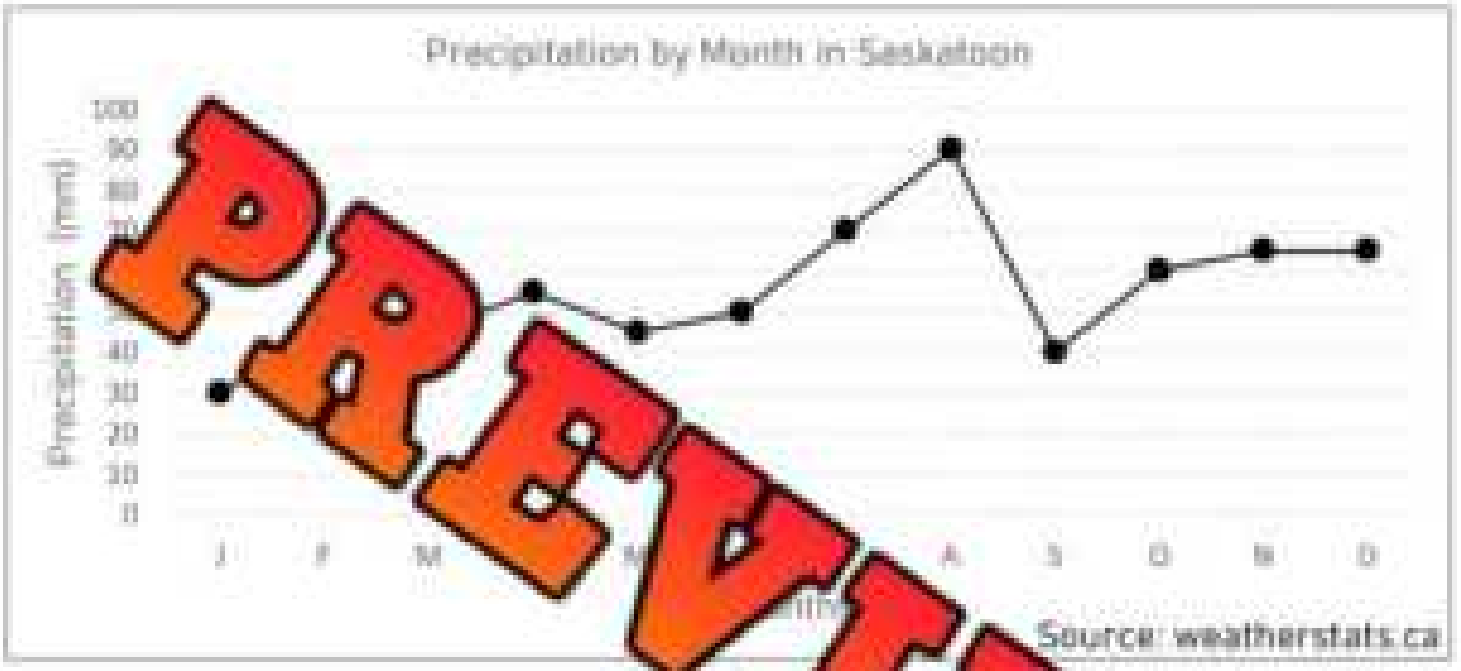
☐

Fill in the frequency table below with your 5 categories and 3 different groups.

Name: _____ 73

Interpreting a Broken-Line Graph

Precipitation is the amount of water falling from the sky. It can be in the form of rain, snow, drizzle, sleet, or hail. The data for total precipitation in Saskatoon for 2021 has been represented in the broken-line graph below. Numbers have been rounded to the nearest 5.



Part 1 Fill in the frequency table [illegible] graph

	J	F	M	A	M	J	J				D
mm											
%											

Part 2 Solve an argument

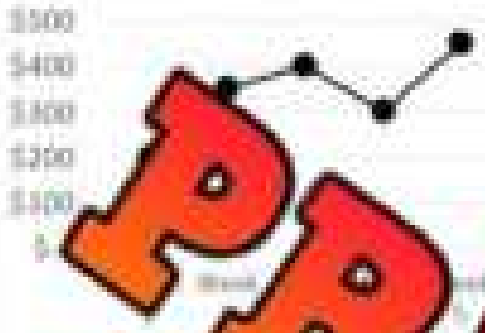
1) What percentage of precipitation falls in July and August?	
2) What 4 months of the year are the driest?	
3) Carlos thinks more precipitation falls in August, July, April and November than all the other months put together. Is he correct? Explain.	

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

Weekly Sales of a Bookstore



1) How much did sales decrease from Week 3 to Week 4?

2) What is the average weekly sales over the 5 weeks?

Name: _____

Weekly Sales of a Bookstore

1) How much did sales decrease from Week 3 to Week 4?

Name: _____

Weekly Sales of a Bookstore

1) How much did sales decrease from Week 3 to Week 4?

2) What is the average weekly sales over the 5 weeks?

1) How much did sales decrease from Week 3 to Week 4?

2) What is the average weekly sales over the 5 weeks?

Name: _____ 75

Interpreting Double Broken-Line Graph

Lincoln and Maverick had a contest to see who could run the most kilometres in a week. Their results are displayed in the broken-line graph below.

Part 1 Fill in the frequency table t[illegible] graph

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Lincoln's KM							
Maverick's KM							

Part 2 Answer the questions below

1) Who ran more km in the week?				
2) Is the data continuous or discrete?				
3) Which day did Maverick run the most? What percent of his total distance did he run on this day?				
4) Who was winning the contest after the fifth day?				
5) Which day did Lincoln run the most? What percent of his total distance did he run on this day?	Day		%	

Collecting Quantitative Continuous Data

Quantitative continuous data is data that is collected through measuring. We don't use categories, instead we use numbers.

Examples – height of someone over time, or time it took to run a lap.

Data Collection | Collect data by measuring or researching your question of interest

Question	
Use the box below to [illegible] data.	

Interpreting The Data

1) Was your data collected from a primary or secondary [illegible]? ______

2) Fill in the table below by calculating the measures of central tendency.

Mean	Median	Mode

3) What conclusions can you draw from your data? What did you learn?

______

______

4) What surprised you about the data you collected? Include at least 1 surprise.

______

______

Name: _____ 77

Creating a Broken-Line Graph

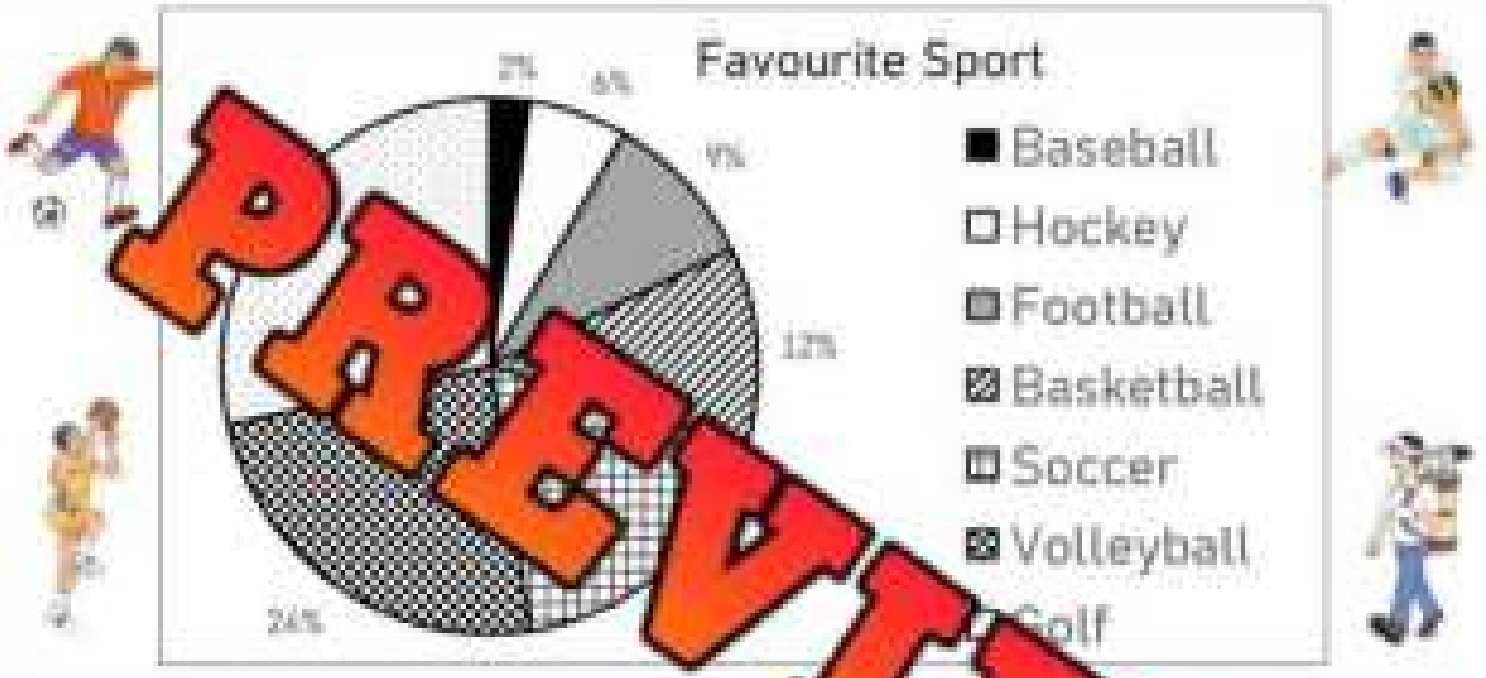
Use the data you collected to plot your graph. Remember the following labels:

X axis label ☐ Y axis label ☐ Title ☐ Scale ☐ Categories ☐

Name: _____ 78

Interpreting a Circle Graph – Favourite Sport

Ken completed a random sample of the students in his school. He randomly asked 10 students from 10 different classes what their favourite sport is. He used a circle graph to represent his data.



Part 1 Fill in the frequency table and [illegible] graph

	Baseball	Hockey	Football	Basketball			Golf
Votes							
%							

Part 2 Answer the questions below

1) Which sport is the most popular out of the 100 people surveyed?	
2) Which two sports received over 50% of the votes?	
3) How many people chose baseball as their favourite sport?	
4) What percentage do all 7 sports add up to?	
5) Is golf more popular than baseball, hockey, football, and basketball combined?	

Name: _____ 79

Interpreting a Circle Graph – Oscar Awards

The winning movies from the Oscar awards have been displayed by genre in the circle graph below.

Part 1 Fill in the frequency table [illegible] provided

	Drama	Documentary	Horror	Ac[illegible]	[illegible]	Comedy
Votes	9/29	4/29				
%			7%	17%		

Source: Movie Database

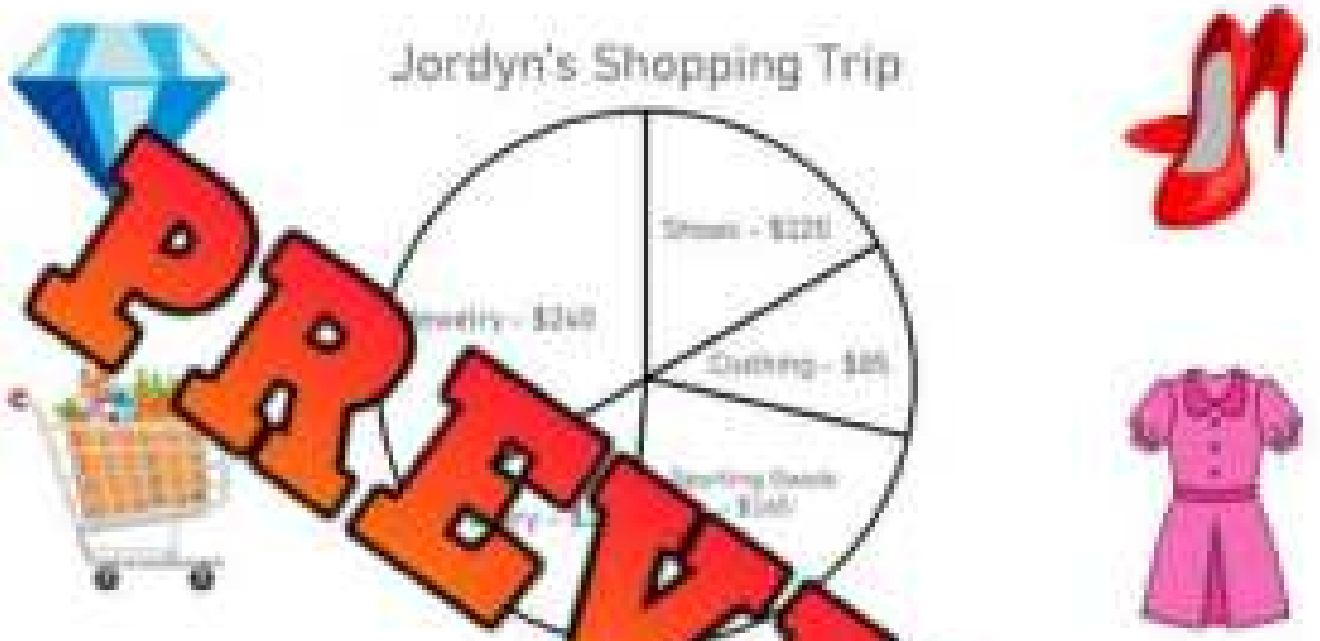
Part 2 Answer the questions below

1) Which movie genre won the most awards?	
2) Which two genres received over half of the awards?	
3) Did comedy, horror, and action get over half of the awards?	
4) Which movie genre scored 14% of the Oscar awards?	
5) What percentage of awards went to movies other than dramas?	

Name: _____ ID: _____

Interpreting a Circle Graph - Shopping

Jordyn went shopping today. How much she spent at each store has been represented in the circle graph below.



Part 1 Fill in the frequency table by w[illegible] the [illegible] each segment

	Jewelry	Shoes	Clothing	Spor[illegible]	[illegible]y	Total
$ Spent						
%						

Part 2 Answer the questions below

1) Which store did Jordyn spend most of her money?	
2) Which 2 stores did she spend over half of her money?	
3) How much did she spend in total on groceries, jewelry and shoes?	
4) What percent of her money did she spend on everything except jewelry?	
5) If she went back for more groceries and spent $100 more dollars, what percent of the money on that day would she have spent on groceries?	

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

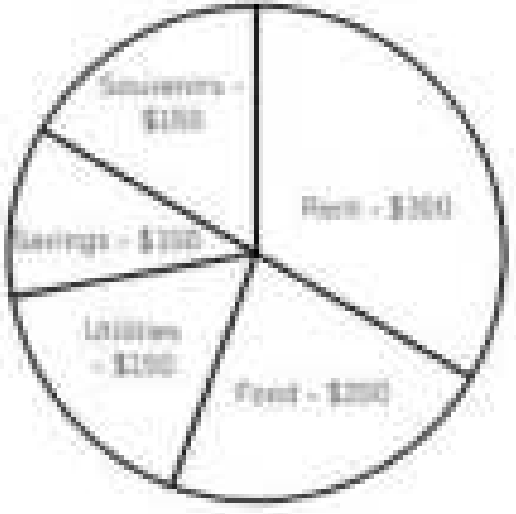
Name: _____

Michael allocates his monthly budget across different categories.

1) How much less does Michael spend on rent than on groceries and utilities combined?	
2) What percentage of his budget does Michael spend on souvenirs and rent combined?	
3) If Michael decides to spend an additional $50 on entertainment, what will be the new total, and what percent of his budget would that represent?	

Name: _____

Michael allocates his monthly budget across different categories.



1) How much less does Michael spend on rent than on groceries and utilities combined?	
2) What percentage of his budget does Michael spend on souvenirs and rent combined?	
3) If Michael decides to spend an additional $50 on entertainment, what will be the new total, and what percent of his budget would that represent?	

Name: _____ 82

Drawing a Circle Graph - Sales

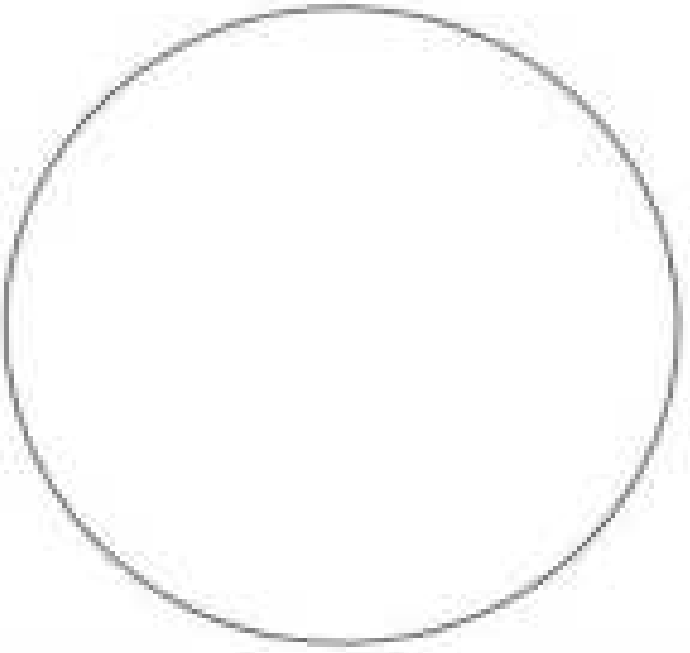
Selena has a business selling her artwork. She kept track of her sales each day last week.

Part 1 Fill in the table below to determine the angle measurements for the circle graph

	Number of Sales	Fraction	Decimal	Relative Frequency (as a percentage)	Angle Measure
Monday		4/50	0.08	8%	0.08 x 360 = 29°
Tuesday	6	6/50	0.12	12%	0.12 x 360 = 43°
Wednesday					
Thursday					
Friday	8				
Saturday	11				
Sunday	10				
Total	50				

Part 2 Use a protractor to draw the angles you

_____



1) [illegible] were Selena's best-selling

2) Why do you think Selena sold more on those days?

3) What conclusions can you draw from this data?

Name: _____ 83

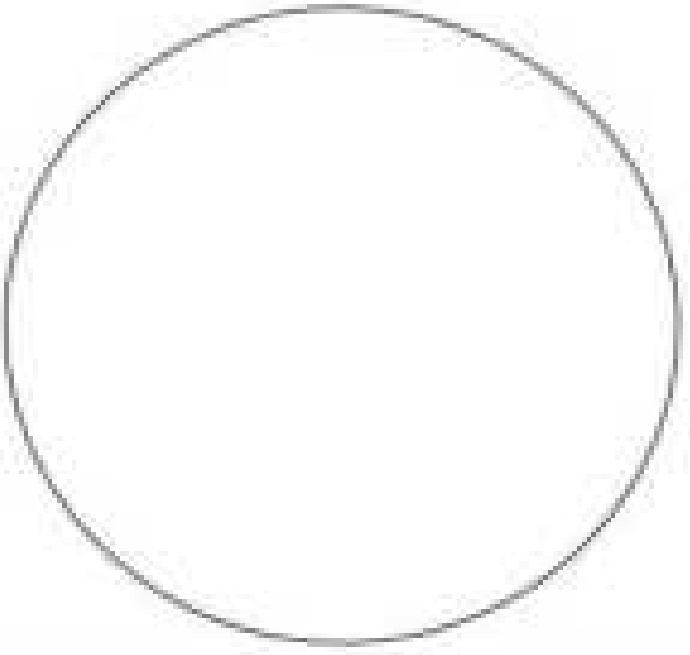
Drawing a Circle Graph - Languages

The top 7 most popular languages have been recorded in the table below. The data shows what percentage of the world speaks each language. Use the percent to find the angle measurement so you can represent the data in a circle graph.

Part 1 Fill in the table below to determine the angle measurements for the circle graph

	Relative Frequency (as a percentage)	Fraction	Decimal	Angle Measure
[illegible]	14%	14/100	0.14	0.14 x 360 = 50°
Mandarin	13%	13/100	0.13	0.13 x 360 = 47°
Hindi	8%			
Spanish	7%			
French				
Russian	4%			
Other	50%			
Total	100%			

Part 2 Use a protractor to draw the angle measurements from the table above.



1) Which two languages are the most popular in the world?

2) What percentage of the world speaks languages other than English and Mandarin?

3) What conclusions can you draw from this data?

Name: ______________________________ 84

Drawing a Circle Graph - Basketball

Nick has been keeping track of his basketball playoff scoring for the last 5 seasons. He played 5 playoff games in each of the last 5 seasons. How many points he scored has been recorded in the table below.

Part 1: Fill in the table below to determine Nick's average playoff scoring each season

	Game 1	Game 2	Game 3	Game 4	Game 5	Mean Scores
Season 1	[illegible]	4	5	4	6	
Season 2	[illegible]	4	6	7	10	
Season 3	[illegible]	[illegible]	12	9	12	
Season 4	[illegible]	[illegible]	[illegible]	13	16	
Season 5	22	[illegible]	[illegible]	25	22	

Part 2 Use the mean scores abo[illegible] the [illegible] measures of each season

	Angle Measure
Season 1	
Season 2	
Season 3	
Season 4	
Season 5	

Name: _____ 85

Collecting Qualitative Data – Circle Graph

Data Collection | Collect categorical data that you can plot using a circle graph

Question of Interest (Ex. Favourite _____ or which app ... use most)	

Draw a t... will help you collect and organize your data

Interpreting The Data

1) Was your data collected from a primary or sec... source?

2) What conclusions can you draw from your data? List ... gs

3) How will graphing this data as a circle graph help readers understand the data?

Name: _____ 86

Creating a Circle Graph

Use the data you collected to plot your graph. Remember the following labels:

☐ Title ☐ Labels for each section ☐ Percentages/totals

Name: _____ 87

Collecting Quantitative Data – Circle Graph

Data Collection | Collect **secondary quantitative** data for a circle graph

Question of Interest – Top 5 home run leaders – Average house prices last 5 ye... Canada	

Draw a t... will help you collect and organize your data.

Interpreting The Data

1) What source did you find your data from? _____

2) Why is it important to provide a source when you us... [illegible]

3) What conclusions can you draw from your data? List 3 things you learned.

Name: _____ 88

Creating a Circle Graph

Use the data you collected to plot your graph. Remember the following labels:

☐ Title ☐ Labels for each section ☐ Source ☐ Percentages/totals

Source: _____

Population Growth in Canada

2016 CENSUS

National Picture

Population of Canada in 2016

35,151,728

Growth (2011 to 2016)

+5.

Population growth (2011 to 2016)

Census Metropolitan Areas

Toronto +7%

Montréal +4.7%

Vancouver +6.5%

Calgary +14.6%

Ottawa-Gatineau +3.0%

Edmonton +11.8%

www.statcan.gc.ca

Canada

Canadians in the workforce

2016 CENSUS

42.6 was the median age of workers in 2016*

Occupations with lower median age

36.6 [illegible], statisticians

36.3 [illegible]

34.7 Web designers and [illegible]

Occupations with higher median age

61.6 Judges

53.6 Bus drivers, subway operators and other transit operators

[illegible] School principals and administrators of elementary and secondary education

25 years of gains in W[illegible]'s participation

* Refers to the census reference day (May 1 to May 7, 2016)

Source: Statistics Canada, 2016 Census of Population.

www.statcan.gc.ca/census/2016

Statistics Canada / Statistique Canada

Canada

Name: _____ 95

Reading Infographics

An **infographic** shares information about a topic in multiple ways. Infographics are great for displaying data that can teach an audience about a topic in an interesting way.

Directions Find 2 different infographics and answer the questions below

Infographic #1	Title: _____
1) What is the topic of the infographic?	
2) What did you learn from the infographic? List at least 3 things.	
3) What did you like about the infographic?	
4) What did you not like about this infographic?	
5) Why do you think this infographic was made?	

Name: _____ 96

Infographic # 2	Title: _____

1) What is the topic of the infographic?

2) What did you learn from the infographic? List at least 3 things.

3) What did [illegible] the infographic?

4) What did you not like about this [illegible] phic?

5) Why do you think this infographic was made?

6) Which infographic did you like better? Explain your choice.

Name: _____ 77

Creating an Infographics

Directions Display the data set in different ways. Write in the boxes and draw pictures.

The Canadian Government is worried about how much screen time kids are having each week! Check out the results that speak for themselves!

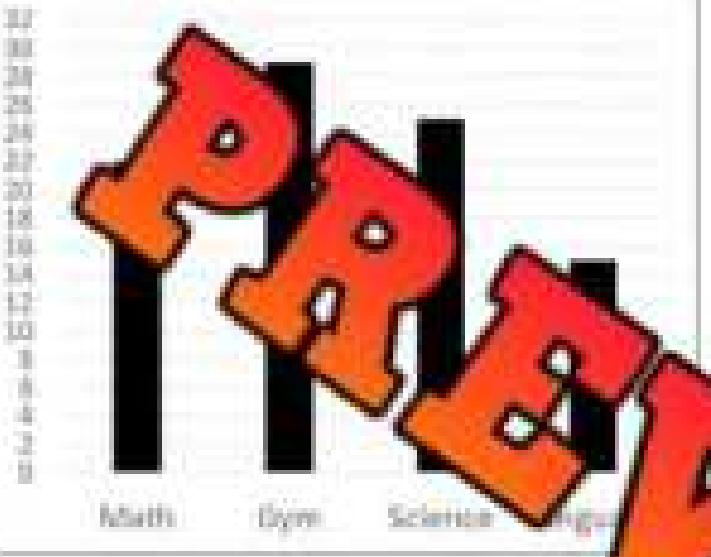
	10	11	12	13	14	15	Total
Screen	12	15	21	24	27	31	
							100%

Name: _____ 101

Favourite Subject – Examining Scale

The two graphs below display the same data. Examine both graphs and answer the questions below.

Favourite Subject – Graph A



Favourite Subject – Graph B

Questions What do you notice about the graphs?

a) What is the scale in Graph A?

b) What is the scale in Graph B?

c) Which graph is easier to read and interpret? Why is that graph better?

d) If you were a gym teacher, which graph would you show your students to demonstrate that gym is much more popular than the other subjects? Explain your choice.

e) Why is Graph B misleading? What did the author do to make it misleading?

Name: _____ 10a

Misleading Graph – Multiple-Bar Graph

Fantastic Phones is running an advertisement campaign to show how much better their phones are than their competitor, Famous Phones.

Questions What do you no[illegible]ut th[illegible]s?

a) Which graph would you use if you were F[illegible]

b) How many more votes in total did Fantastic Phones get over Fam[illegible]hones?

c) Are Fantastic Phones a lot better than Famous Phones? Explain.

d) Do you think it is fair that businesses create misleading graphs like this one?

Name: _____ 105

Misleading Graph – Circle Graph

A local golf course wants to advertise golf to the people in its community. They want to show that golf is just as popular to kids as hockey, soccer, and basketball.

Graph A - Most Popular Sports

Graph B - Most Popular Sports

Questions: What do you notice about the graphs?

a) Which of the two graphs is misleading? Explain.

b) Which graph would you use if you were the local golf course? Explain.

c) Do you think people would fall for this misleading graph? Explain your opinion.

Name: _____ 10th

Truth or Lie? Graph Edition

Objective What are we learning about?

Students will learn to identify and explain misleading elements in graphs, developing critical thinking skills and understanding how data can be manipulated in visual representations.

Materials ...ed you will need for the activity.

- A ... print... graphs (some accurate, some misleadi...
- Smartboa... ...tor ... graphs
- Classroom spa... ...sh... ...iew the graphs

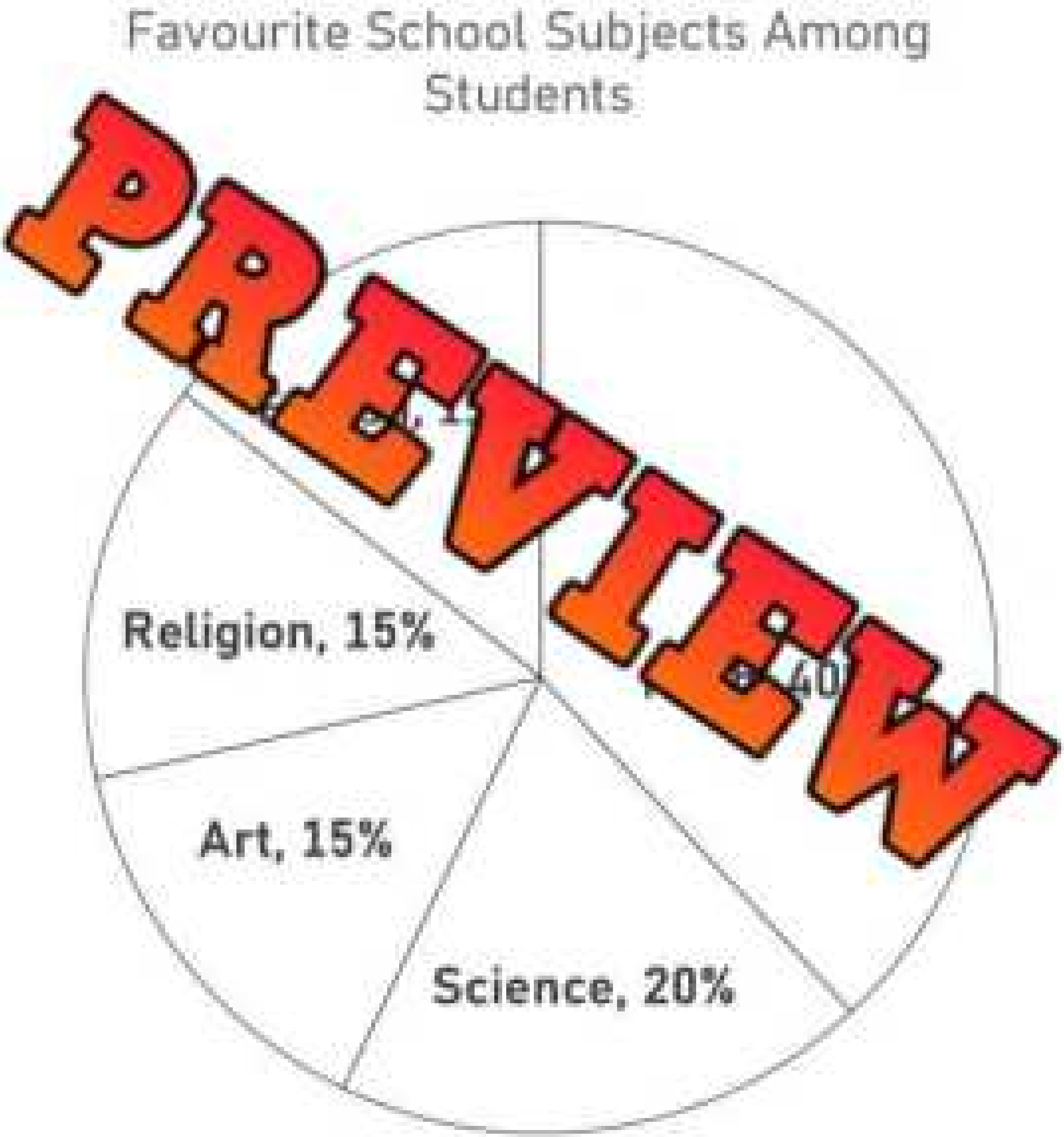
Instructions How you w... ...mp...

1. Begin by explaining the concept of misleadi... ...aphs t... ...dents, highlighting common ways graphs can be manipulated (... ...ang... ...itting data, exaggerating differences).
2. Show each graph one at a time on the smartboard ... ...gr... ...re all students can see the graph clearly.
3. After showing each graph, ask the students to use finger signa... ...decision. They show one finger if they believe the graph is true ... ...not misleading) and they show two fingers if they believe the graph is a ... ...isleading in some way).
4. Once all students have made their decisions, invite a few students or groups to explain their reasoning. Ask them to point out specific elements of the graph that make it true or misleading, such as the use of a misleading scale or omitted data.
5. Facilitate a class discussion to reinforce key concepts, summarizing the points made by the students and providing additional examples if necessary.
6. Repeat steps 3-5 for each graph in the set. Encourage students to look for new elements that might be misleading as they view different graphs.
7. After all graphs have been discussed, ask the students to reflect on what they have learned. Provide them with questions to think about or answer in their math journals.

Name: ______________________ 107

Graph | What do you notice about the graph?

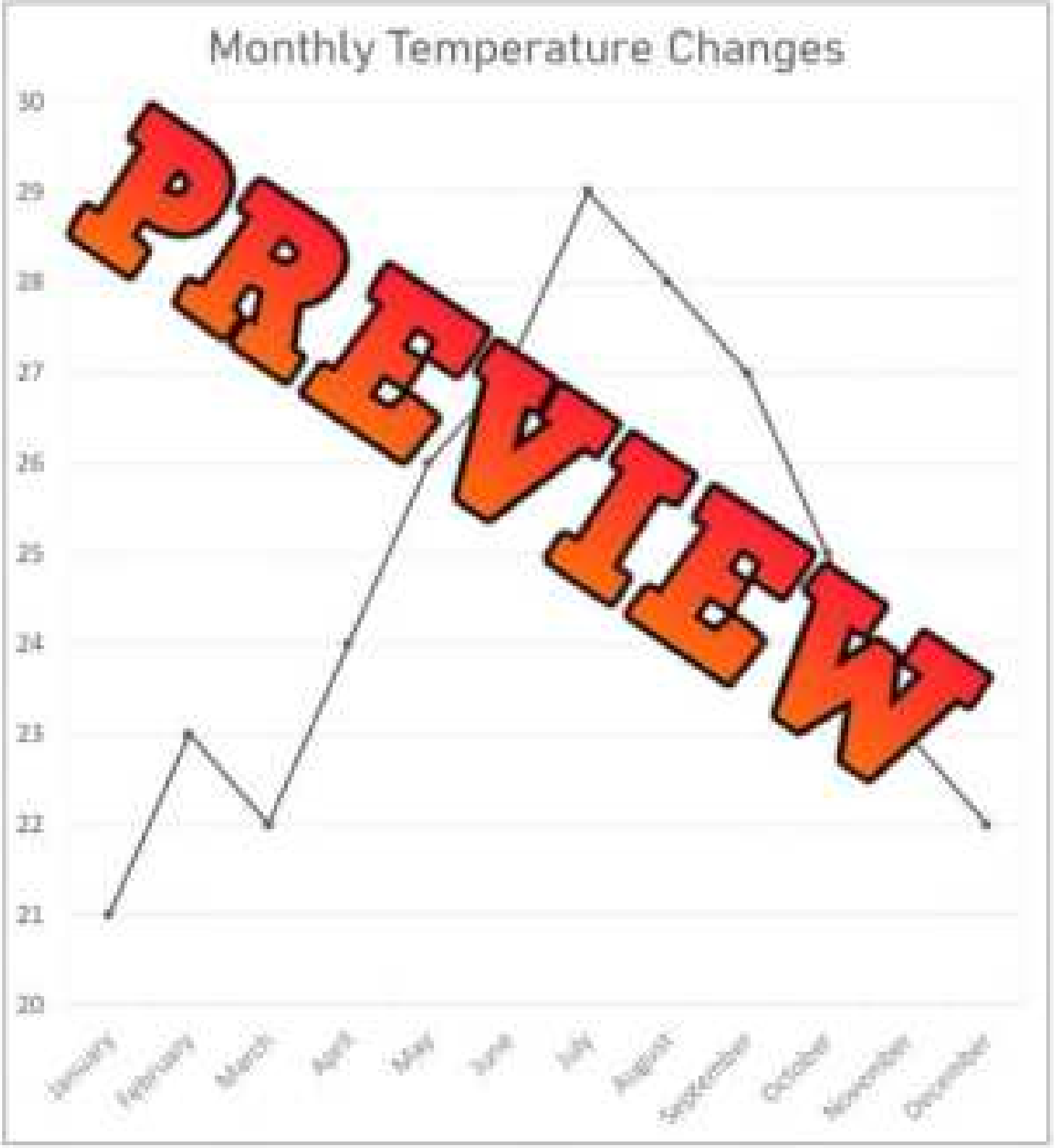
A student is conducting a survey among his classmates for their favourite subjects: Math, Science, Religion, English, and Art.



Name: _____ 109

Graph	What do you notice about the graph?

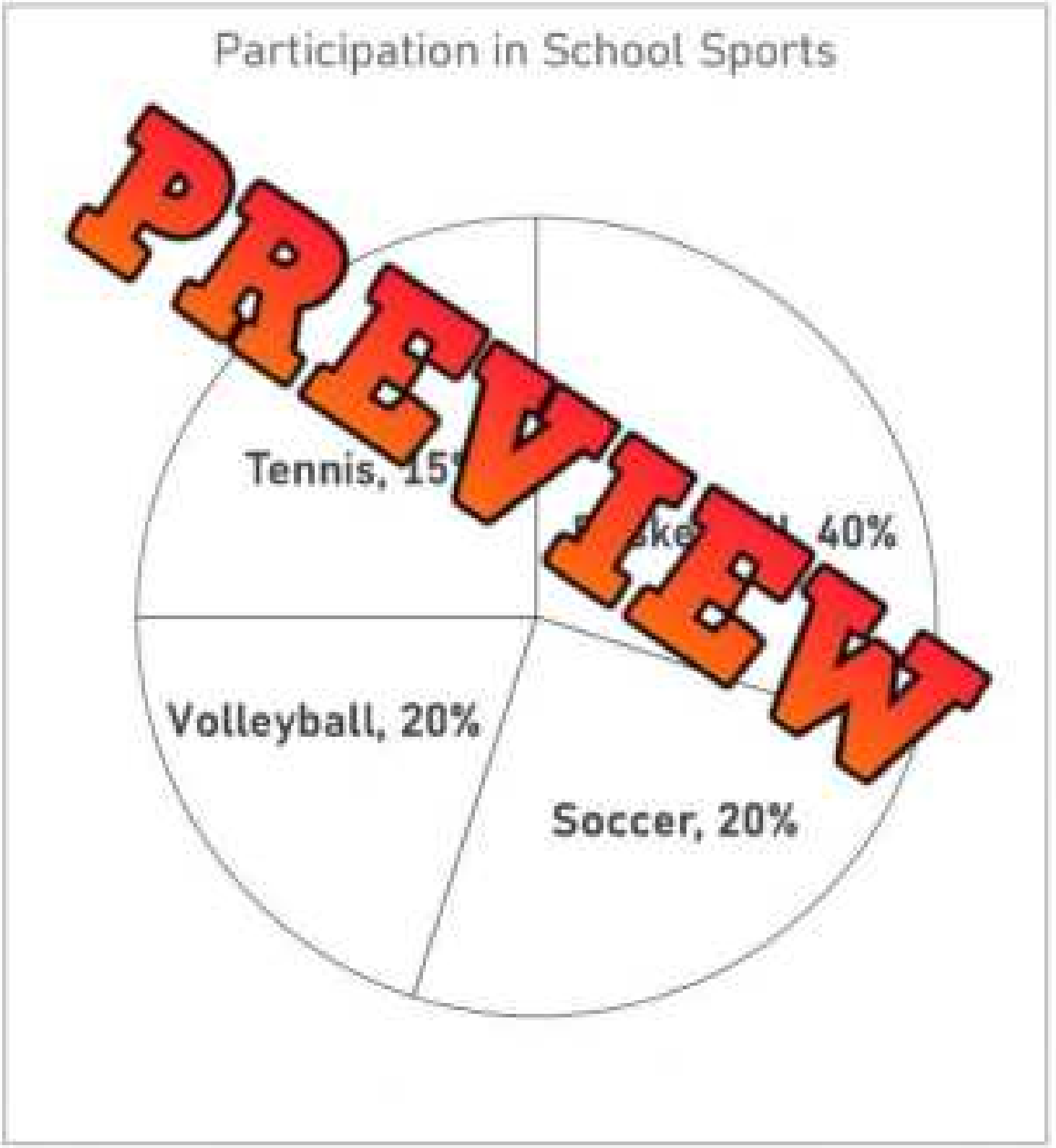
Brian is arguing that the climate he lives in is extreme, moving quickly from cold to warm temperatures. The graph shows temperature fluctuations from January to December.



Name: _____ L10

Graph	What do you notice about the graph?

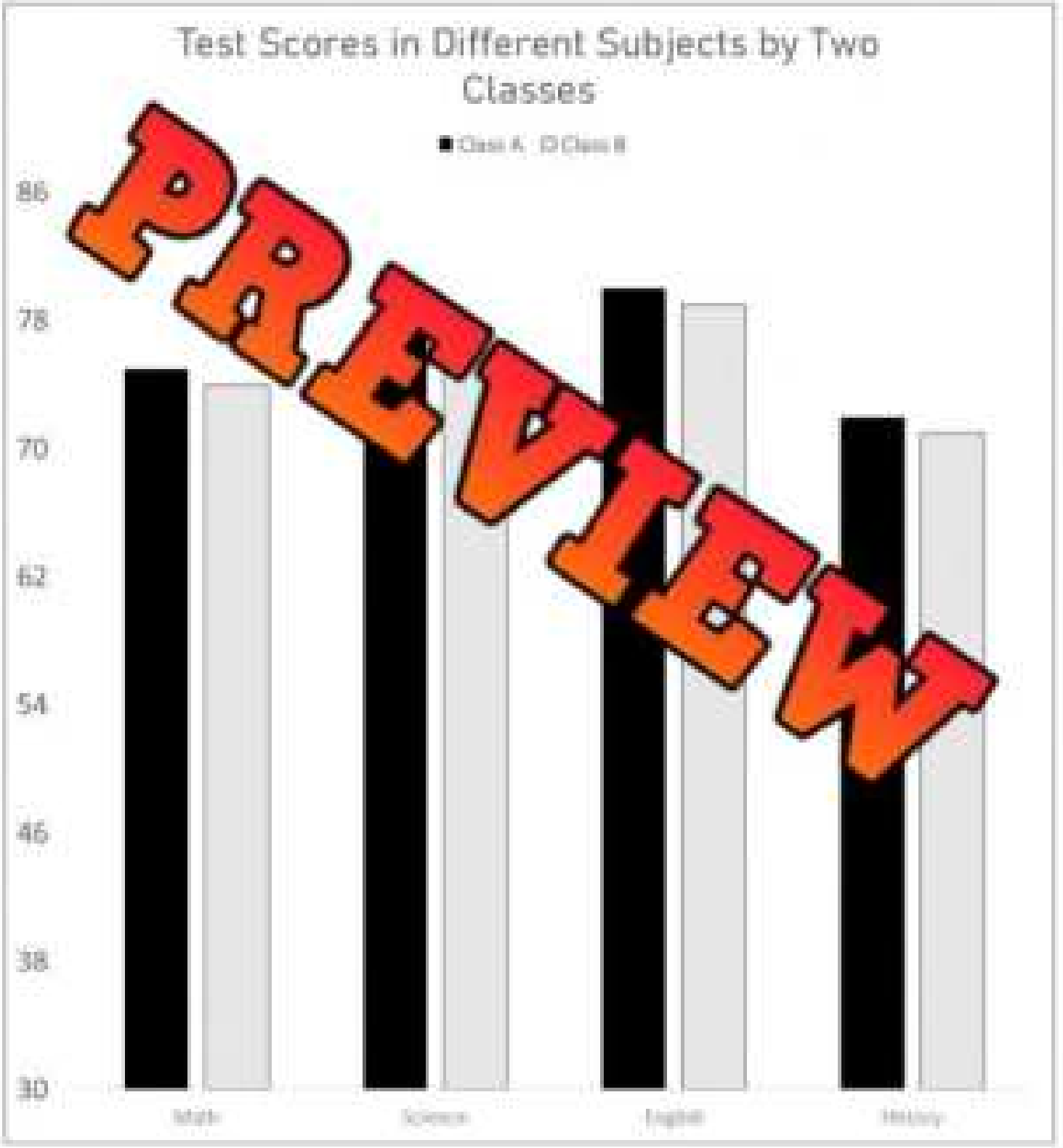
Let us analyze the number of students participating in Basketball, Soccer, Volleyball, and Tennis.



Name: _____ 111

Graph	What do you notice about the graph?

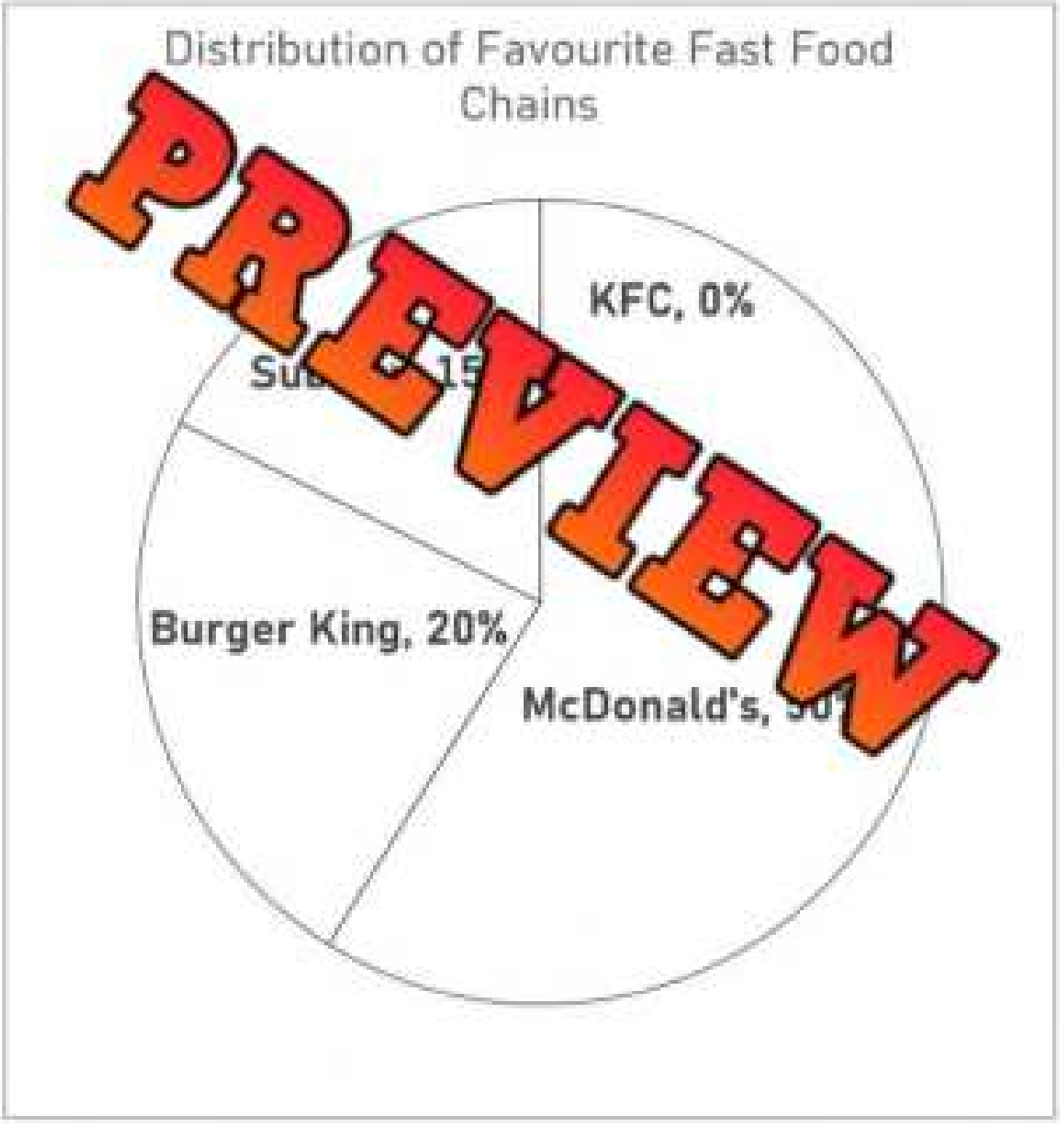
A teacher is comparing test scores between two classes (Class A and Class B) in Math, Science, English, and History.



Name: _____ L12

Graph	What do you notice about the graph?

Students like fast foods. We have 4 fast food chains in our local town. We did a survey and the graph below shows the percentage of students preferring McDonald's, Burger King, Subway, and KFC.



Name: _____ 113

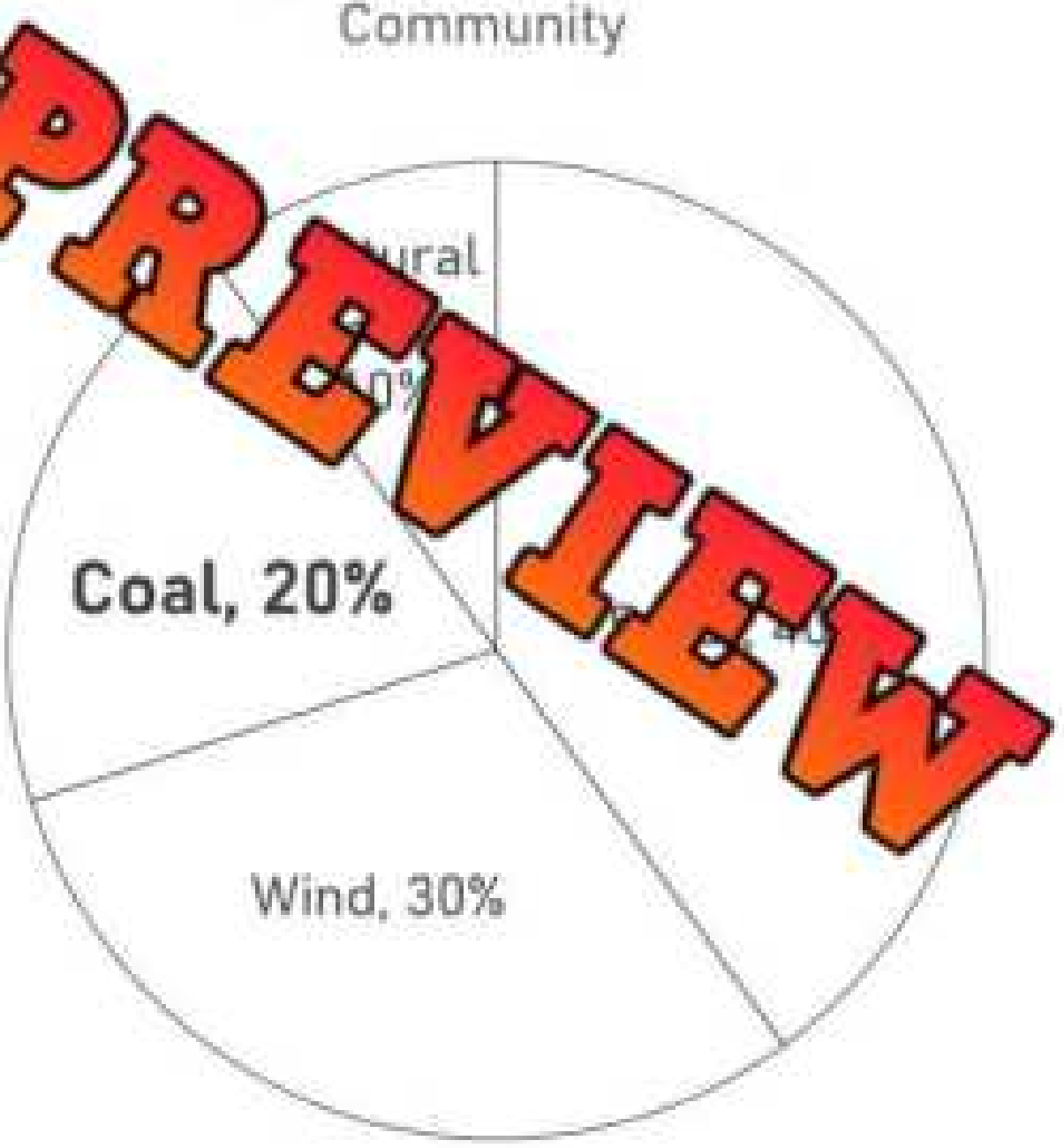
Graph	What do you notice about the graph?

A company is comparing monthly sales figures for a new product in units.

Name: _____ L15

Graph	What do you notice about the graph?

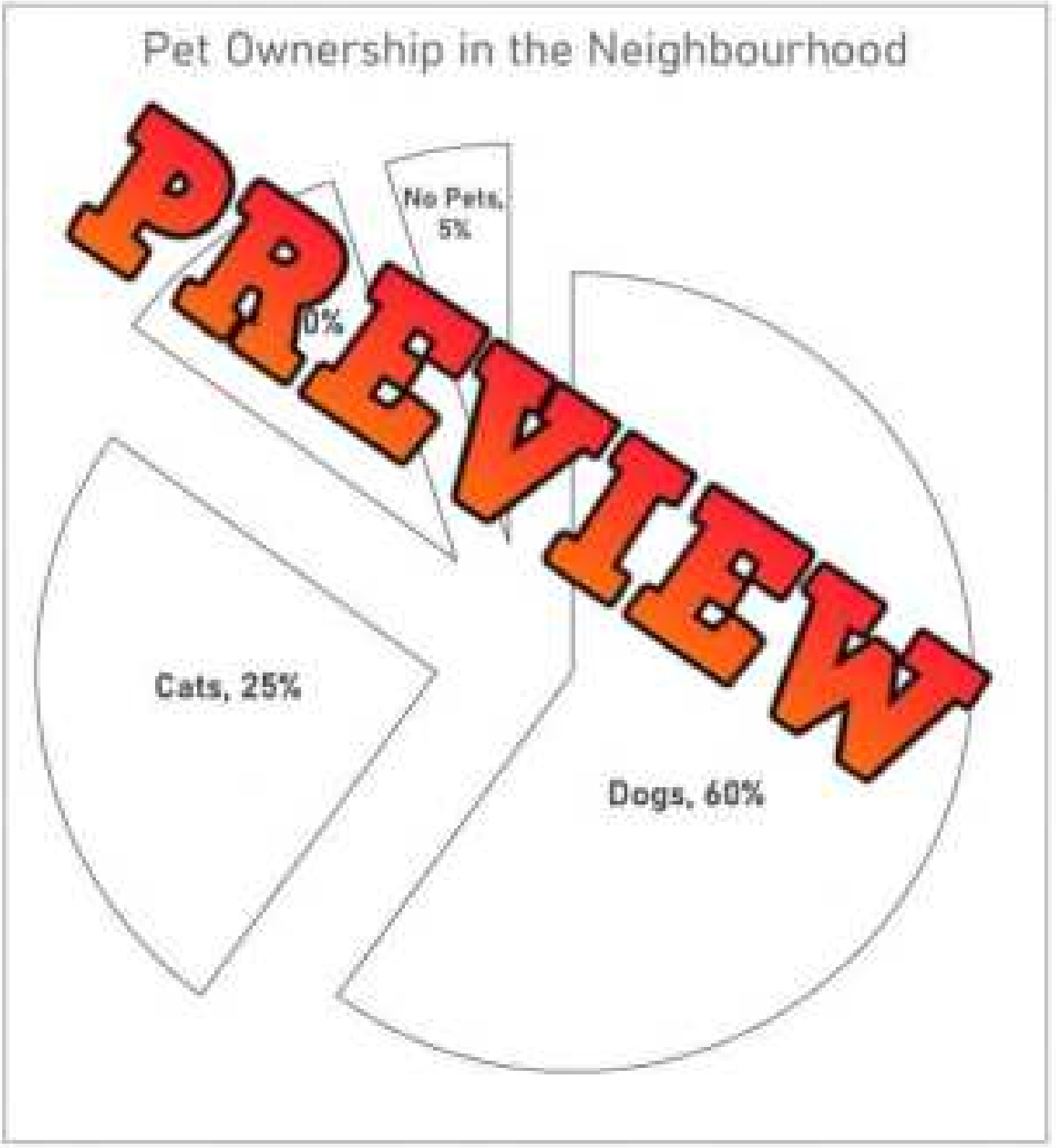
Electricity Utility Company is reviewing the energy that is sourced from different sources such as: Solar, Wind, Coal, and Natural Gas.



Name: _____ L16

Graph	What do you notice about the graph?

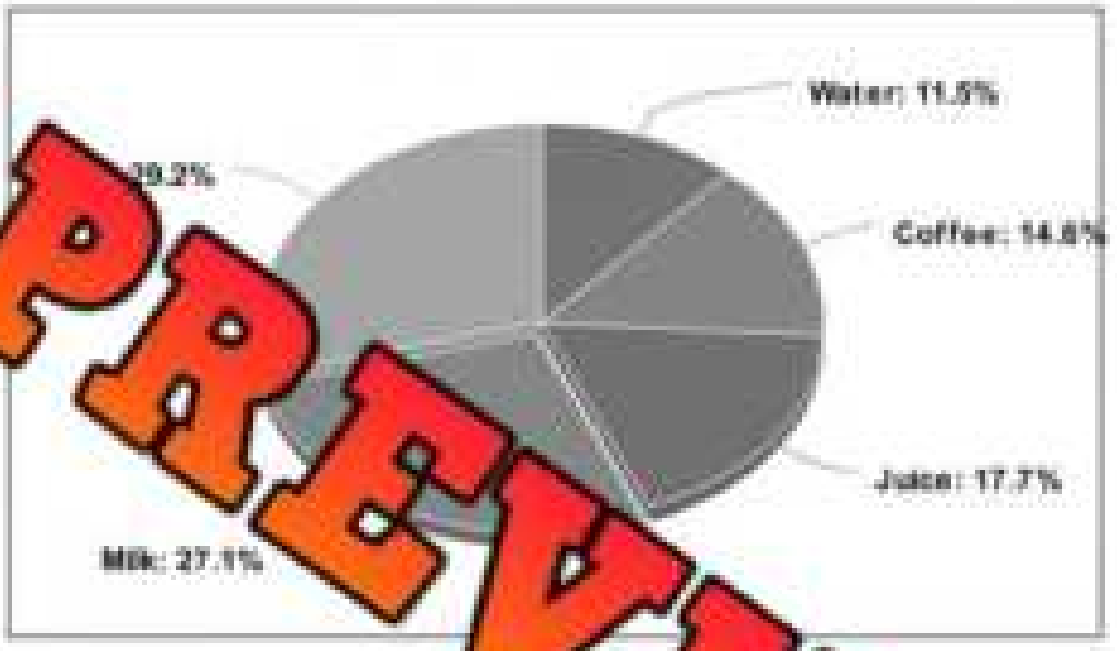
A condominium community is conducting a survey to households with different types of pets: Dogs, Cats, Fish, and No Pets.



Name: _____ 117

Misleading Graph – Circle Graph

The dairy industry performed a study to find out which beverage was the most popular. They asked 100 people aged 8–64. The results are below.



Questions Answer the questions.

a) Why is this circle graph misleading?

b) Why is it important to look at who completed a study before you trust their data?

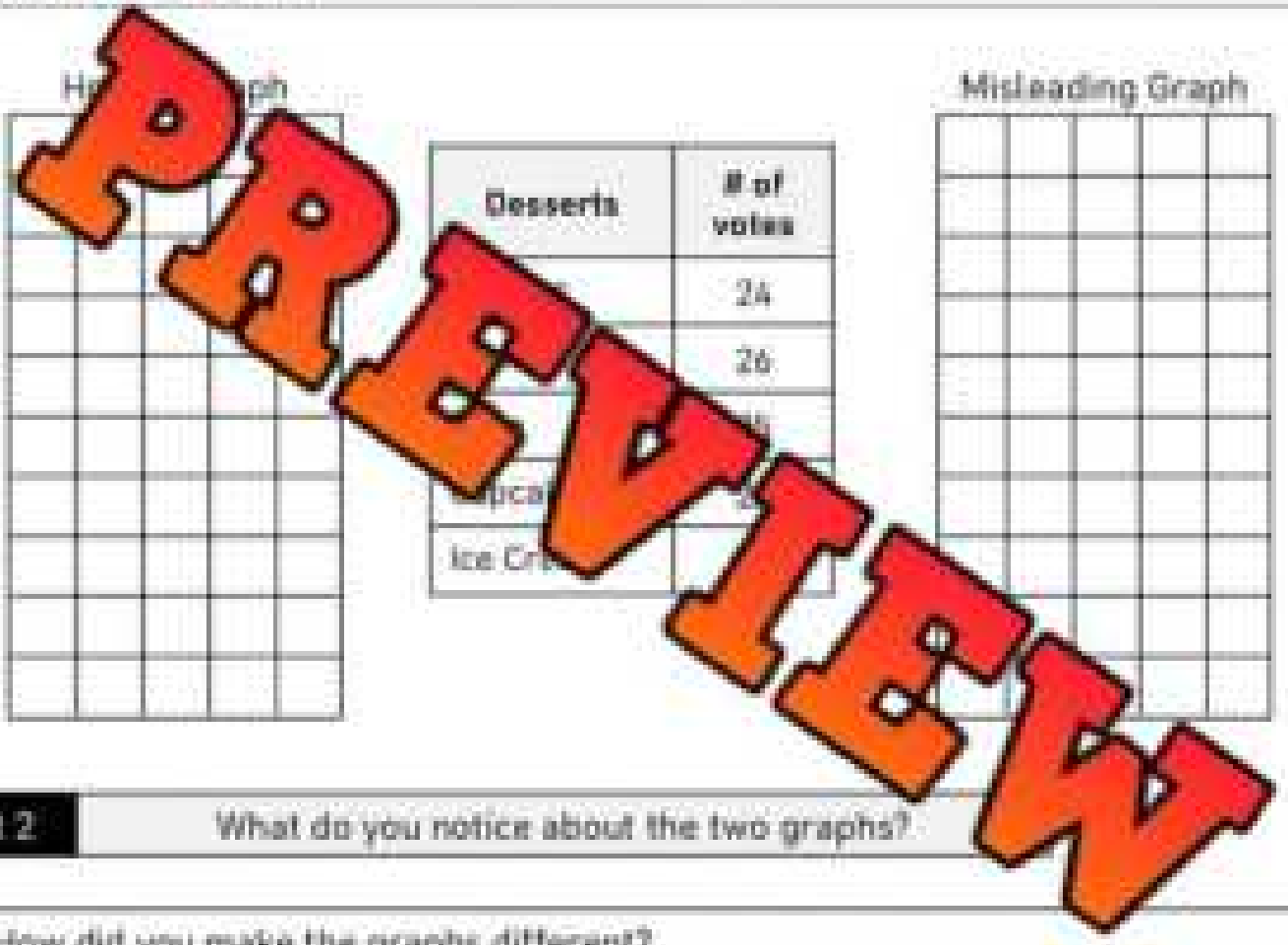
c) Can you trust all data? What kinds of things can businesses do to create data that is misleading?

Name: _____ 118

Creating a Misleading Graph

Part 1 Draw two graphs – one that is misleading and one that is honest

Imagine you are selling donuts as a business. Draw an honest graph and a misleading graph that you could use to show your customers that donuts are the most popular dessert.



Misleading Graph

Desserts	# of votes
	24
	26
Ice Cr	

Part 2 What do you notice about the two graphs?

a) How did you make the graphs different?

b) Why is it important that we understand how to read graphs carefully?

Name: _____ 119

Unit Test – Data Literacy

Part 1 Fill in the tables by adding percentages and decimals

1) Average number of litres per 100km			
Options	Frequency	Decimal	%
Truck			
Car			
Van			
Hybrid			
Total			

2) Points per game scored this season			
Options	Frequency	Decimal	%
Arto	21		
Zane	14		
Kyrie	19		
Rest of Team	17		
Total			

Part 2 Find the [illegible] each data set below

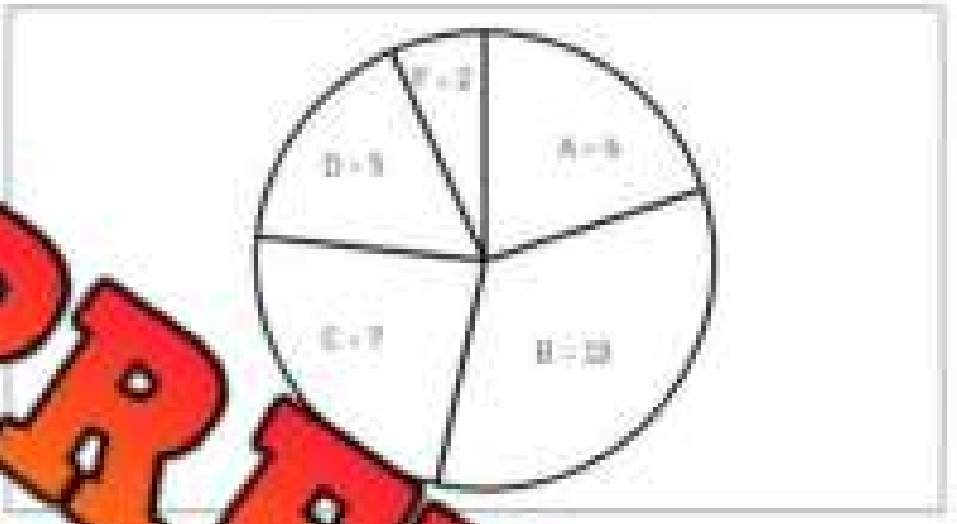
Data Set	[illegible]an	Median
1) 22, 28, 35, 11		
2) 36, 41, 55, 22, 37, 43		
3) 84, 35, 48, 77, 65, 58, 62, 91		

Part 3 Fill in the table below to find the missing data point

	Data Set	Mean	Calculations	Missing Data Point
1)	18, 24, 27, 33, ?	30		
2)	48, 55, ?, 62, 68, 74	59		

Part 4 Read the graph and answer the questions below

Mr. Douglas posted the results of his math test as a circle graph. He didn't post names, but posted how many A's, B's, C's, D's and F's he gave out.



Answer the following qu... ...ou... ...above

1. Fill in the frequency table

Grades	A			D	F
Frequency					
Percentage					

2. How many students wrote the math test? _____

3. Did half of the class get either an A or B? _____

4. Did more students get a B than a D or F combined? _____

5. How many people passed the test? _____ What percent of the class passed? ___

6. Mr. Douglas posted the specific marks below. What was the average mark? _____

92	8	51	62	68	49	58	87	67	55
61	88	72	75	56	65	78	65	79	93
75	78	72	71	78	73	70	99	63	57

7. There is one outlier in the data set. What is it? _____

8. What is the mean of the data set without the outlier? _____

9. What is the mode of the data set? _____

Part 5 Fill in the table with the percentage and represent the data in a circle graph

Roger is a pitcher for his baseball team. He can throw 5 different pitches. The amount he threw each pitch last game has been represented in the table below.

Pitches	Fastball	Changeup	Slider	Curveball	Cutter
Number of Pitches	32	18	15	12	17
Percentage					
Angle Measurement					

1) Does he throw a fastball or curveball at least half of the time? _____

2) Is this data discrete or continuous? _____

3) How does using a circle graph help the reader understand the data better?

_____

_____

Grade 7
D2 Probability

	Curriculum Expectations	Pages That Cover the Expectations
D2.1	describe the difference between independent and dependent events, and explain how their probabilities differ, providing examples	132, 148 – 149, 151 – 152
D2.2	determine and compare the theoretical and experimental probabilities of two independent events happening and of two dependent events happening	123 – 157

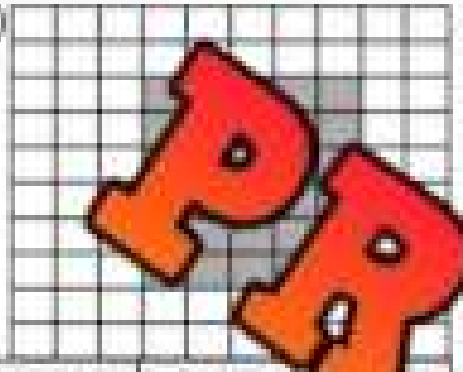
Name: _____ 123

Dart Probabilities – Fraction, Decimal, Percent

Imagine below, that the shaded in area is a target and the white part is the wall. What is the probability of you hitting the target?

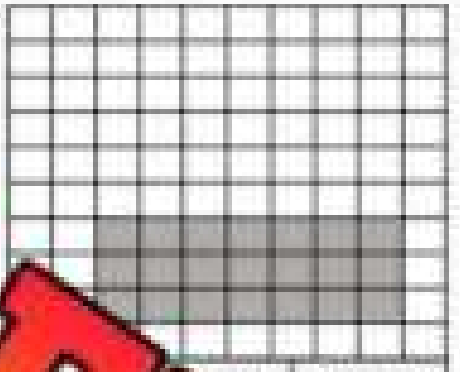
Questions Represent the probability of hitting the target using a fraction, decimal and percent.

1)



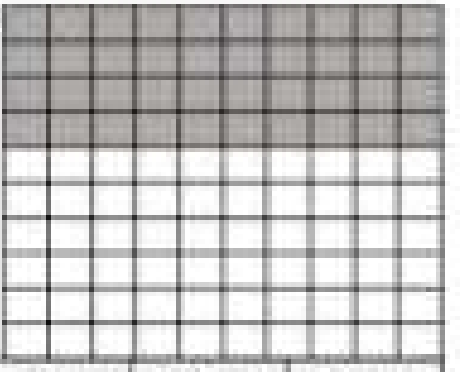
Fraction	Decimal	Percent

2)



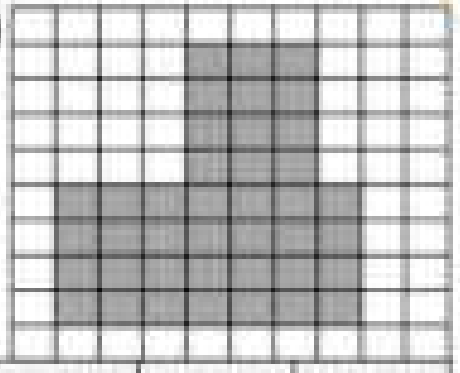
Fraction	Decimal	Percent

3)



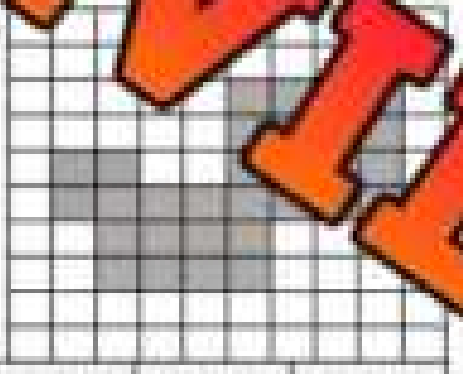
Fraction	Decimal	Percent

4)



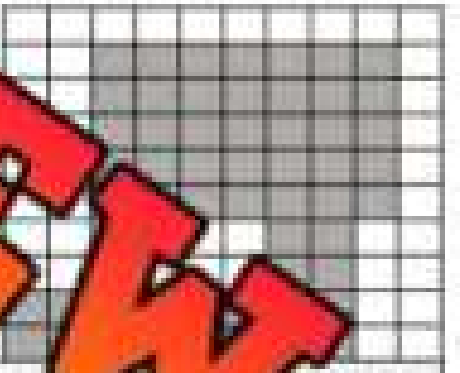
Fraction	Decimal	Percent

5)



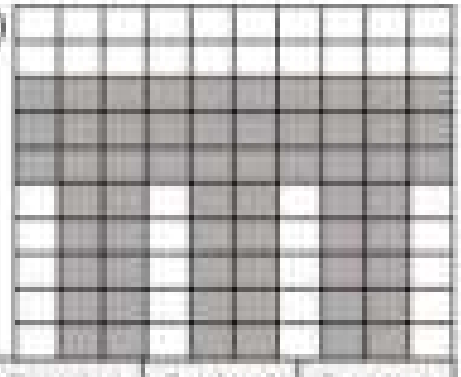
Fraction	Decimal	Percent

6)



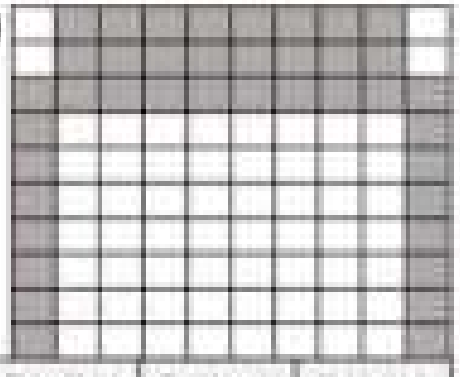
Fraction	Decimal	Percent

7)



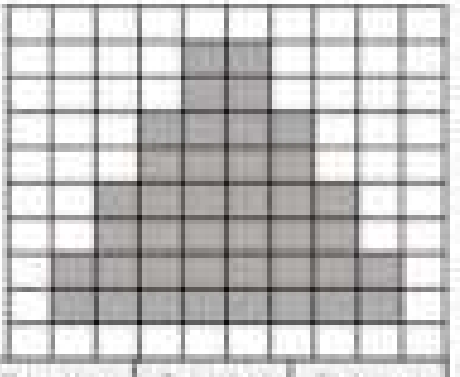
Fraction	Decimal	Percent

8)



Fraction	Decimal	Percent

9)



Fraction	Decimal	Percent

Name: _____ 125

Independent Events Versus Dependent Events

In probability, **independent events** don't affect each other. What happens in one event doesn't change the chances of the next.

Example: Flipping a coin and rolling a die – the coin doesn't affect the die.

Dependent events do affect each other. The outcome of the first event changes the chances of the next.

Example: Drawing two cards without putting the first one back – the first card changes what's left in the deck.

Question Is each scenario an independent or dependent event?

#	Scenario	Independent	Dependent
1	Rolling a [illegible] flipping	Independent	Dependent
2	Drawing one [illegible] rolling a die	Independent	Dependent
3	Raining today and [illegible] today	Independent	Dependent
4	Performing 2 spins on a [illegible] points both times	Independent	Dependent
5	Tossing a coin and choosing a number between [illegible] and 10	[illegible]ndent	Dependent
6	Choosing teams without putting students [illegible] pool	[illegible]epend[illegible]	Dependent
7	You and your friend pick prizes from a prize bin of different prizes	[illegible]epend[illegible]	[illegible]nt
8	Drawing names for prizes where each name is only drawn once	Independent	[illegible]ependent
9	Getting five fastballs thrown to you in a row	Independent	Dependent
10	Winning the lottery today and next month	Independent	Dependent

Write Write your own example of an independent and dependent event

Independent	
Dependent	

Name: _____ 12s

Independent Events Versus Dependent Events

Scenario:
During a class carnival, there's a mystery bag filled with marbles: 3 red, 2 blue, and 1 green. You get to draw marbles as part of a prize game.

Independent Event Example:
What is the probability that Alex pulls out a red marble, puts it back, and then Jamie pulls out a blue one?

Dependent Event Example:
What is the probability that Alex pulls out a red marble, hands it to Jamie to keep, and then Jamie pulls out a blue one?

Instructions: Create independent and dependent scenarios like in the example above

	You have a bag of six marbles: two are red, two are black, and two are yellow.
Independent	
Dependent	

	You have a jar of 25 marbles: 5 green, 5 [illegible]
Independent	
Dependent	

	You are picking two names from a class list of 25 students.
Independent	
Dependent	

Name: _____ 127

Instructions	Create independent and dependent scenarios like in the example above.

	You roll one number cube and spin a spinner with five equal sections.
Independent	
Dependent	

	You [illegible] books from a shelf of 10 fiction and 5 non-fiction books.
Independent	
Dependent	

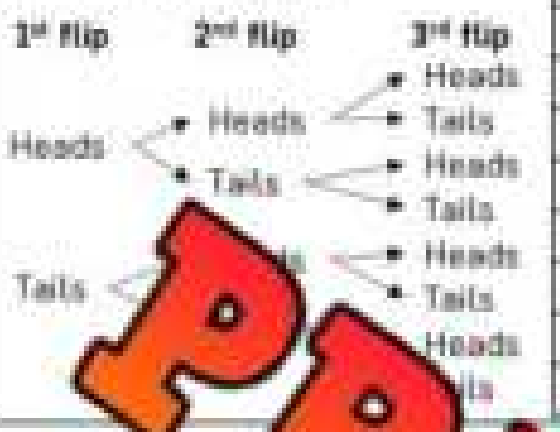
	You roll a die twice.
Independent	
Dependent	

	You randomly draw two pencils from a container with 3 blue, 2 red, and 1 green pencil.
Independent	
Dependent	

Name: _____ 128

Tree Diagrams – Probability of Multiple Events

A tree diagram is used to show the probability of an outcome happening when we have more than one event



Combinations
HHH
HHT
HTH
HTT
THH
THT
TTH
TTT

If you flip a coin three times, you could have 8 different combinations of outcomes.

HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

This means you have a 1/8 probability of flipping three heads or tails in a row.

Questions: Dr[illegible] how many different combinations you could have

An ice cream shop sells [illegible] and two different cones. Show the combinations of ice cream [illegible] diagram below.

1) How many combinations of ice cream could you have? _____

Combinations	Fraction	Decimal	Percent
a) Waffle cone with chocolate:			
b) Waffle cone with vanilla:			
c) Sugar cone with chocolate:			
d) Sugar cone with vanilla:			

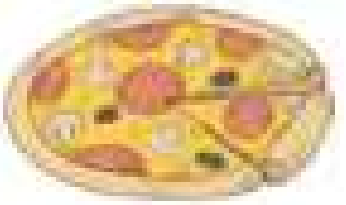
Name: _____ 129

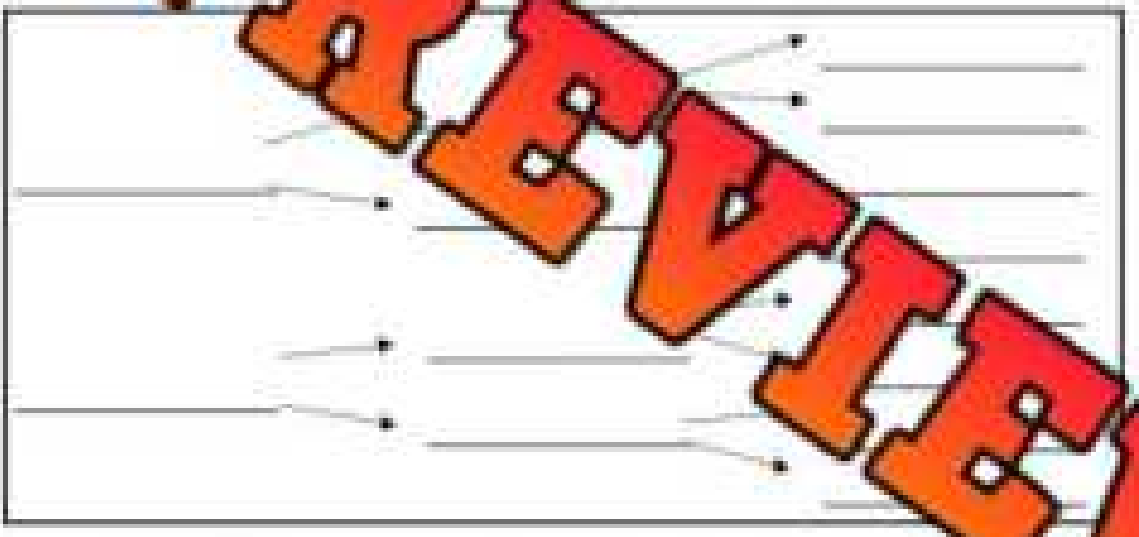
Tree Diagrams – Probability of Multiple Events

Questions Draw a tree diagram to show how many different combinations you could have

A pizza shop sells regular and gluten-free crust pizza. They have 2 types of cheese and 2 types of toppings. Check out their menu and draw a tree diagram to show all the combinations of pizza.

Menu
- Regular crust (R)
- Gluten Free crust (G)
- Mozza cheese (M)
- Cheddar cheese (C)
- Pepperoni (P)
- Onion (O)





Combinations

1) How many combinations of pizza could you have? _____

What is the probability of a customer ordering a...	Fraction	Decimal	Percent
2) Regular crust with mozza cheese and pepperoni			
3) Gluten-free crust with cheddar cheese and onions			
4) Gluten-free or regular crust with mozza and pepperoni			
5) Gluten-free crust with mozza or cheddar cheese and onions			
6) Regular crust with cheddar or mozza cheese and onions or pepperoni			
7) Gluten-free or regular crust with cheddar or mozza cheese and pepperoni			

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

Draw a tree diagram to help you find the probability of different combinations

A smoothie shop allows customers to create their own smoothies by choosing one option from each category: base, fruit, and topping. They have 2 types of bases, 3 types of fruits, and 2 types of toppings.

Bases	Fruits	Toppings
Yogurt (Y)	Banana (B)	Granola (G)
Almond Milk (A)	Strawberry (S)	Chia Seeds (C)
	Blueberry (BB)	

Name: _____

Draw a tree diagram to help you find the probability of diff... com...

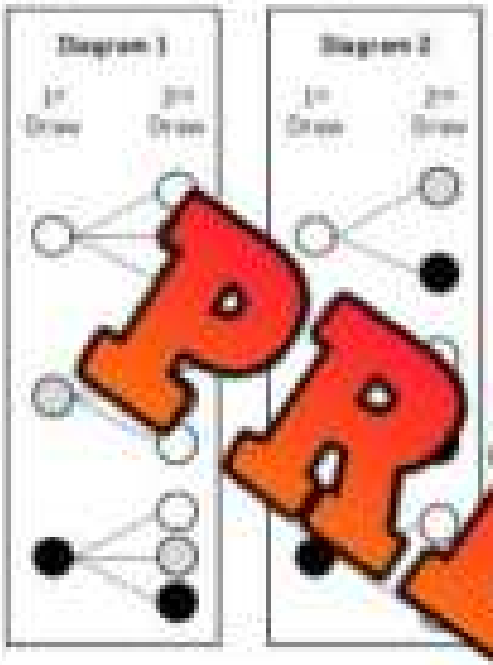
A smoothie shop allows customers to create their own smoothies by choosing one option from each category: base, fruit, and topping. They have 2 types of bases, 3 types of fruits, and 2 types of toppings.

Bases	Fr...	...
Yogurt (Y)	Banana (B)	...nola (G)
Almond Milk (A)	Strawberry (S)	Chia Seeds (C)
	Blueberry (BB)	

Name: _____ 131

Independent Events Versus Dependent Events

Instructions Read the two diagrams and answer the questions



Questions

1) Which diagram shows that the first draw does **not** affect the second draw? How can you tell?

2) In which diagram does the total number of choices [illegible] the same for the second draw? What does that tell

3) Which diagram models **independent** [illegible] reasoning.

4) Which diagram models **dependent events**? Explain [illegible] ning.

5) In which diagram does the number of outcomes change after the first [illegible] Why does this happen?

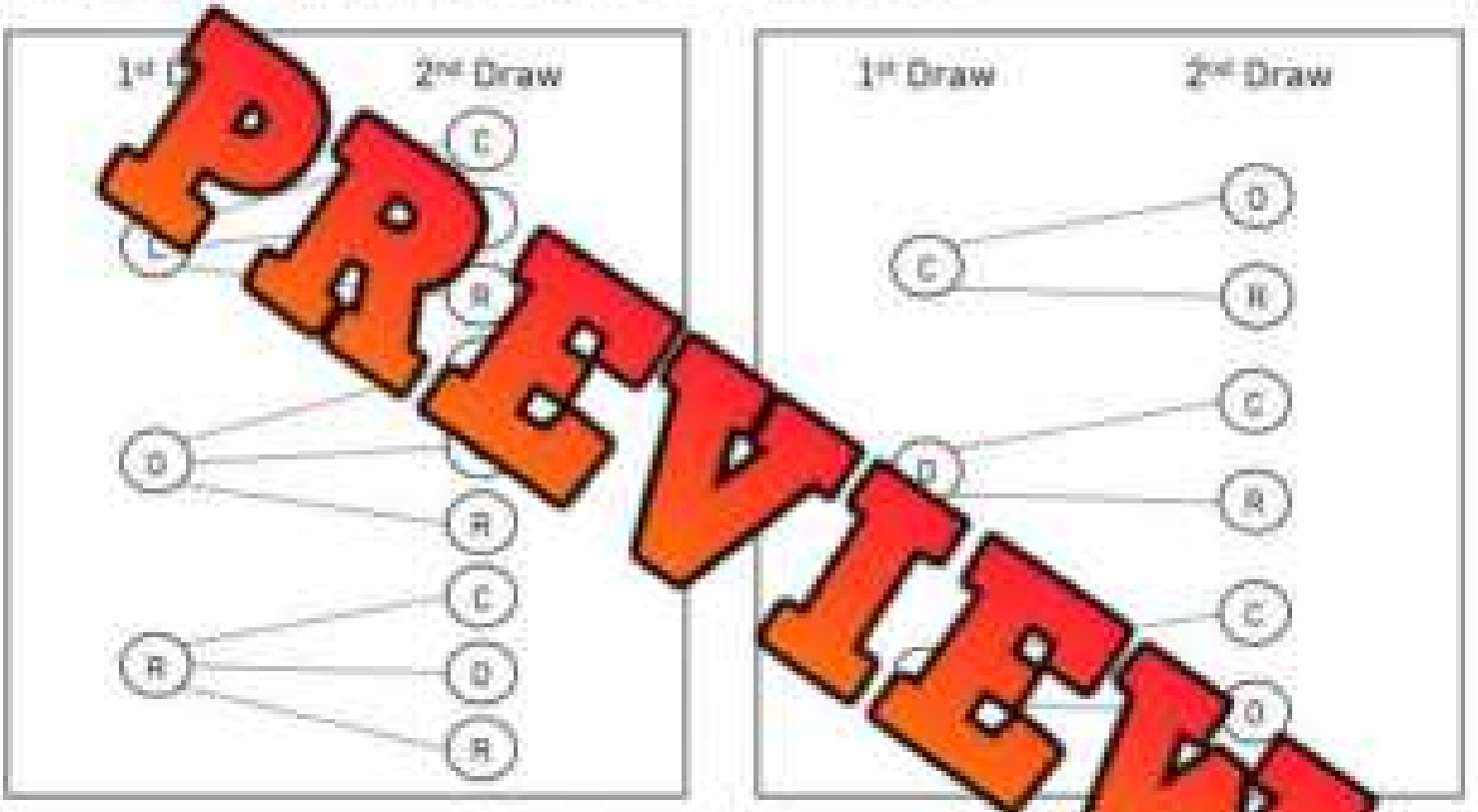
6) What is the probability of drawing two white marbles in the independent event scenario? How does this differ from the probability of drawing two white marbles in the dependent event scenario?

Name: _____ 132

Tree Diagrams – Dependent & Independent Events

Questions | Answer the questions below

Below are two tree diagrams that represent chocolate (c), oatmeal (o), and raisin (r) cookies being taken out of a cookie jar. One of the diagrams represents independent events, with the cookies being returned to the cookie jar. The other diagram represents dependent events, with the cookies being eaten after they are pulled from the jar.



1) How are the tree diagrams the same?

2) How are the tree diagrams the different?

3) Which tree diagram represents independent events, and which represents dependent events? Explain how you know.

Name: _____ 133

Independent Events Versus Dependent Events

Questions | Read the scenarios below and draw the tree diagrams

1) You have **two marbles** in a bag: **one white and one black**. You draw **two times**.

Draw **two tree diagrams**:

- One to represent the **independent** event (with replacement).
- One to represent the **dependent** event (without replacement).

Independent Event

1st Draw | 2nd Draw

Dependent Event

1st Draw | 2nd Draw

2) You have **four marbles** in a bag:

- **2 white**,
- **1 black**,
- **1 grey**.

Draw **two tree diagrams**:

- One to represent the **independent** event (with replacement).
- One to represent the **dependent** event (without replacement).

Independent Event

1st Draw | 2nd Draw

Dependent Event

1st Draw | 2nd Draw

Name: _____ 13a

Independent Events Versus Dependent Events

Instructions Read the scenario below and draw two tree diagrams

You have five marbles in a bag:

- **2 red,**
- **2 blue,**
- **1 green.**

You will [illegible] marbles, one after the other.

Draw [illegible] the open space below:

- [illegible] show t[illegible]**dent** event (with replacement).
- One [illegible] show[illegible]ent event (without replacement).

Independent Event	Dependent Event

Name: _____ 135

Solving Independent Events

How to Solve Independent Events
Independent events are events where the outcome of one event **does not affect** the outcome of the other.

To find the probability of two independent events both happening, **multiply** the probability of the first event by the probability of the second event.

Example:
You flip a coin and roll a die. What is the probability of getting heads and rolling a 4?

Probability of getting heads = 1 out of 2 $\left(\frac{1}{2}\right)$

Probability of rolling a 4 = 1 out of 6 $\left(\frac{1}{6}\right)$

P(Heads and 4) = $\frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$

So, there is a 1 in 12 chance of flipping heads and rolling a 4.

Questions

Use the probabilities below

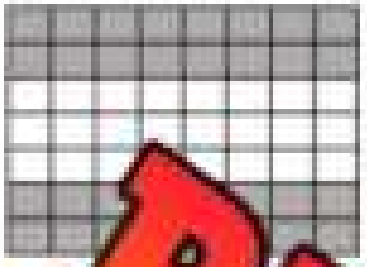
#	Word Problem
1	Maya rolls two dice. What is the probability both dice land on even numbers?
2	A student flips a coin two times. What is the probability of getting tails both times?
3	Sarah draws one marble, replaces it, and draws again from a bag with 3 red and 2 blue marbles. What's the chance of getting two reds?
4	A quiz has 2 multiple choice questions with 4 choices each. What is the probability of guessing both correctly?
5	Jack pulls a sock from his drawer (2 black, 2 white), then flips a coin. What is the probability he gets a black sock and tails?

Name: _____ 13b

Independent Events – Darts

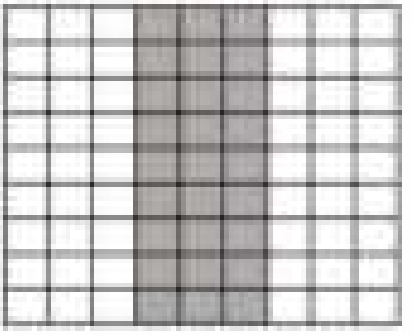
Questions If you get two throws, what is the probability of hitting the target on both throws?

1)



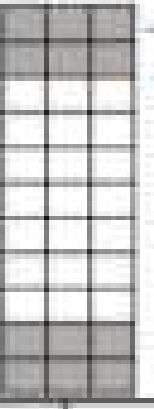
Fraction	
Decimal	
Percent	

2)



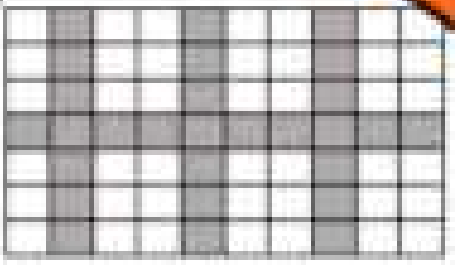
Fraction	
Decimal	
Percent	

3)



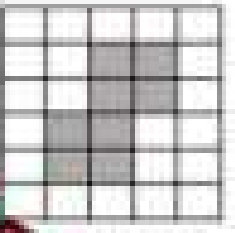
Fraction	
Decimal	
Percent	

4)



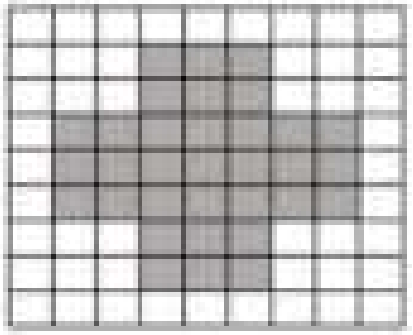
Fraction	
Decimal	
Percent	

6)



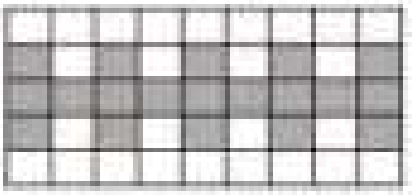
Fraction	
Decimal	
Percent	

7)



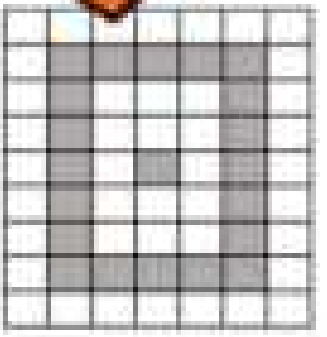
Fraction	
Decimal	
Percent	

8)



Fraction	
Decimal	
Percent	

9)



Fraction	
Decimal	
Percent	

Name: _____ 137

Independent Probability – Rolling a Dice

Rolling a Dice
A dice has 6 sides. Each side has a number of dots between 1 and 6. When you roll a dice, you have an unlikely chance of rolling a certain number.

Questions	What is the probability of...

1) Rolling

Fraction	Decimal	Percent

2) Rolling a 5

Fraction	Decimal	Percent

3) Rolling an odd number?

Fraction	Decimal	Percent

4) When rolling 2 dice, what is the probability of rolling

Fraction	Decimal	Percent

5) When rolling 2 dice, what is the probability of rolling a 5 or

Fraction	Decimal	Percent

6) What is the probability of rolling an odd number on two dice?

Fraction	Decimal	Percent

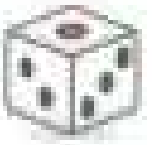
7) When rolling 2 dice, what is the probability of rolling a 1, 2, 3, or 4 on each roll?

Fraction	Decimal	Percent

Name: _____ 138

Independent Events – Dice Challenge

Part 1 Find the probability of each sum when two dice are rolled



1) What is the probability of you rolling two six-sided dice and getting a sum of the two dice greater than 8?

2) What is the probability of you rolling two six-sided dice and getting a sum of the two dice greater than 11?

3) What is the probability of you rolling two six-sided dice and getting a sum of the two dice less than 4?

+	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

Part 2 Find the probability of each product when two dice are rolled

x	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

1) What is the probability of you rolling two six-sided dice and getting a product of the two dice greater than 12?

2) What is the probability of you rolling two six-sided dice and getting a product of the two dice less than or equal to 9?

3) What is the probability of you rolling two six-sided dice and getting a product of the two dice greater than or equal to 25?

Name: _____ 139

Dependent Events – Money Bag

A bag has one of each Canadian coins - 5¢, 10¢, 25¢, $1, $2.

What is the probability you will select a dime and then a quarter?

Solution

Probability to pick a Dime is 1/5

Probability to pick a Quarter is 1/4 (no dime in the bag)

Desired probability $= \frac{1}{5} \times \frac{1}{4} = \frac{1}{20}$

Question: What is the probability of the following scenarios:

	Scenario – Probability	Answer – Show Your Work
1)	Selecting a Nickel?	
2)	Selecting a Loonie and then a Toonie?	
3)	Selecting a Quarter and then a Toonie, and then a Loonie?	
4)	Selecting a Dime, Loonie, and then a Nickel?	
5)	Selecting a Dime, Quarter, Nickel, and then a Loonie?	
6)	Selecting a Quarter, Dime, Nickel, Toonie, and then a Loonie?	

Name: _____ 148

Dependent Events – Prize Box

Question ... the probability of the following scenarios

	Scenario	Answer – Show Your Work
1)	You get one ... What is the ... of picking a phone?	
2)	You get two picks. What is the ... picking the basketball first, and ... hairbrush second?	
3)	You get three picks. What is the probability of picking the headphones first, a pencil second, and a book third?	
4)	You get four picks. What is the probability of picking the phone first, the baseball second, the headphones third, and the book fourth?	
5)	You are picking from the prize box third. One phone and one book are already gone. What is the probability of you picking a phone?	
6)	You are picking from the prize box fifth. One phone, one baseball, two books are already gone. You get two picks. What is the probability of you picking a phone first and then the headphones second?	

Theoretical vs Experimental Probability

Theoretical Probability
What should happen

Example – The theoretical probability of flipping a heads is 1 time out of 2 or ½.

Experiment Probability
What did happen after the event (experiment)

Example – You flipped a coin 10 times and got 7 heads. The experimental probability is 7/10.

Part 1 Write the theoretical probability of the events happening below

Question	Fraction	Decimal	Percent
1) W[illegible] probability of flipping a heads?			
2) Wh[illegible] the th[illegible]bability of flipping a tails?			
3) What is the [illegible] prob[illegible] flipping a heads if you flipped the [illegible]mes?			
4) What is the theore[illegible] heads and then rolling a dice an[illegible]?			
5) What is the theoretical proba[illegible]y of getting an odd number and then flipp[illegible]			

Part 2 Experimental Probability – Flip a [illegible] ti[illegible]rd your results

1) How many heads and tails do you think you will flip [illegible]

[illegible]	Tails
[illegible]	20

2) Perform the experiment by flipping a coin 20 times. Record how many h[illegible]nd tails you get.

	Tallies	Frequency	Fraction	Decimal	Percent
Heads					
Tails					

3) Was the theoretical probability and experimental probability the same? Should it be the same? Explain.

____

____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

Answer the following questions.

1. Your friend rolls a die 50 times and records that it lands on 2 more often than any other number.

Circle Answer: Theoretical or Experimental

2) Based on the genetic traits of your parents, there is a 50% chance you will have blue eyes.

Circle Answer: Theoretical or Experimental

3) Fill the table

Example	Theoretical or Experimental	Fraction	Decimal	Percent
In a class survey, 12 out of 25 students say their favourite fruit is apple.				

Name: _____

Answer the following questions.

1. Your friend rolls a die 50 times and records that it lands on 2 more often than any other number.

Circle Answer: Theoretical or Experimental

2) Based on the genetic traits of your parents, there is a 50% chance you will have blue eyes.

Circle Answer: Theoretical or Experimental

3) Fill the table

Example	Theoretical or Experimental	Fraction	Decimal	Percent
In a class survey, 12 out of 25 students say their favourite fruit is apple.				

Name: _____

Answer the following questions.

1. Your friend rolls a die 50 times and records that it lands on 2 more often than any other number.

Circle Answer: Theoretical or Experimental

2) Based on the genetic traits of your parents, there is a 50% chance you will have blue eyes.

Circle Answer: Theoretical or Experimental

3) Fill the table

Example	Theoretical or Experimental	Fraction	Decimal	Percent
In a class survey, 12 out of 25 students say their favourite fruit is apple.				

Name: _____

Answer the following questions.

1. Your friend rolls a die 50 times and records that it lands on 2 more often than any other number.

Circle Answer: Theoretical or Experimental

2) Based on the genetic traits of your parents, there is a 50% chance you will have blue eyes.

Circle Answer: Theoretical or Experimental

3) Fill the table

Example	Theoretical or Experimental	Fraction	Decimal	Percent
In a class survey, 12 out of 25 students say their favourite fruit is apple.				

Name: _____ 144

Theoretical vs Experimental Probability – Sock Drawer

Part 1 Write the theoretical probability of the events happening below

Your sock drawer is a mess! You have 50 socks in there in 5 different colours – white, blue, black, green, and red. Here is the breakdown of the socks in your drawer.

Colour of Sock	White	Yellow	Black	Green	Red
Number of Socks	14	4	22	6	4

1) If you r[illegible] the drawer 50 times without looking, what is the theoretical probabi[illegible] pull each of the colours below

	White	Yellow	Black	Green	Red
Fracti[illegible]					
Decim[illegible]					
Percent					

Part 2 Complete the [illegible] experimental probability

2) Close your eyes and point to a random spot in the [illegible] be[illegible] your eraser. Repeat this for 50 trials and tally your results below

W	R	B	Y	W	B	W	[illegible]	[illegible]	[illegible]	B	W
B	W	W	R	B	W	B	Y	B	Y	[illegible]	[illegible]
Y	B	B	G	W	Y	R	W	B	W	[illegible]	W
B	Y	G	W	G	W	Y	R	R	R	W	Y

Colour of Sock	White	Yellow	Black	Green	Red
Tally					
Percent					

How did the experimental probability compare with the theoretical probability? Explain.

_____

_____

Name: _____ 145

Theoretical vs Experimental Probability - # of Events

The theoretical and experimental probability of an event happening is not guaranteed to be the same. Performing more trials in an experiment will cause the experimental probability to be closer to the theoretical probability.

Example – if you flip a coin 2 times, it is easy to picture getting heads twice in a row. That would mean the experimental probability of getting a heads was 100% or 2/2. However, if you flipped the coin 100 times, it is almost impossible to get 100 heads in a row.

Part 1

...y times should you get a 1, 2, 3, 4, 5, or 6 when performing the ...lts below?

			3	4	5	6	Probability
6 rolls							
12 rolls							
60 rolls							
600 rolls							
1200 rolls							

Part 2

Follow the instructions bel... ...periments

1) Roll the dice 6 times. Tally your results.

1	2				6

2) Roll the dice 60 times. Record how many of each number you get.

	1	2	3	4	5	6
Tallies						
Total						

3) Did the experimental probability get closer to the theoretical probability when you rolled the dice more times? Explain why this happens.

Name: _____ 146

Theoretical vs Experimental - Dice

Part 1 What is the theoretical probability of the dependent events below?

	Scenario – What is the probability of...	Probability (Fraction)	Probability (Percent)
1)	Rolling a 1 and then a 2 using a 6-sided dice		
2)	Rolling a 4 and then a 4 using a 6-sided dice		
3)	Rolling a 3 and then a 3 using a 6-sided dice		
4)	Rolling a 6 and then a 6 using a 6-sided dice		
5)	Rolling a 1 three times in a row using a 6-sided dice		

Part 2 Follow the instructions to complete the experiments

1) The theoretical probability of rolling two 6's in a row is 1/36 or 2.7 percent. Try this experiment for yourself by filling in the table below.

Steps:

1) Get 2 dice or roll one dice twice
2) Every time you roll, mark 1 tally
3) If you get two sixes in a row, mark a tally under the 6/6 column
4) Complete 36 trials. How many times should you roll double 6?

Number of Rolls – Tally	6/6

2) The theoretical probability of rolling a 1 and then a 2 is 1/36 or 2.7 percent. Complete the same steps as above for the numbers 1 and 2. Can you get more than 1 favourable outcome in 36 rolls?

Number of Rolls – Tally	1/2

Name: _____ 147

Rolling Doubles

Part 1 What is the theoretical probability of rolling doubles when rolling 2 dice

1) What is the theoretical probability of rolling doubles when rolling 2 six-sided dice?

Tip: favourable outcomes / total possible outcomes

2) How many times would you expect to roll doubles if you performed 24 trials?

Part 2 What is the experimental probability of rolling doubles when rolling 2 dice

1) Roll 2 six-sided dice 24 times and record your rolls you complete using the table below. Put a tally every time you roll doubles.

Number of Rolls	Doubles

2) Was your experimental probability the same as the theoretical probability?

3) Was your experimental probability the same as the other students in your class? Explain why or why not.

4) If you performed 1000 rolls, do you think your experimental probability would be closer or further from the theoretical probability? Explain.

Name: _____ 148

Tree Diagrams – Independent Events

Questions Draw a tree diagram to help you find the probability of different combinations

There is a bag full of the following different colour marbles:

- 2 red marbles (R)
- 2 blue marbles (B)
- 2 green marbles (G)

Draw a tree diagram for the following scenario:
You pull a marble and then put it back in the bag before pulling another marble

Tree Diagram	Combinations
1st Draw 2nd Draw	

1) How many combinations of colours could you draw? _____

What is the probability of drawing...	Fraction	Decimal	Percent
2) A red marble and then a green marble?			
3) A green marble and then a blue marble?			
4) A blue marble and then another blue marble?			
5) A red marble and then a blue marble?			

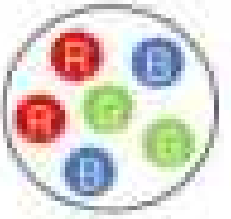
Name: _____ 149

Tree Diagrams – Dependent Events

Questions Draw a tree diagram to help you find the probability of different combinations

There is a bag full of the following different colour marbles:

- 2 red marbles (R)
- 2 blue marbles (B)
- 2 green marbles (G)



Draw a tree diagram for the following scenario:
You pull out a marble from the bag, and then another without putting the first one back.

Tree Diagram	Combinations
1st Draw 2nd Draw	

1) How many combinations of colours could you draw? _____

What is the probability of drawing...	Fraction	Decimal	Percent
2) A red marble and then a green marble?			
3) A green marble and then a blue marble?			
4) A blue marble and then another blue marble?			
5) A red marble and then a blue marble?			

Name: _____ 150

Tree Diagrams – Dependent Events

Questions Draw a tree diagram to help you find the probability of different combinations

Jeremy has 8 socks in his drawer:

- 2 of the socks are white
- 2 of the socks are black
- 2 of the socks are blue
- 2 of the socks are red

Jeremy takes out two socks at random, one after the other.

Draw a tree diagram to represent the scenario above

1) How many combinations of colours could you draw? _____

What is the probability of taking out...	Fraction	Percent
2) A red sock and then a blue sock?		
3) Two black socks?		
4) A white sock and then a black sock?		

Name: _____ 151

Number Simulation – Independent Events

Part 1 — Theoretical Probability – Answer the questions below

Pretend you are drawing two numbers from 1-10. Since these are independent events, you can select the same number more than once.

If you picked two numbers, what is the theoretical probability of...	
1) Picking a 3 and then a 2?	
2) Pick	
3) P	

If you compl	
4) 10 trials, how m	to get a 3 and then a 6?
5) 30 trials, how many t	a 3 and then a 6?
6) 100 trials, how many times	and then a 6?

Part 2 — Experimental Probability – P

Set up the experiment by cutting out the numbers a bag. Perform the number of trials below by selecting 2 nu the select a number, you put the number back in the bag befo

Complete...	
1) 10 trials - how many times did you get a 3 and then a 6?	
2) 30 trials - how many times did you get a 3 and then a 6?	
3) 100 trials - how many times did you get a 3 and then a 6?	

1	2	3	4	5
6	7	8	9	10

Name: _____ 152

Number Simulation – Dependent Events

Part 1 — Theoretical Probability – Answer the questions below

Pretend you have the numbers 1-10 on slips of paper in a bag. When you draw a number, you cannot get that number again for that trial. Each trial is selecting 2 numbers. Once you have completed a trial (selected 2 numbers), the numbers go back in the bag.

If you pic[illegible]wo numbers, what is the theoretical probability of...	
1) Pickin[illegible]then a 7?	
2) P[illegible]	
3) P[illegible]2 an[illegible]	

If you comple[illegible] dra[illegible]bers)	
4) 10 trials, what is [illegible]3 and then a 6?	
5) 30 trials, what is the pr[illegible] g[illegible] then a 6?	
6) 100 trials, what is the probabi[illegible]y of [illegible]a 6?	

Part 2 — Experimental Probability – P[illegible]n th[illegible]ent below

Set up the experiment by cutting out the numbers b[illegible]ing [illegible] bag. Perform the number of trials below by selecting 2 num[illegible]the [illegible]er. After you select two numbers, you put the numbers back in the bag.

Complete...	
1) 10 trials - how many times did you get a 3 and then a 6?	
2) 30 trials - how many times did you get a 3 and then a 6?	
3) 100 trials - how many times did you get a 3 and then a 6?	

1	2	3	4	5
6	7	8	9	10

Name: _____ 153

Class List – Random Selections

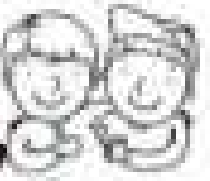
Challenge Write your answers as a fraction and a percent

1) Antonio is in a class with 22 total students. His teacher uses a random name generator to decide who gets to choose what movie they will watch for their end of year party.

a) What is the probability that Antonio will be chosen?

b) Antonio and Diego will both choose the same movie, so neither minds who is chosen. What are the chances one of Diego or Antonio will be chosen?

2) Antonio's teacher is selecting students to help the principal with a job. The teacher uses a random name generator to decide. What is the probability that Antonio or Diego will be chosen?



3) Antonio's teacher has already drawn 14 names from the box. Antonio, Diego, and their friend Lukas are still waiting for their names.

a) What is the probability that Antonio, Diego, and Lukas have their names called next in a row in that order?

b) Lukas had his name drawn and now there are only 8 names left. What is the probability that Antonio and Diego will have their names called next back-to-back in that order?

Name: _____ 15k

Tree Diagrams – Dependent Events

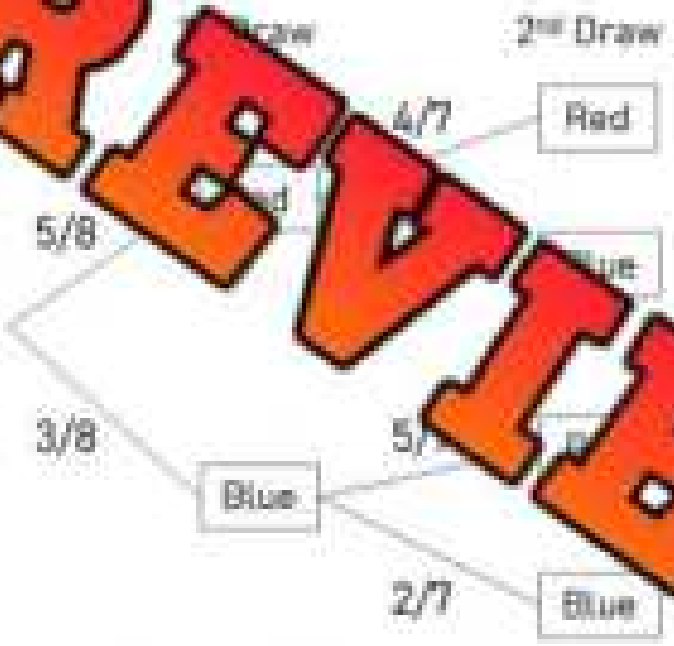
Questions Use the tree diagram to help you find the probability of different combinations

There is a bag full of the following different colour coloured beads:

- 5 red beads
- 3 blue beads

Brad selects 2 beads from the box. He does not replace any of the beads before the next bead was selected.

Use the tree diagram to solve the questions below. **Hint**: you can multiply the fractions to calculate the total probability.



What is the probability that Brad will select...	Fraction	Percent
1) 2 red beads?		
2) 1 red bead and then 1 blue bead?		
3) 2 blue beads?		
4) 1 blue bead and then 1 red bead?		
5) Why are these trials dependent events?		

Name: _____ 155

Tree Diagrams – Dependent Events

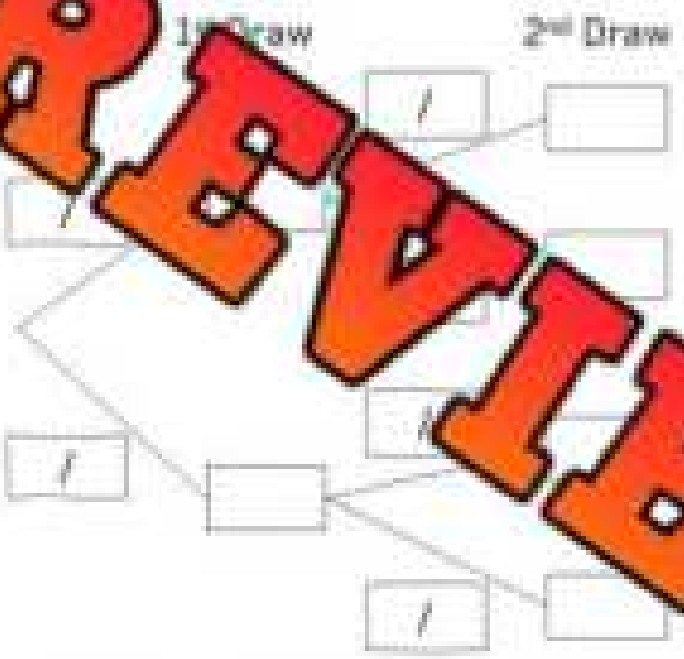
Questions Draw a tree diagram to help you find the probability of different combinations

There is a box of multi-coloured candy with the following candies inside:

- 7 green candies
- 4 orange candies

Sage will select 2 candies from the box. She will not replace any of the candies before she takes the next candy.

Fill in the tree diagrams below.



What is the probability that Sage will select...	Fraction	Percent
1) 2 green candies?		
2) 2 orange candies?		
3) 1 green candy and then 1 orange candy?		
4) 1 orange candy and then 1 green candy?		

5) If you had to bet on which 2 candies you would choose from the box, which combination of 2 candies would you choose? Explain.

_____

_____

Name: _____ 15s

Odds In Favour

Understanding Odds in Favour
Odds in favour compare the number of ways an event can happen to the number of ways it cannot happen. These are called **complementary** events because they cover all possible outcomes together.

While pr[illegible] tells us the chance of an event o[illegible]tal, odds are written as a ratio o[illegible]omes to unfavourable ones.

Example:
If you roll two dice, there is 1 way to get a sum of 2 and 35 ways not to.

The odds in favour of rolling a sum of 2 are 1:35 (read as "1 to 35").

This means for every 1 way to roll a 2, there are 35 ways to roll something else.

Questions [illegible] in favour and display it as a ratio

#		Odds in Favour – Ratio
1	A basketball player [illegible] throws. What are the odds in fav[illegible] free throw?	
2	A spinner has 8 equal sections: 2 are red [illegible] What are the odds in favour of landing on	
3	A hockey goalie stops 18 out of 20 shots. What are the odds in favour of stopping the next shot?	
4	A jar has 5 purple candies and 15 green candies. What are the odds in favour of picking a green candy?	
5	A student flips a coin 10 times and gets heads 4 times. What are the odds in favour of flipping heads?	
6	A board game die has 6 sides. What are the odds in favour of rolling a 4 and then a 3 when rolling it twice?	

Name: _____ 157

Odds In Favour

Questions | Determine the odds in favour and display it as a ratio

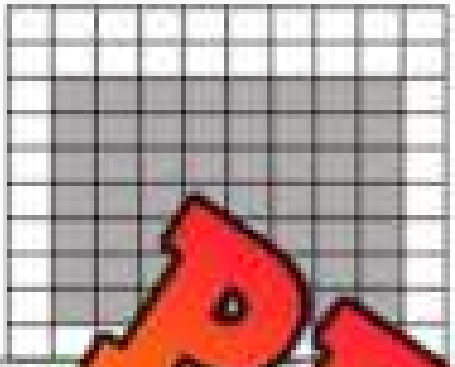
#	Word Problem	Odds in Favour – Ratio
1	A student rolls a die twice. What are the odds in favour of getting a 2 and then a 5?	
2	[illegible] and 3 yellow marbles. Without [illegible] what are the odds in favour of pulling [illegible]	
3	A batter hits safely 1 [illegible] are the odds in favour of hitting [illegible]	
4	A class has 10 girls and 15 boys. What are the [illegible] favour of randomly picking a girl first and then a [illegible] second (students can't be selected twice)	
5	A game spinner has 5 equal sections: 2 green, 2 blue, and 1 red. What are the odds in favour of spinning green twice in a row?	
6	A card is drawn from a deck, then a second is drawn after putting back the first card. What are the odds in favour of drawing two kings?	

Name: _____ 158

Unit Quiz - Probability

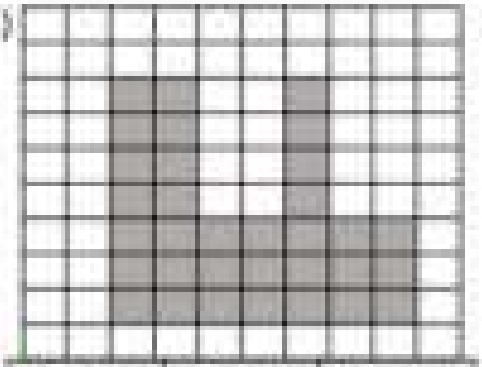
Part 1 Represent the probability of hitting the target using a fraction, decimal and percent

1)



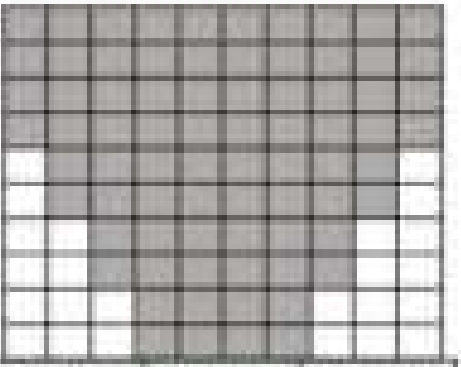
Fraction	Decimal	Percent

2)



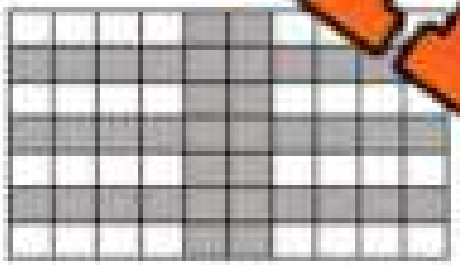
Fraction	Decimal	Percent

3)



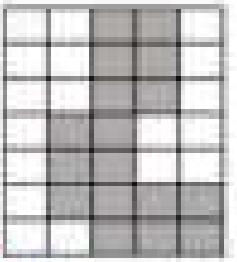
Fraction	Decimal	Percent

4)



Fraction	
Decimal	
Percent	

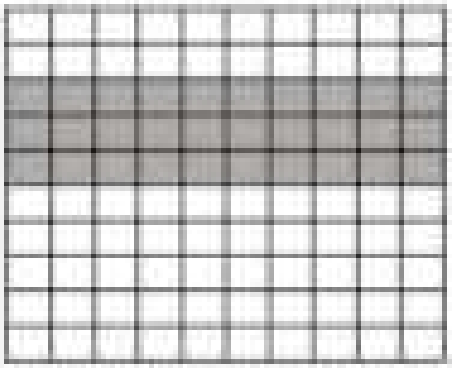
6)



Fraction	
Decimal	
Percent	

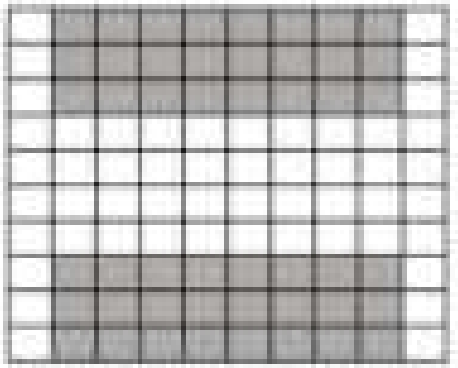
Part 2 What is the probability of hitting the target twice if you get [illegible] throws?

7)



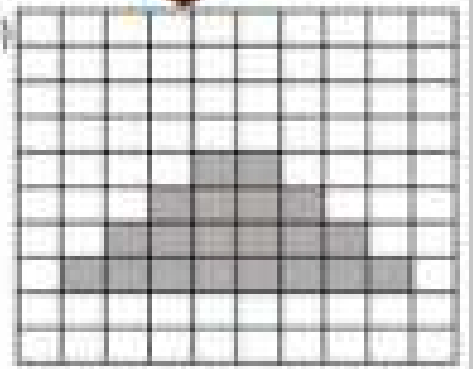
Fraction	Decimal	Percent

8)



Fraction	Decimal	Percent

9)



Fraction	Decimal	Percent

Part 3 What is the probability of...

1) Rolling a 2 or 5?

Fraction	Decimal	Percent

2) Rolling two six-sided dice and getting an even number both times?

Fraction	Decimal	Percent

3) Rolling [illegible] dice and getting a 6 both times?

	Decimal	Percent

Part 4 [illegible] or dependent?

1)	Snowing today and then [illegible]	Dependent	Independent
2)	Pulling out a blue candy from a [illegible] multi-coloured candies three times in a row without [illegible] any back.	[illegible]ndent	Independent
3)	Drawing a spade from a standard deck of [illegible] twice in a row without putting them back.	[illegible]	Independent

Part 5 What is the probability of the following scenarios when selec[illegible] box and not putting them back before selecting the next candy.

	Scenario – Probability of...	Answer – Show Your Work
1)	Picking a green and then a blue candy?	
2)	Picking 2 green candies?	
3)	Picking a blue candy and then a red candy?	

Part 6 Draw a tree diagram to help you find the probability of different combinations

Mitchell has 6 socks in his drawer.

- 2 of the socks are white
- 2 of the socks are black
- 2 of the socks are grey

Mitchell takes out two socks at random at the same time.
What colour socks might he wear today?

1) Draw a tree diagram to represent the scenario above.

2) How many combinations of coloured socks could he draw? _____

What is the probability taking out...	Fraction	Percent
3) a white sock and then grey sock?		
4) two black socks?		
5) a white and then black sock?		

Grade 7
E1 – Geometric and Spatial Reasoning

	Curriculum Expectations	Pages That Cover the Expectations
E1.1	describe and classify cylinders, pyramids, and prisms according to their geometric properties, including plane and rotational symmetry	5 - 30
E1.2		
E1.3	perform dilations and describe the similarity between the image and the original shape	57 - 66
E1.4	describe and perform translations, reflections, and rotations on a Cartesian plane, and predict the results of these transformations	67 - 103

Name: _____ 16

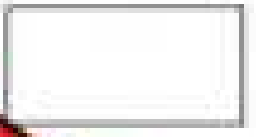
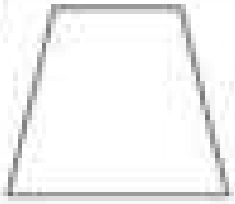
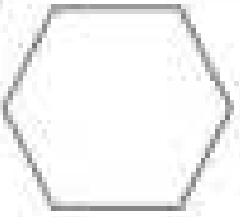
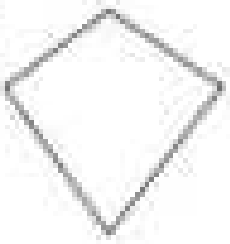
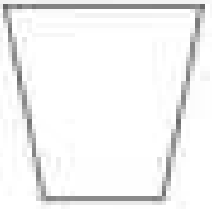
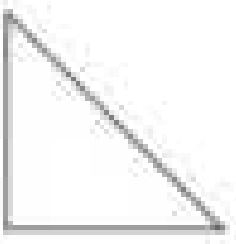
Rotational Symmetry

A shape has rotational symmetry if it looks the same after it has been rotated from 0° to 360°. The number of times a shape matches as it is rotated is called the **order**.

Original Shape	180° rotation	360° rotation
		

This rectangle has an order of only 2 because it looks the same at 180° and 360°.

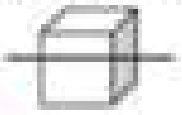
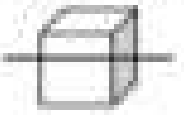
Ques the order of rotational symmetry for each shape below

1) 		3) 	4) 
5) 	6) 	7) 	
9) 	10) 	11) 	12) 

Name: _____ 18

Rotational Symmetry (3D Objects)

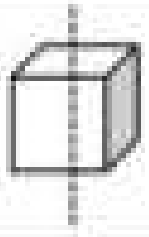
We can determine the rotational symmetry of 3D shapes as well as 2D shapes. The process is the same, as we rotate the 3D shape 360° about the axis and count how many times the 3D shape will match its original shape.

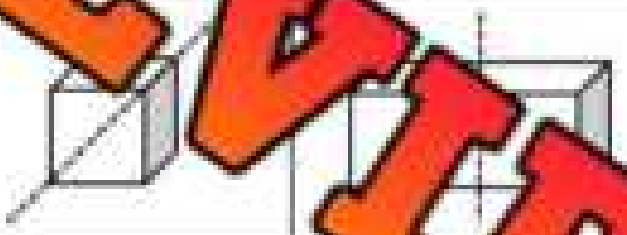
Original Object	90° rotation	180° rotation	270° rotation	360° rotation
				

As you ... ample above, we could have put the axis vertical or even diag... ect the number of orders of rotational symmetry. In this exampl... e orde... e cube matches itself 4 times as it rotates 360°.

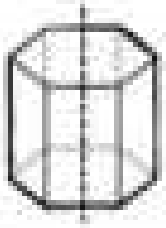
Questions

... the ... ional symmetry for each object below

1) 

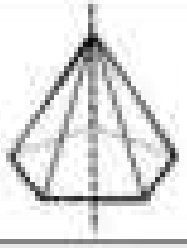
2) 

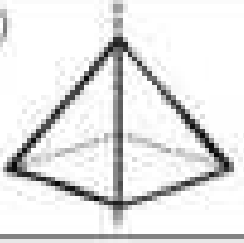
4) 

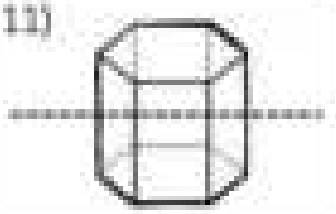
5) 

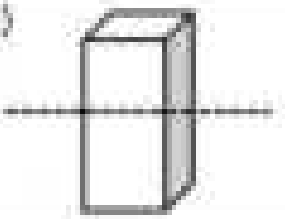
6) 

7) 

9) 

10) 

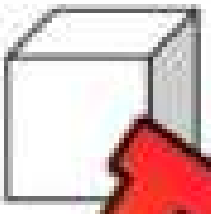
11) 

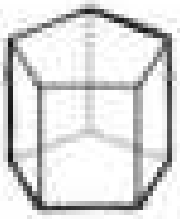
12) 

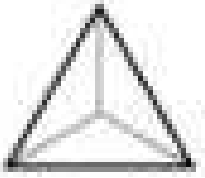
Name: _____ 19

Rotational Symmetry (3D Objects)

Questions Draw the axis and the order of rotational symmetry for each 3D object

1) 

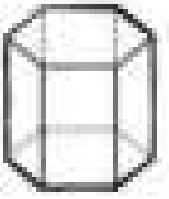
2) 

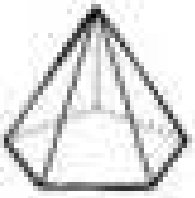
3) 

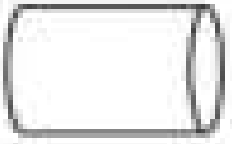
4) 

5) 

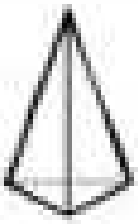
7) 

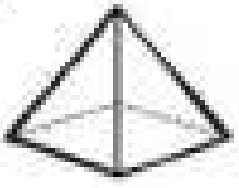
8) 

9) 

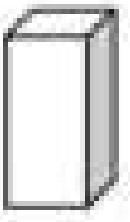
10) 

11) 

13) 

14) 

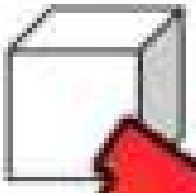
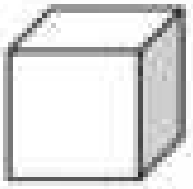
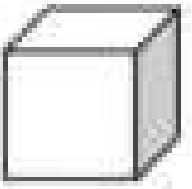
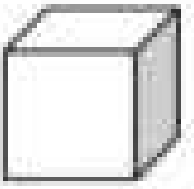
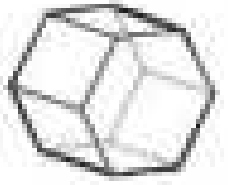
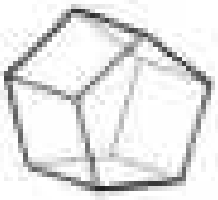
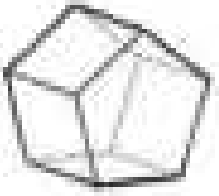
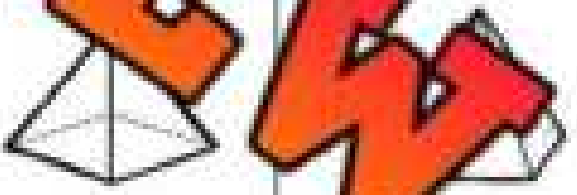
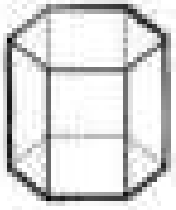
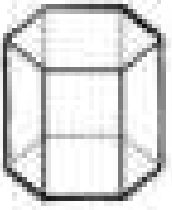
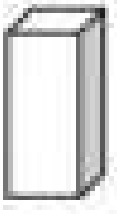
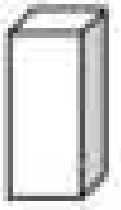
15) 

16) 

Name: _____ 20

Rotational Symmetry (3D Objects)

Questions Draw the axis where it should go based on the orders of rotational symmetry

1) 	2)  Order = 3	3)  Order = 2	4)  Order = 4
5)  Order = 2	6)  Order = 2	7) 	8)  Order = 2
9)  Order = 2	10)  Order = 5	11)  Order = 4	Order = 5
13)  Order = 6	14)  Order = 2	15)  Order = 2	16)  Order = 4

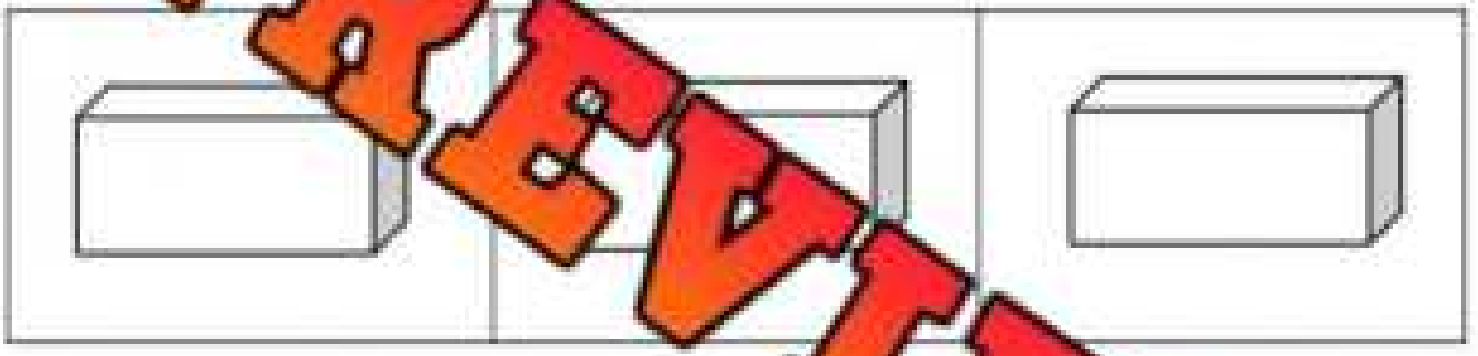
Name: _____ 21

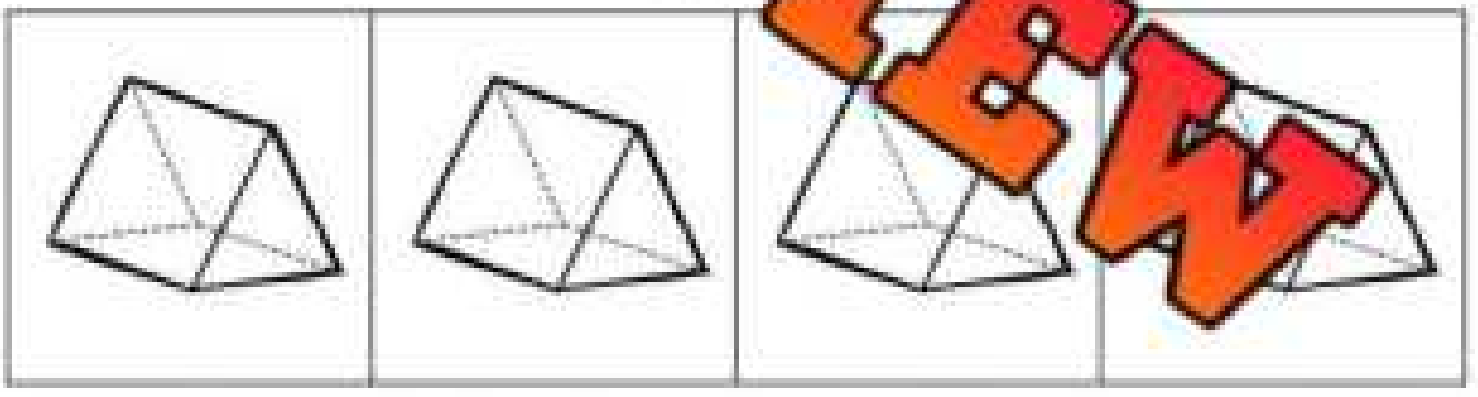
Plane Symmetry (3D Objects)

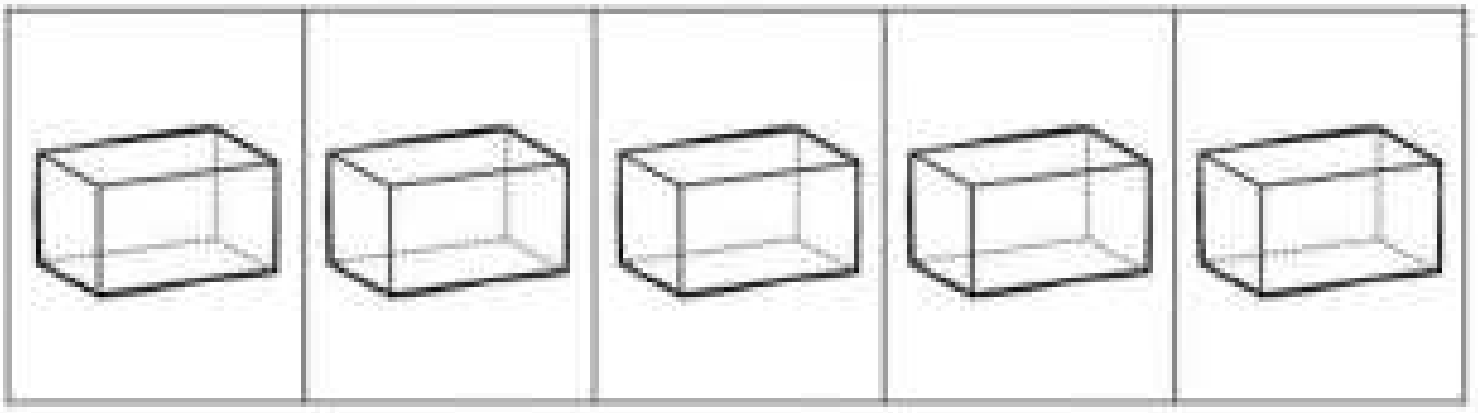
A 3D object has plane symmetry if a plane can divide the object into two parts that are the mirror images of each other.

Below are the 9 planes of symmetry for a cube.

Ques lanes of symmetry for the 3D objects below





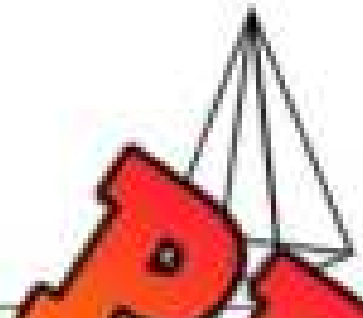


Name: _____ 22

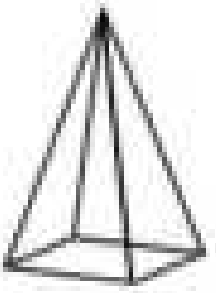
Plane Symmetry (3D Objects)

Part 1 Draw the planes of symmetry on the rectangular pyramid below

1)

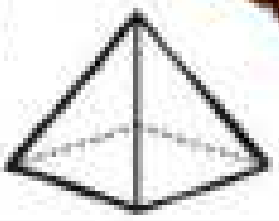


2)

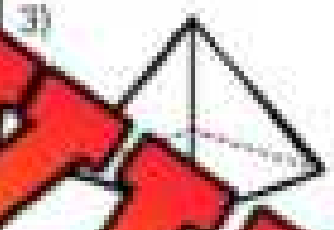


Part 2 Draw the planes of symmetry on the square pyramid below

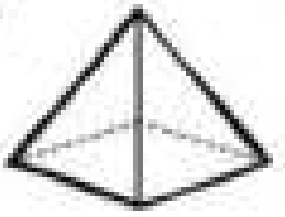
1)



3)

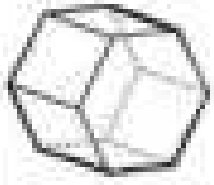


4)

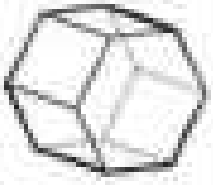


Part 3 Draw the planes of symmetry on the hexagonal prisms below

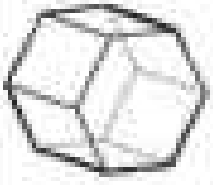
1)



2)



3)



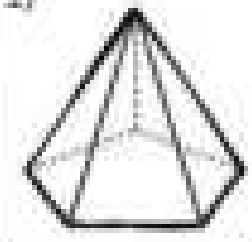
4)

5)

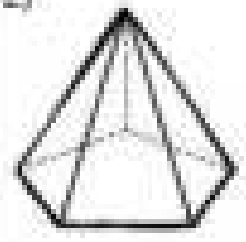
6)

Part 4 Draw the planes of symmetry on the pentagonal pyramid below

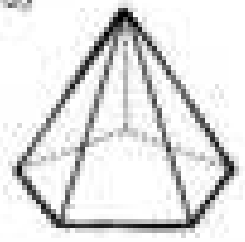
1)



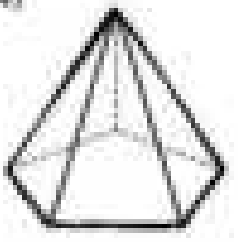
2)



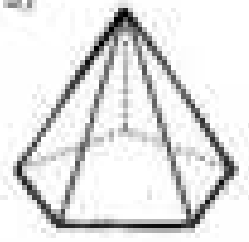
3)



4)



5)

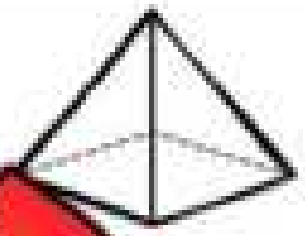


Name: _____ 23

Plane Symmetry (3D Objects)

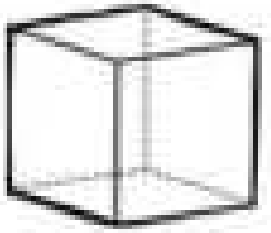
Questions Fill in the tables below by investigating different 3D objects

1)



Lines of Symmetry for the Base	Planes of Symmetry

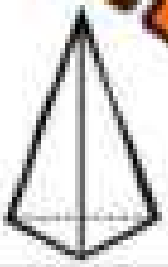
2)



Cube

Lines of Symmetry for the Base	Planes of Symmetry

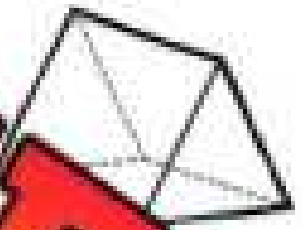
3)



Triangular Pyramid

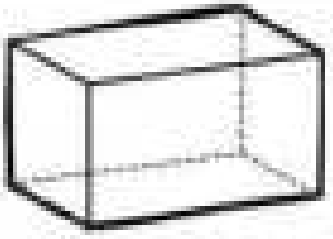
Lines of Symmetry for the Base	Planes of Symmetry

4)



Lines of Symmetry for the Base	Planes of Symmetry

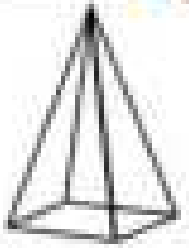
5)



Rectangular Prism

Lines of Symmetry for the Base	Planes of Symmetry

6)



Rectangular Pyramid

Lines of Symmetry for the Base	Planes of Symmetry

Name: _____ 24

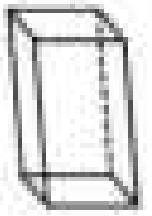
Cylinders – Deep Dive!

All About Cylinders

- Cylinders have two congruent faces that are parallel to each other. These are the bases of the cylinder.
- Cylinders have circular bases and one curved surface that connects them.
- If a solid has polygonal bases instead of circles, it is called a prism, not a cylinder.
- Cylinders also have parallel line segments (generators) that join one base to the other.

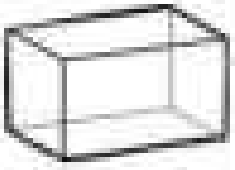
Part 1

the cylinders – circular, prism, or not a cylinder

1)	2)	3)	4)	5)
				

Part 2

1) Shade in the 2 bases. Draw a ... parallel lines

1)	2)	3)	4)	5)
				

Part 3

Draw 3 different cylinders below

1)	2)	3)
Circular Cylinder	Not a Cylinder	Prism

Name: _____ 25

Types of Cylinders

Right Circular Cylinder	Oblique Cylinder	Elliptical Cylinder
		
- Bases [illegible]ar and congru[illegible] - S[illegible] per[illegible]ar	- Bases are congruent but **tilted** - Sides slant, not vertical	- Bases are elliptical (oval/ stretched) and congruent - Can be right or oblique

Directions D[illegible]arent [illegible]ges below and explain why they fit the criteria.

Right Circular [illegible]	Explanation

Oblique Cylinder	[illegible]an

Elliptical Cylinder	Explanation

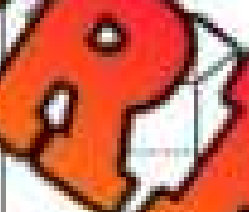
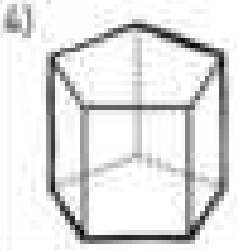
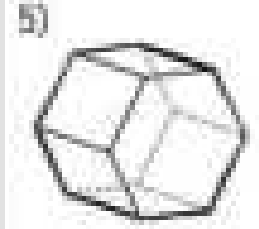
Name: _____ 27

Prisms – Deep Dive!

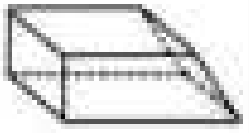
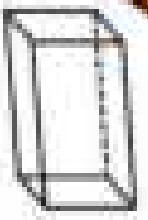
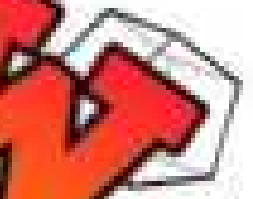
All About Prisms

- Prisms are special types of cylinders with two congruent, polygonal faces that are parallel to each other. These are the bases of the prism
- A prism is named based on the shape of its base
- Prisms may be right-angled or oblique (straight lines that are not horizontal or vertical – slanted)

Part 1 de in the bases 2) What are the names of the prisms?

1)	2)	3)	4)	5)
				

Part 2 Is the prism oblique or right angled?

1)	2)	3)	4)	5)
				

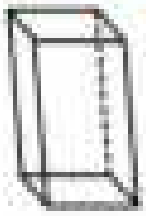
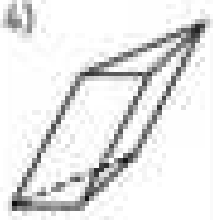
Part 3 Draw 2 oblique prisms and 2 right-angled prisms

1)	2)	3)	4)
Right-Angled	Right-Angled	Oblique	Oblique

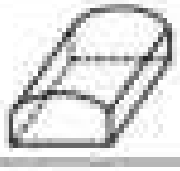
Name: _____ 28

Elements of a Prism

Investigate Fill in the table to learn more about the prisms below

Prism	Are the Parallel Lines that Connect the Bases Right-Angled?	2 Identical Bases (Shade in)	Number of Planes of Symmetry	Type of Prism
1) 				
2) 				
3) 				
4) 				

Explain Why are the shapes below not prisms?

1) 	
2) 	

Name: _____ 29

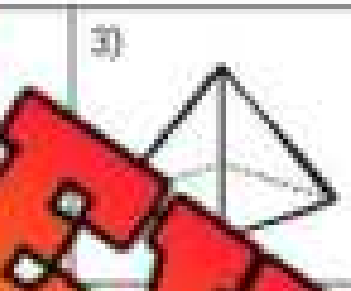
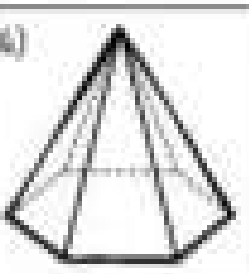
Pyramids – Deep Dive!

All About Pyramids

- Pyramids are a type of cone with a polygon for a base
- Triangles extend from each side of the base and join at the apex of the pyramid
- A pyramid is named based on the shape of its base
- Pyramids can be **right angled** or **oblique**, depending on whether the apex of the pyramid lies directly above the centre of its base

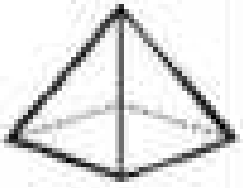
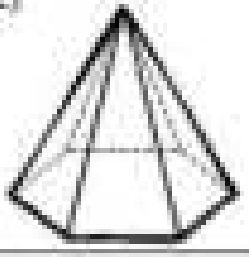
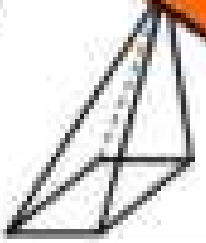
Part 1

de in the base 2) What are the names of the pyramids?

1)	2)	3)	4)	5)
				

Part 2

Is the pyramid oblique or right

1)	2)	3)	4)	5)
				

Part 3

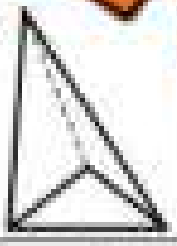
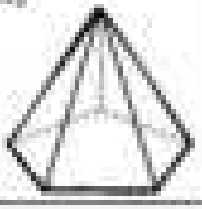
Draw 2 oblique pyramids and 2 right-angled pyramids

1)	2)	3)	4)
Right-Angled	Right-Angled	Oblique	Oblique

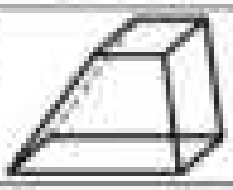
Name: _____ 30

Elements of a Pyramid

Investigate Fill in the table to learn more about the pyramids below

Pyramid	Is the Apex Above the Centre of the Base?	Shade in the Base	Number of Planes of Symmetry	Type of Pyramid
1) 				
2) 				
3) 				
4) 				

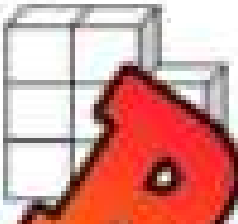
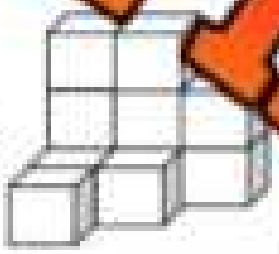
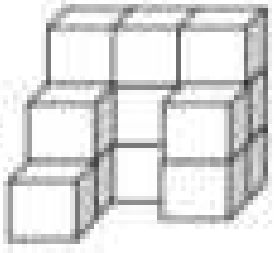
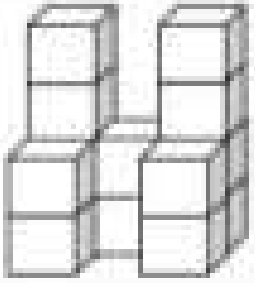
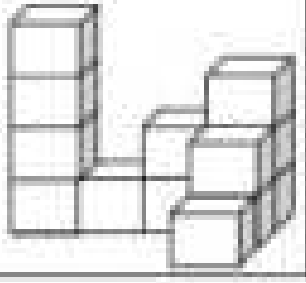
Explain Why are the shapes below not pyramids?

1) 	
2) 	

Name: _____ 31

Drawing Top, Front, and Side Views of Objects

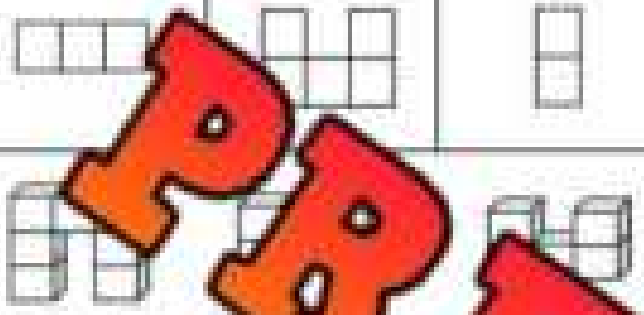
Instructions Draw the top, front, and side view of the objects below

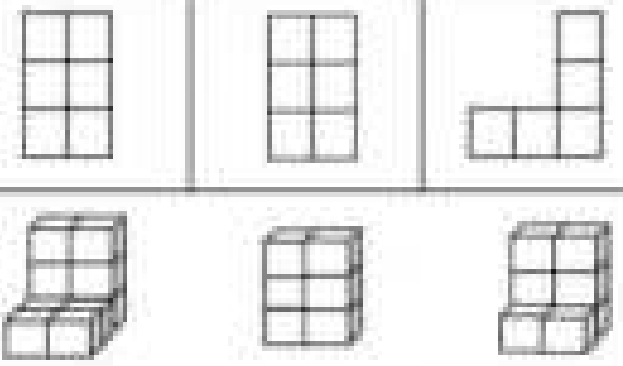
Original Shape	Top View	Front View	Side View
1) 			
2) 			
3) 			
4) 			
5) 			

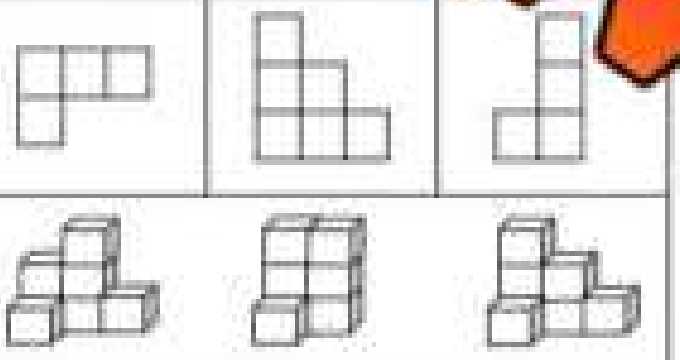
Name: _____ 33

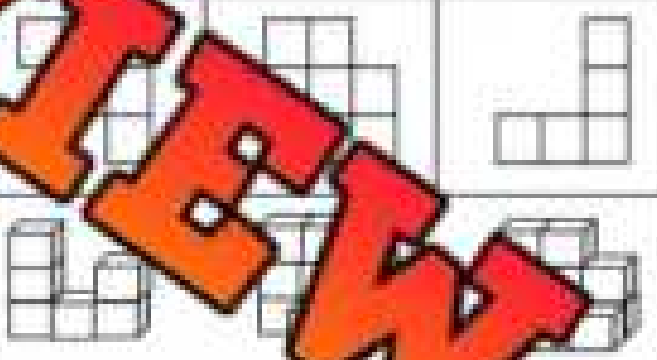
Drawing Top, Front, and Side Views of Objects

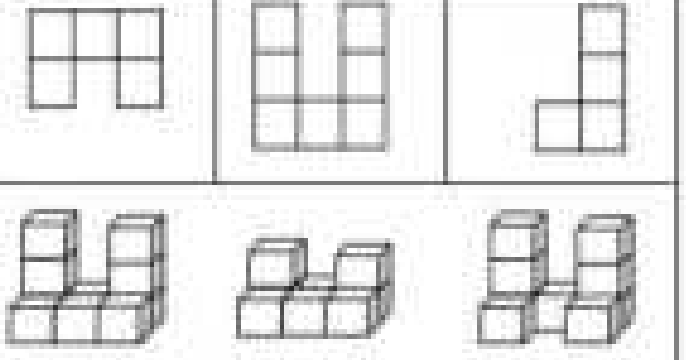
Instruction Look at the front, top, and side views and circle the matching 3D object

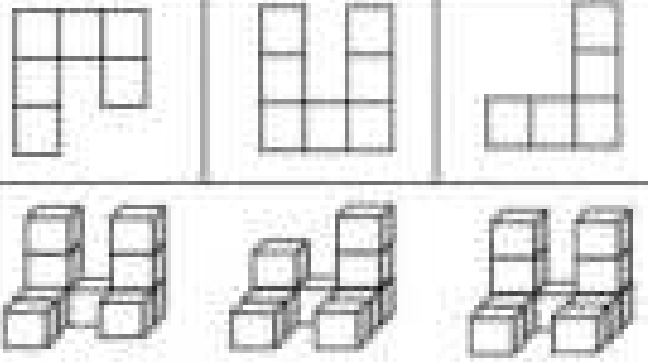
1) Top View	Front View	Side View
		

2) Top View	Front View	Side View
		

3) Top View	Front View	Side View
		

Top View	Front View	Side View
		

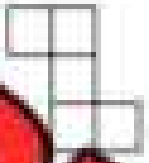
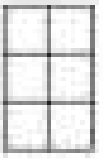
5) Top View	Front View	Side View
		

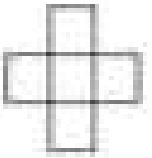
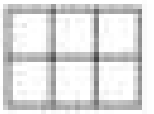
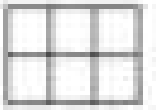
6) Top View	Front View	Side View
		

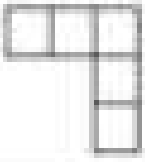
Name: _____ 34

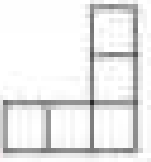
Drawing Top, Front, and Side Views of Objects

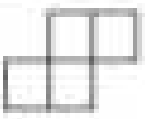
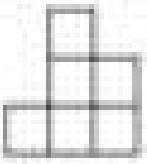
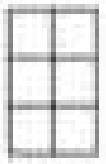
Instruction Draw the 3D objects by using the top, front, and side views

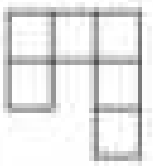
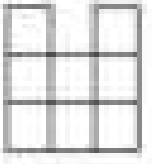
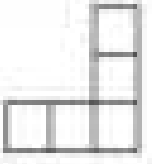
Top View	Front View	Side View
		
1)		

Top View	Front View	Side View
		
2)		

Top View	Front View	Side View
		
3)		

Top View	Front View	Side View
		
4)		

Top View	Front View	Side View
		
5)		

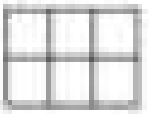
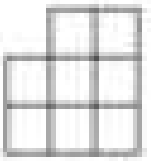
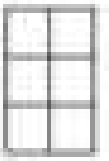
Top View	Front View	Side View
		
6)		

Exit Cards

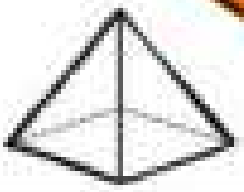
Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Draw the 3D object using the top, front, and side views.

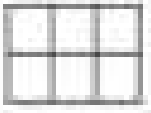
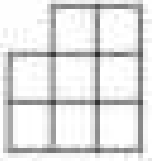
3D Objects	Top View	Front View	Side View
			

2) Draw the top, front, and side views of the 3D object.

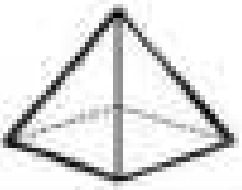
3D Objects	Top View	Front View	Side View
			

Name: _____

1) Draw the 3D object using the top, front, and side views.

3D Objects	Top View	Front View	Side View
			

2) Draw the top, front, and side views of the 3D object.

3D Objects	Top View	Front View	Side View
			

Name: _____ 42

Drawing Perspective Views - Boxes

Questions

1) Connect the corners of the boxes to the vanishing point
2) Draw the sides of the boxes with horizontal lines and vertical lines

Name: _____ 44

Perspective Drawings – Multiple Vanishing Points

Questions

1) Connect the corners of the shapes to the vanishing point
2) Draw the sides of the shapes with horizontal lines and vertical lines

Name: _____ 46

Perspective Drawings – Real-Life Objects

Questions

1) Connect the corners of the objects to the vanishing point
2) Draw the sides of the objects with parallel lines

Name: _____ 47

Scale Drawings

Scale Drawings
A scale drawing is used to draw a shape or object smaller or larger than the original but keeping the proportions the same. For example, the CN Tower is 553m tall. The tower on the right is to scale, with a scale factor of 1cm to 100m, or 1:100.

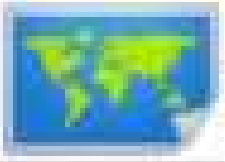
1cm:100m

Questions Answer the questions below

1) If [illegible] and 1cm equals [illegible]m, how long would the bridge be [illegible]?

2) The dimensions of a house are 20m by 30m. If one cm equals 2m, what are the scaled dimensions of the house?

3) If one cm equals 200km on a map, how many centimetres would be used to represent 2400km?



4) [illegible] is 540km. If 1cm [illegible] would represent [illegible] road?

5) Dimensions of a building are 90m by 60m. If one cm equals 15m, what are the dimensions of the building?

6) If one cm equals 12km on a map, how many cm would be used to represent 156km?

Name: _____ 48

Scale Drawings

Questions | Answer the questions below

1) An engineer used a scale factor of 1 centimetre = 15 metres to design a city park. The park will be 180m by 75m. What should the dimensions of the park be on the map?

2) A [illegible] been drawn to scale. The height of the building on the map is [illegible] tall. The scale factor is 1cm to 5m. What is the height of the building in real-life?

3) An artist builds a model of a car [illegible] 6.25cm long. The scale factor is 1cm to 20cm.

a) What is the length of the car in centimetres?

b) What is the length of the car in metres?

4) The height of a tree is 12 metres tall and 3 metres wide. Lil[illegible] it to scale so she chooses a scale factor of 1cm to 0.5m. What will the dimensions of the tree be on her page in centimetres?

5) Carter is figuring out the distance to drive from Toronto to Ottawa on a map. The scale factor is 1cm to 100km. The distance on the map is 4.5cm. What is the distance from Toronto to Ottawa in kilometres?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Questions: Answer the questions below

1) A park is 120m by 80m. If 1cm equals 10m, what are the scaled dimensions of the park in the drawing?

2) A skyscraper is 320m tall. On a scaled drawing, it is represented as 8cm tall. What is the scale factor used in the drawing?

Name: _____

Questions: Answer the questions below

1) A park is 120m by 80m. If 1cm equals 10m, what are the scaled dimensions of the park in the drawing?

2) A skyscraper is 320m tall. On a scaled drawing, it is represented as 8cm tall. What is the scale factor used in the drawing?

Name: _____

Questions: Answer the questions below

1) A park is 120m by 80m. If 1cm equals 10m, what are the scaled dimensions of the park in the drawing?

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Name: _____

Questions: Answer the questions below

1) A park is 120m by 80m. If 1cm equals 10m, what are the scaled dimensions of the park in the drawing?

2) A skyscraper is 320m tall. On a scaled drawing, it is represented as 8cm tall. What is the scale factor used in the drawing?

Name: _____ 50

Drawing Buildings Using Scale Factors

Questions Use the grid to draw the dimensions of the buildings.

1 square = 1cm

1) A building's base is 42m wide and 70m long. Use a scale factor of 1cm to 7m.

2) A [illegible] the following dimensions: 100m by [illegible] of 1cm to 10m.

3) A building's base is 450cm long and [illegible] wide. Use a scale factor of 1cm:100cm.

4) A large building has a base of 240m by 80m. Use a scale factor of 1cm to 40 metres.

5) A building has a base of 140m by 50m. Use a scale factor of 1cm to 20m.

Name: _____ 52

Creating Scaled Drawings

Questions Draw the objects on the grid by choosing an appropriate scale. 1 square = 1cm

1) Building 1: 24m by 16m	Building 2: 12m by 28m	Building 3: 52m by 12m
Car: 2m by 4m	Transport: 2m by 12m	Parking lot: 20m by 20m

Scale: _____

2) Building 1: 36m by 12m	Building 2: 18m by	2m by 33m
Parking lot 1: 12m by 12m	Parking lot 2: 21m by 30	27m

Scale: _____

Name: _____ S3

Determining the Scale Factor

Questions | Answer the questions below

1) A park is 48m long and 18m wide. A scaled drawing was created to represent the park.

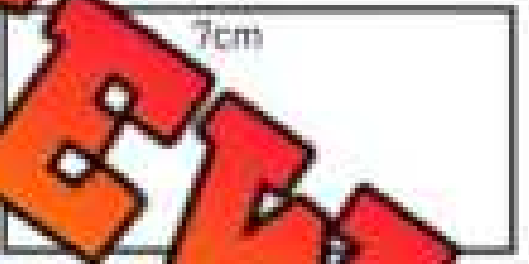
What scale was used in the drawing?

2) A [illegible] dimensions 100cm [illegible]cm. [illegible]awing was created to re[illegible]

What scale was us[illegible]

3) A tabletop has the following dime[illegible] 140cm by 280cm. A scaled drawing was used to represent the tabletop.

What scale was used in the drawing?



4) A computer monitor is 33 wide and 21cm tall. A scaled drawing was used to represent the monitor.

What scale was used in the drawing?

5) The distance from Vancouver to Toronto is 4,750km. Vincent measured the distance on a map and determined it was 9.5cm.

What scale was used on the map?

Name: _____ 55

Using Scale on Map of Canada

Questions | Print this using default settings to achieve a friendly scale

Name: _____ 56

Using Scale on Map of Canada

Use the legend on the map of Canada to determine the distances between cities.

1) Measure the length of the scale provided on the legend. Use the kilometre measurement (not miles).
2) Determine the scale by comparing the length of the line to the measurement provided.

For example: km 0 100 200 300

The length of the line is 3cm total. This means 1cm = 100km.

Question: Use the scale to determine the distance from city to city

	City 1	City 2	Distance - cm	Distance - km
1)	Toronto	[illegible]		
2)	Winnipeg	[illegible]		
3)	Victoria	[illegible]		
4)	Kingston	Saskatoon		
5)	Vancouver	Charlottetown		
6)	Prince Rupert	St. John's		
7)	Calgary	Timmins		
8)	Thunder Bay	Moncton		
9)	Sudbury	Whitehorse		
10)	Dawson City	Brandon		
11)	Edmonton	Yellowknife		
12)	Iqaluit	Montreal		
13)	Halifax	Fort McMurray		

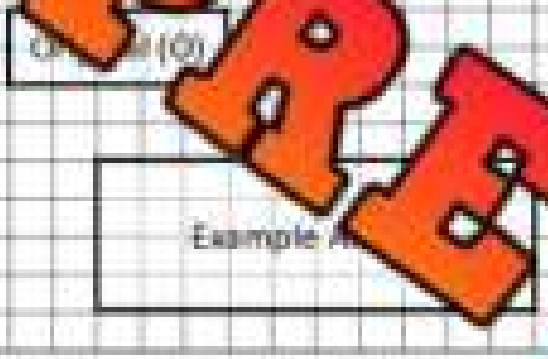
Name: _____ 57

Enlargement and Reductions

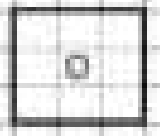
An **enlargement** is when we enlarge a shape by a scale factor to form a similar shape. A **reduction** is when we shrink a shape by a scale factor to form a similar shape. A **similar shape** is a shape that has the same angles, but the side lengths have been changed proportionally. For example, if we change the length by 2 times, we change the width by 2 times as well.

Questions: the scale factor to perform enlargements/reductions of the original shape

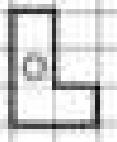
Ex.) Scale ... (enlarge 2 times)



1) Scale Factor = 1:2

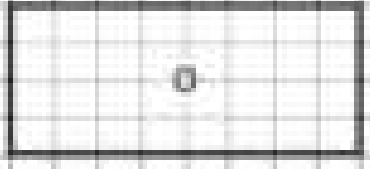


2) Scale Factor = 1:3

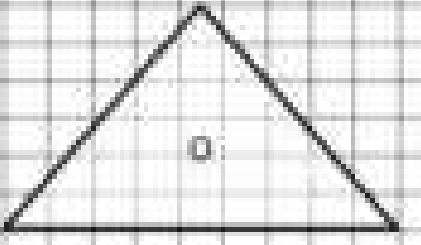


3) Scale Factor = 1:4

4) Scale Factor = 2:1 (reduction)



5) Scale Factor = 3:1

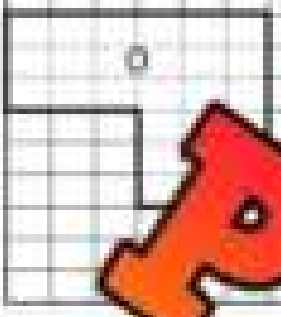


Name: _____ 58

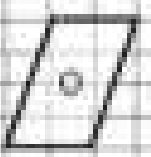
Enlargement and Reductions

Questions Use the scale factor to perform dilations of the original shape

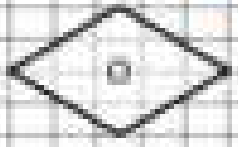
1) Scale Factor = 3:1



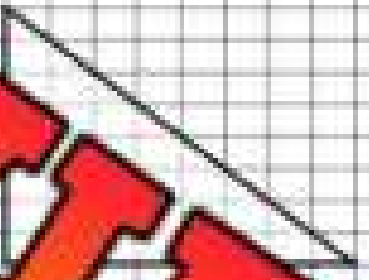
2) Scale Factor = 1:2



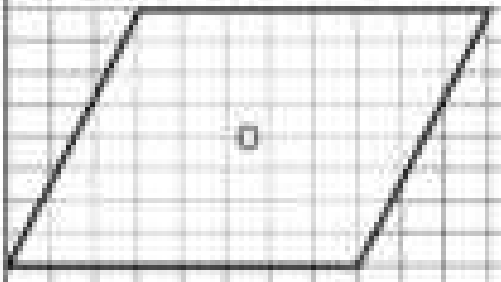
3) Scale Fac



4) Scale Factor = 2:1



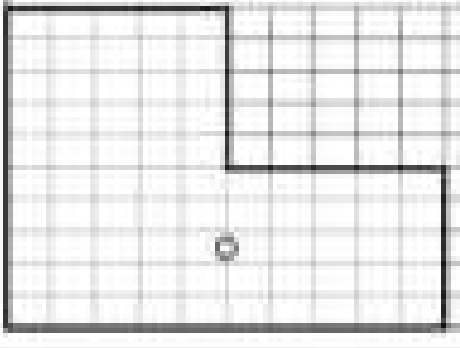
5) Scale Factor = 4:1



6)

7) Scale Factor = 1:3

8) Scale Factor = 5:1



Name: _____ 59

Intro to Dilations

A **dilation** is a transformation that stretches or shrinks a figure by a certain scale factor. Unlike translations, reflections, and rotations, a dilation does not produce a congruent image. Instead, a dilated image produces a similar figure that has the same shape with equal angles and proportional side lengths.

When the scale factor is greater than 1, we are **enlarging** the original figure. If it is less than 1, we are **reducing** the original figure.

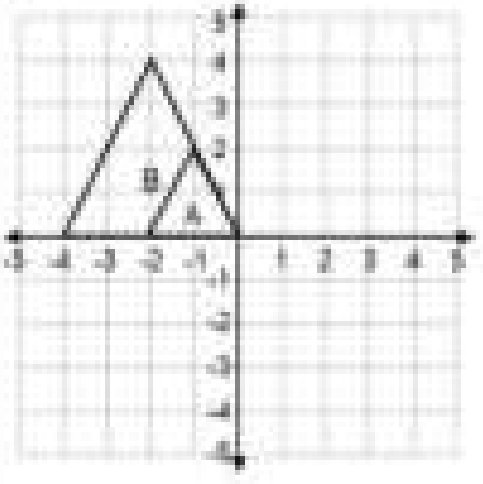
Part 1 State whether a dilation with the given scale factor is a reduction or enlargement

	Scale Factor	Dilation Type
1)	$k = \frac{3}{2}$	
2)	$k = 0.5$	
3)	$k = \frac{1}{4}$	
4)	$k = 5$	
5)	$k = 0.25$	

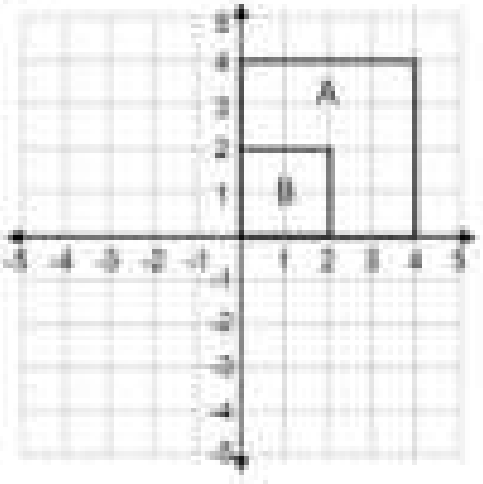
	Scale Factor	Dilation Type
6)	$k = \frac{3}{2}$	
7)	$k = 3$	
8)	$k = 0.75$	
9)		

Part 2 Figure A is a dilated image of figure B. Is the dilation a reduction or enlargement?

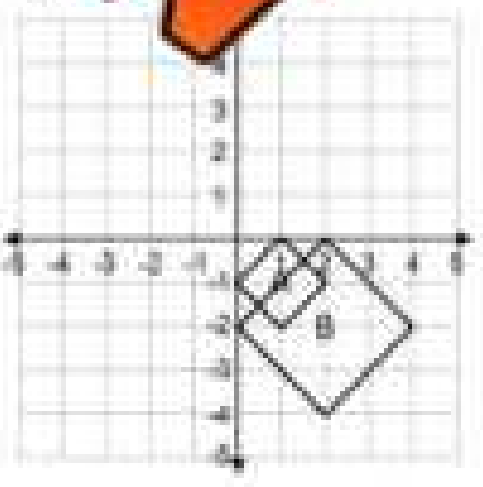
1)



2)



3)



_____ _____ _____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Questions: Answer the questions below

1) **Scale Factor**: k = 7/3 _____

State whether the dilation is a reduction or enlargement

2) **Scale Factor**: k = 2/5 _____

Is the resulting figure larger or smaller than the original figure?

3) **Scale Factor**: k = 1 _____

Does the figure change in size?

4) **Scale Factor**: k = 0.6 _____

Is the figure reduced or enlarged? What percentage of the original size is the resulting figure?

Name: _____

Questions: Answer the questions below

1) **Scale Factor**: k = 7/3 _____

State whether the dilation is a reduction or enlargement

2) **Scale Factor**: k = 2/5 _____

Is the resulting figure larger or smaller than the original figure?

3) **Scale Factor**: k = 1 _____

Does the figure change in size?

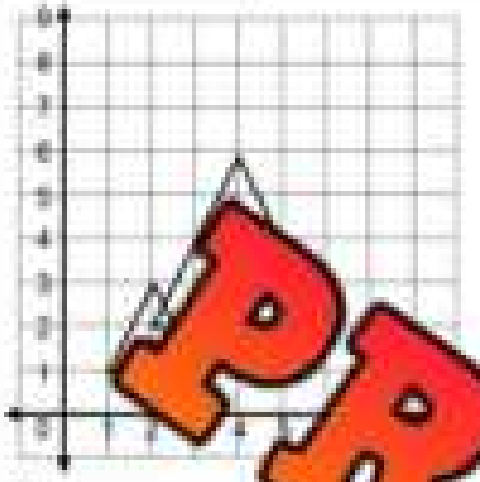
4) **Scale Factor**: k = 0.6 _____

Is the figure reduced or enlarged? What percentage of the original size is the resulting figure?

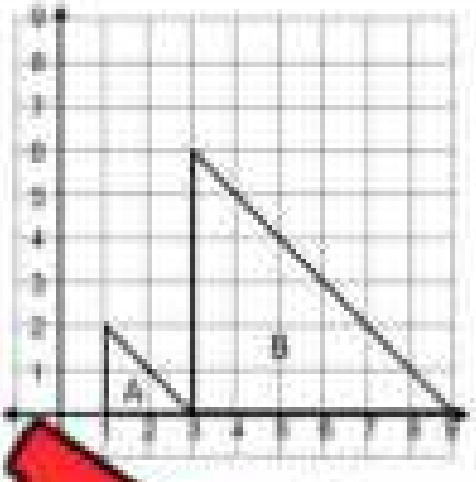
Name: _____ 62

Dilations – Determining Scale Factors

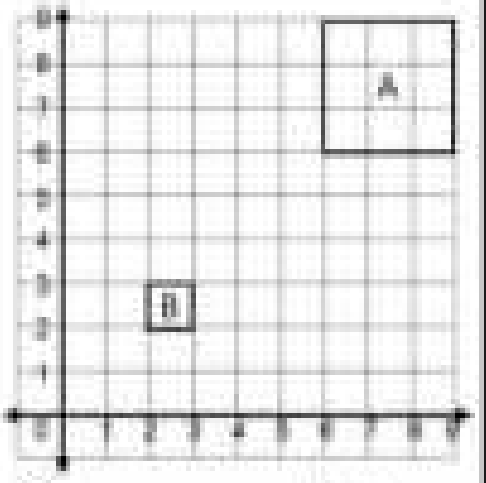
Questions Is the dilation an enlargement or reduction? Find the scale factor.



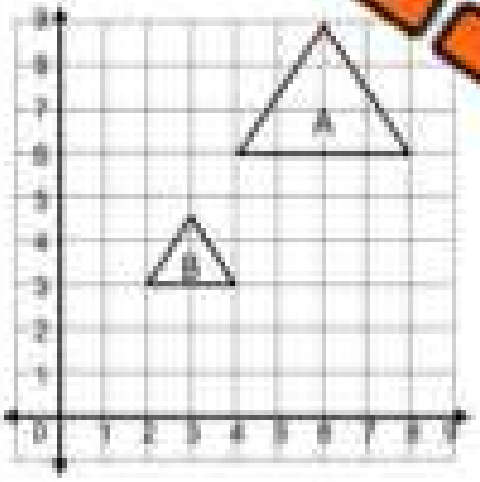
1) _____ k = ____



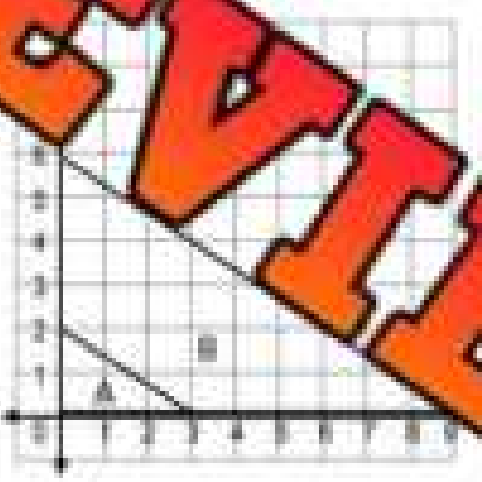
2) _____ k = ____



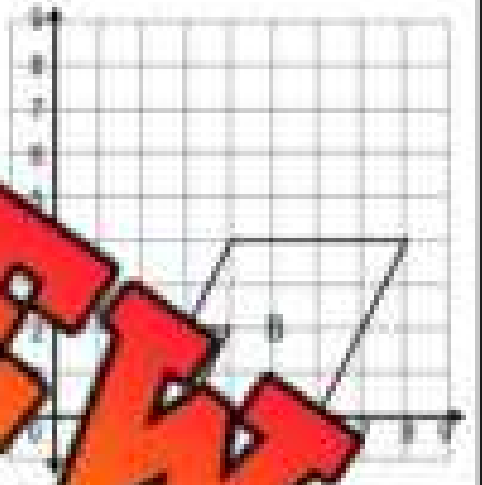
3) _____ k = ____



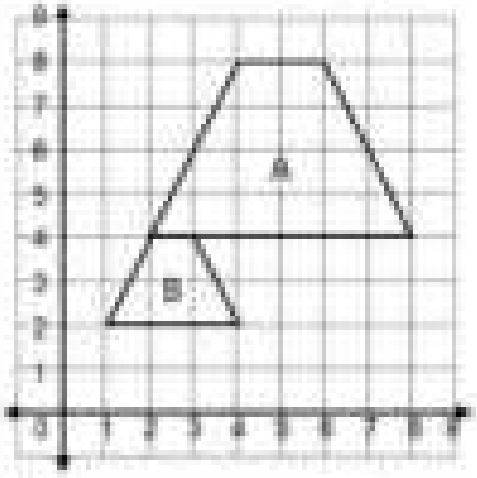
4) _____ k = ____



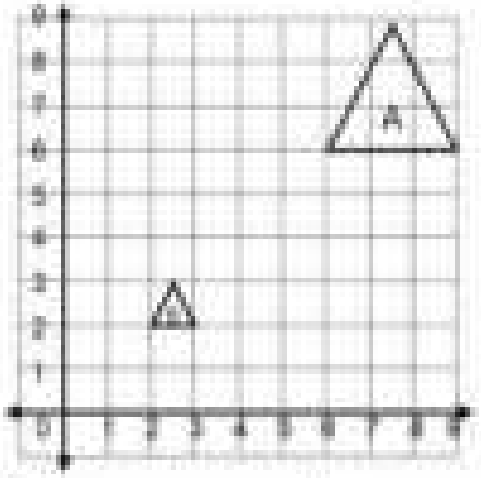
5) _____ k = ____



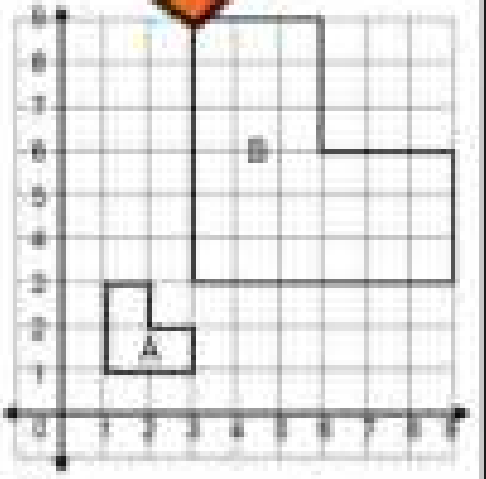
6) _____ k = ____



7) _____ k = ____



8) _____ k = ____



9) _____ k = ____

Name: _____ 64

Dilations – Finding New Coordinates

Determine the new coordinates by multiplying the given coordinates by the scale factor.

Part 1 Find the dilated coordinates of the triangles below

1) k = 3	Coordinate A	Coordinate B	Coordinate C
Original Coordinates	(2, 5)	(-2, 3)	(0, 0)
Dilated Coordinates			

2) k = 1/2	Coordinate A	Coordinate B	Coordinate C
Original Coordinates		(-2, 4)	(4, 6)
Dilated Coordinates			

3) k = 1.5	Coordinate A	Coordinate B	Coordinate C
Original Coordinates	(4, -2)		(2, -4)
Dilated Coordinates			

Part 2 Find the dilated coordinates of the quadrilaterals below

1) k = 2	Coordinate A	Coordinate B	Coordinate C	Coordinate D
Original Coordinates	(-3, 6)	(-1, 2)	(3, 1)	(2, 4)
Dilated Coordinates				

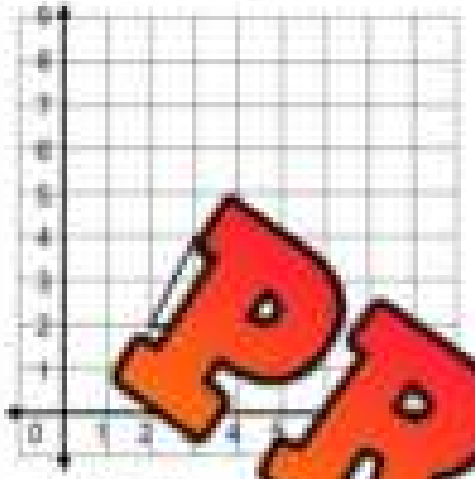
2) k = 3	Coordinate A	Coordinate B	Coordinate C	Coordinate D
Original Coordinates	(2, 6)	(-1, 4)	(3, 5)	(1, -4)
Dilated Coordinates				

3) k = 1/2	Coordinate A	Coordinate B	Coordinate C	Coordinate D
Original Coordinates	(4, 4)	(-2, 4)	(6, -2)	(8, -4)
Dilated Coordinates				

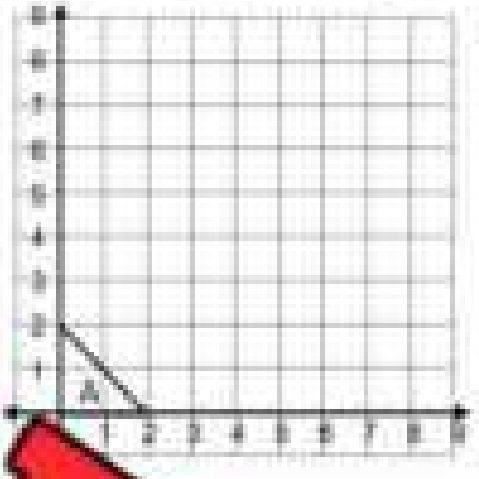
Name: _____ 65

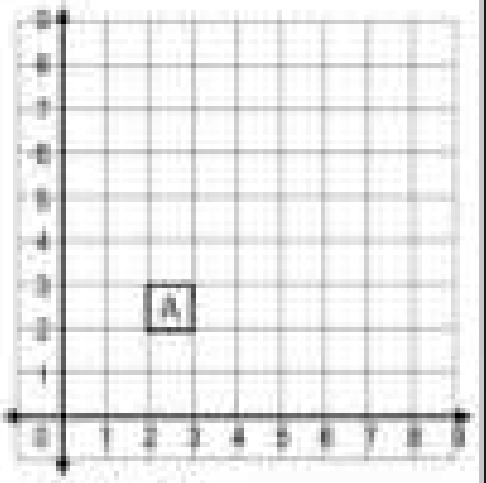
Performing Dilations

Instructions Draw the dilated shape on the grid

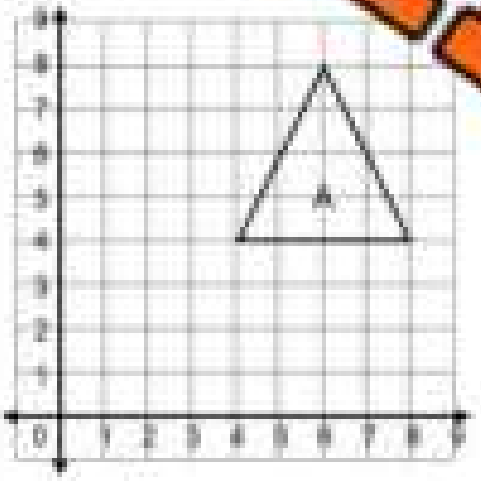


1) k = 2

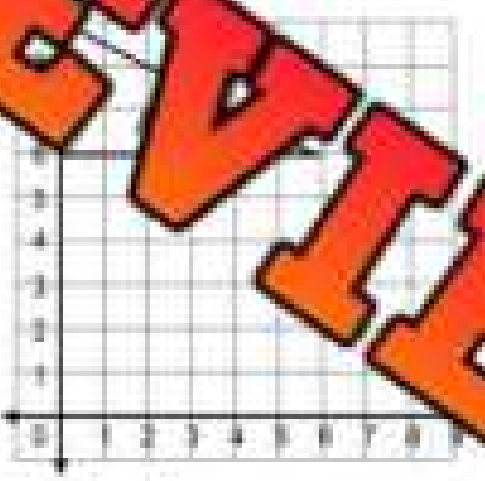




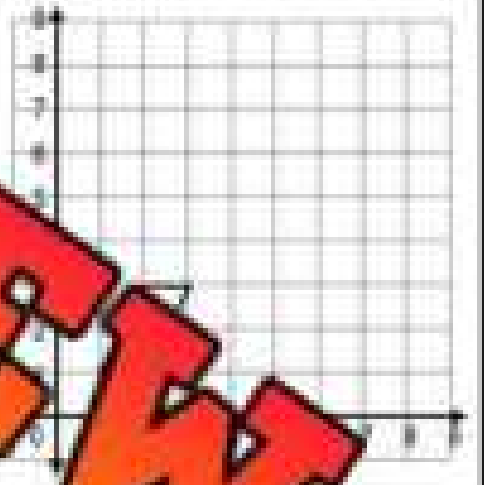
3) k = 3



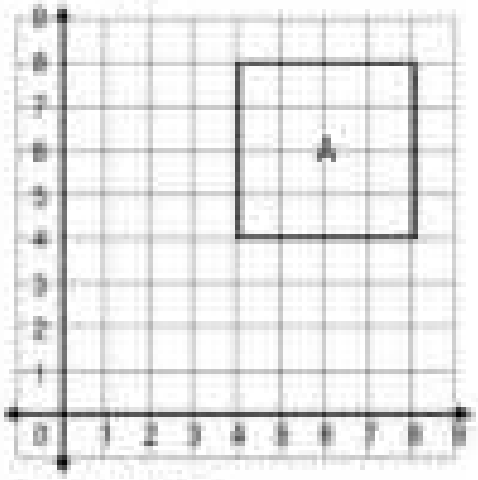
4) k = $\frac{1}{2}$



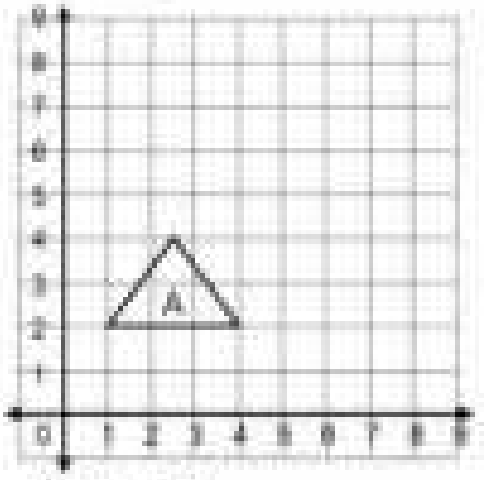
5) k = $\frac{1}{3}$



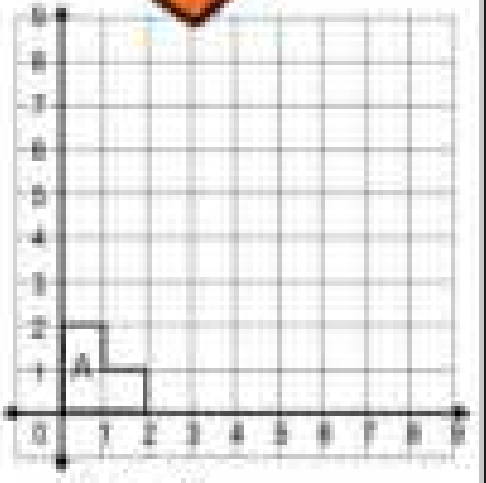
6)



7) k = 0.5



8) k = 2

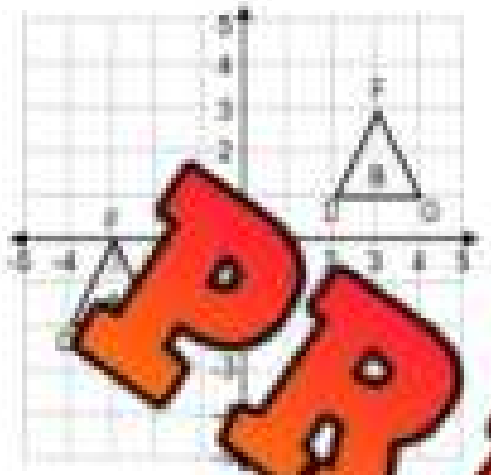


9) k = 3

Name: _____ 69

Transformations - Translations

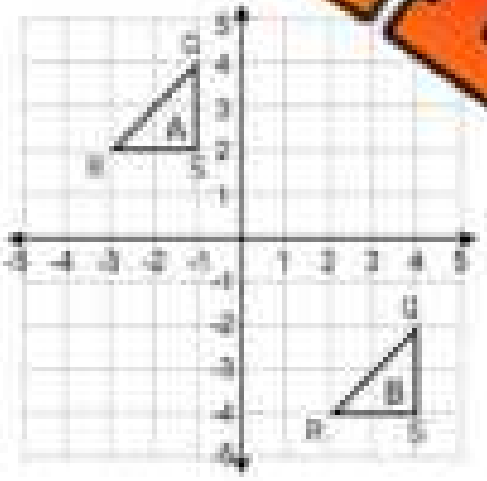
Instructions 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



Coordinates A	Coordinates B

Describe the translation

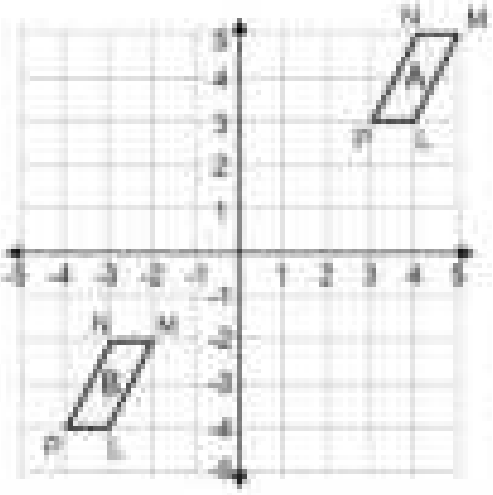
Translate Shape C from Shape B Left 3 units and up 2 units	Coordinates C



Coordinates A	Coordinates B

Describe the translation

Translate Shape C from Shape B Left 7 units and up 2	Coordinates C



Coordinates A	Coordinates B

Describe the translation

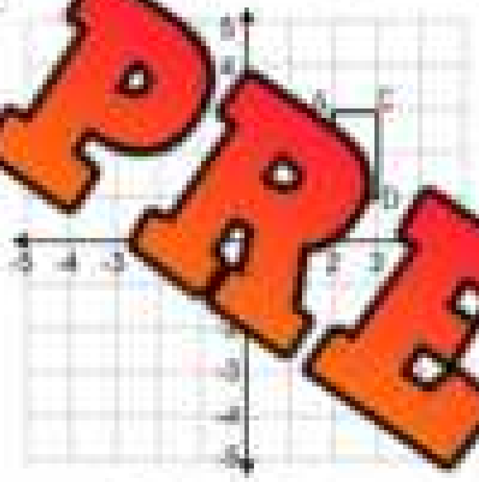
Translate Shape C from Shape B Right 5 units and up 3 units	Coordinates C

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________________

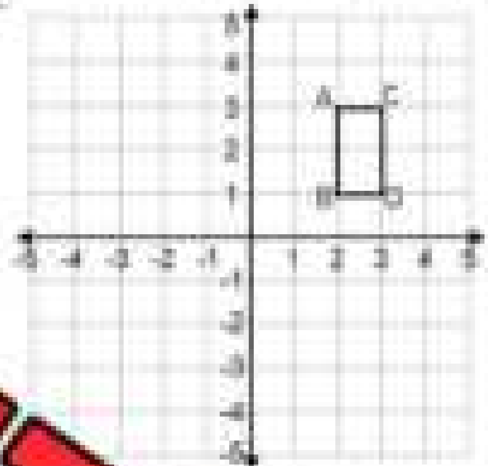
Translate the shape using the mapping rule.



Translate Shape
Left 3 units and up 2 units

Name: ______________________

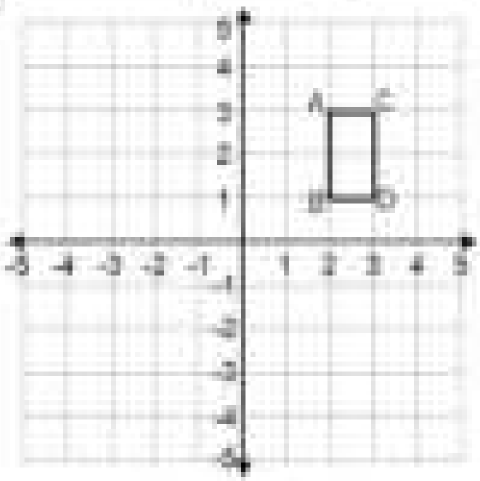
Translate the shape using the mapping rule.



Translate Shape
Left 3 units and up 2 units

Name: ______________________

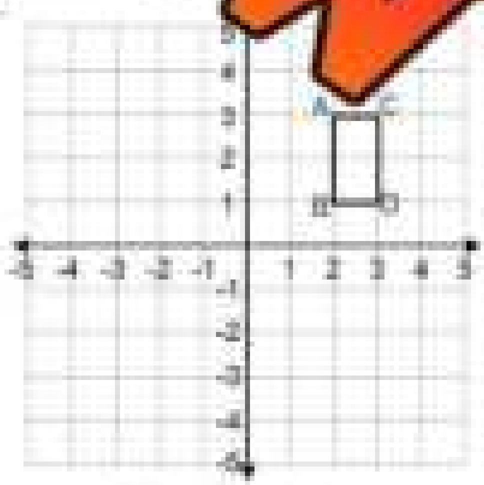
Translate the shape using the mapping rule.



Translate Shape
Left 3 units and up 2 units

Name: ______________________

Translate the shape using the mapping rule.



Translate Shape
Left 3 units and up 2 units

Name: _____ 71

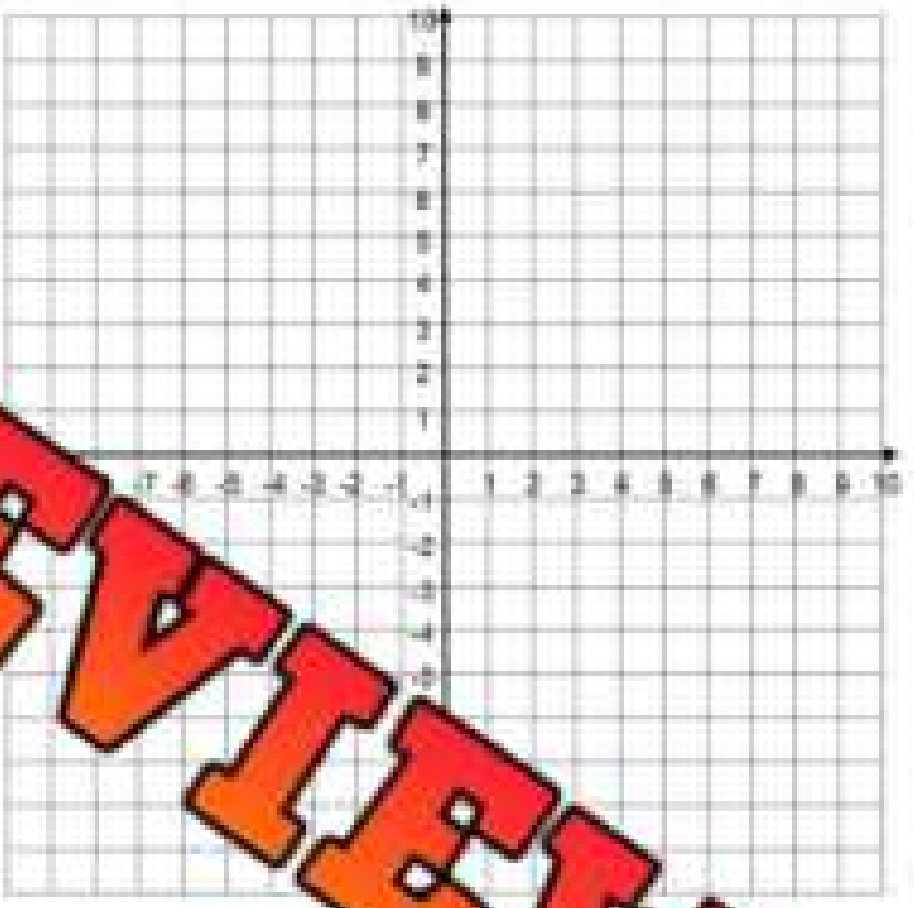
Translations – New Coordinates

Part 1 Draw the shapes using the coordinates provided. Then translate the shape

Shape A
P(1,4), Q(2,2), R(7,2), S(8,4)
Translate the Shape A
[illegible] 3

Shape [illegible]
F(-8,4), G[illegible]
Translate the [illegible] B
Right 3, down [illegible]

Shape C
J(-9,-8), K(-4,-5), L(-0,-8)
Translate the Shape C
Right 5, up 2



Part 2 Give the coordinates of each point after the translation

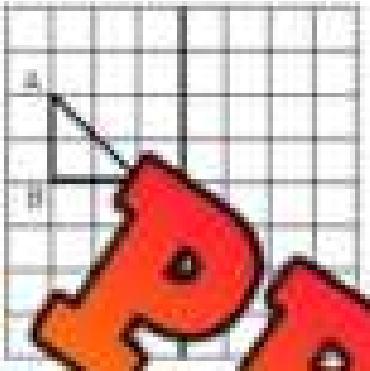
	Original Coordinate	Translation	New Coordinates
1)	P(5, -2)	Left 7, down 3	P(-2, -5)
2)	S(-3, 7)	Right 4, up 6	
3)	Q(-6, -2)	Left 2, down 5	
4)	L(8, -4) P(-5, 11)	Right 6, down 4	
5)	T(-10, 9) Y(-12, -8)	Left 12, up 11	
6)	S(-15, -12) R(13, 11)	Left 15, down 9	
7)	N(-22, 9) K(18, -13)	Right 19, down 17	
8)	P(26, -23) E(-21, 21)	Right 23, down 22	

Name: _____ 72

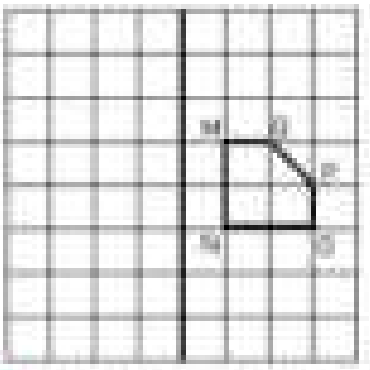
Drawing Reflections

Instructions Reflect the shapes across the mirror line

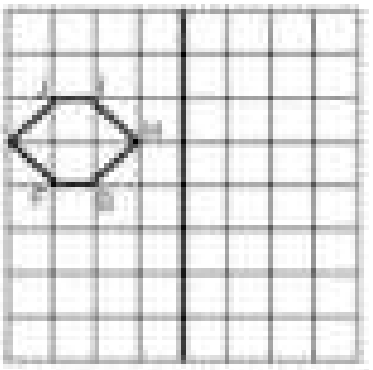
1)



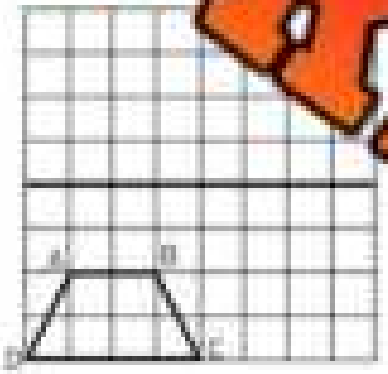
2)



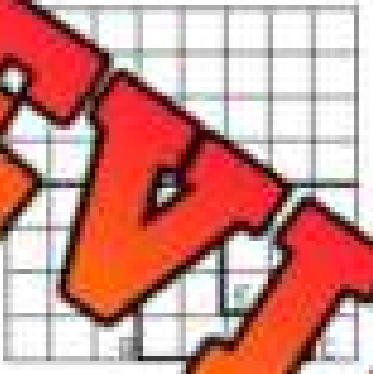
3)



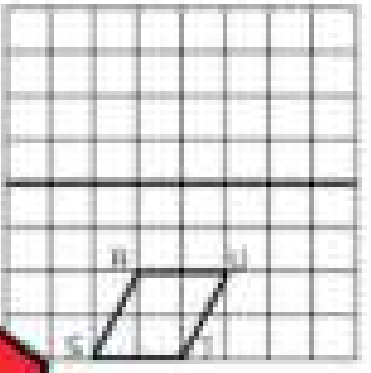
4)



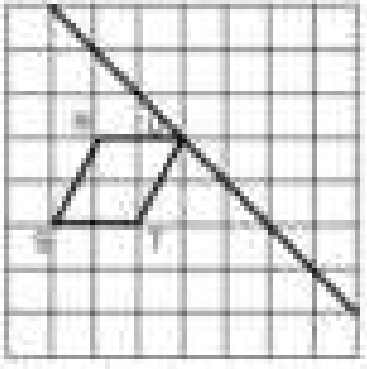
5)



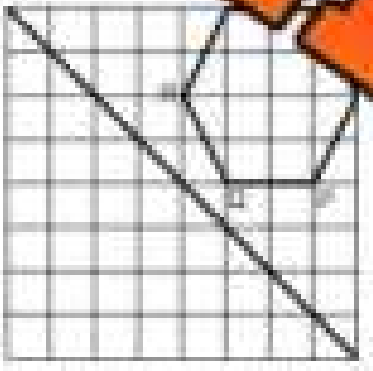
6)



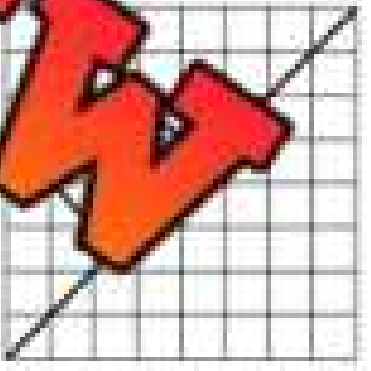
7)



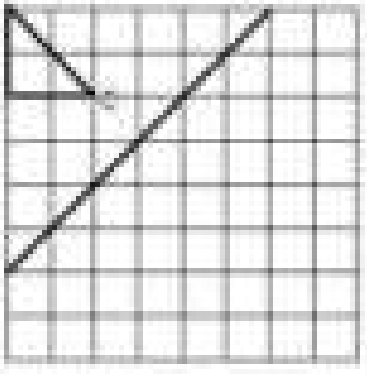
8)



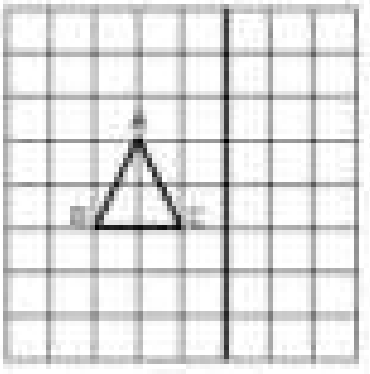
9)



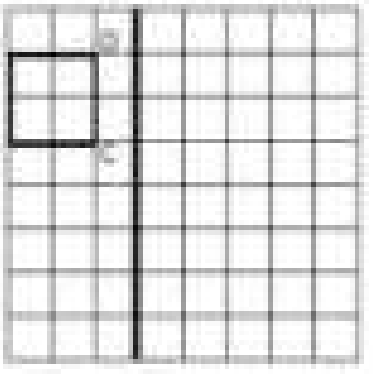
10)



11)



12)

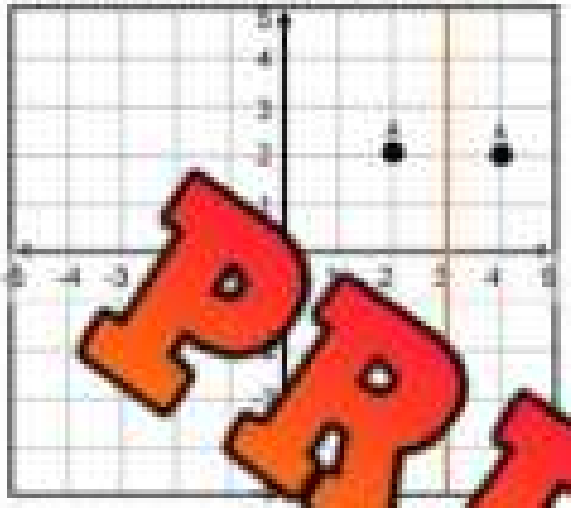


Name: _____ 73

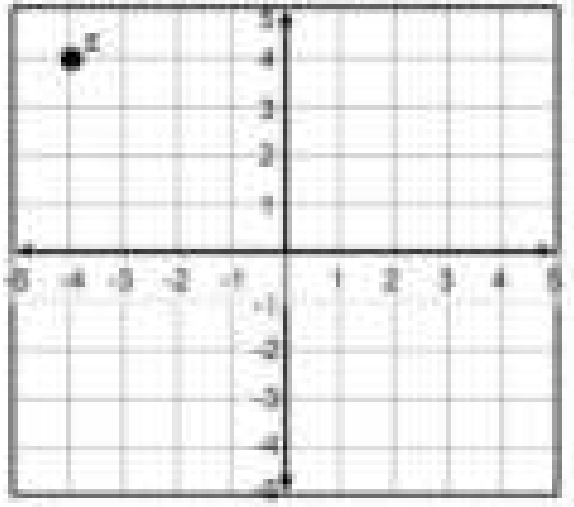
Reflecting a Point Using a Mirror Line

Instructions Graph the new position of each point. The first one is done for you

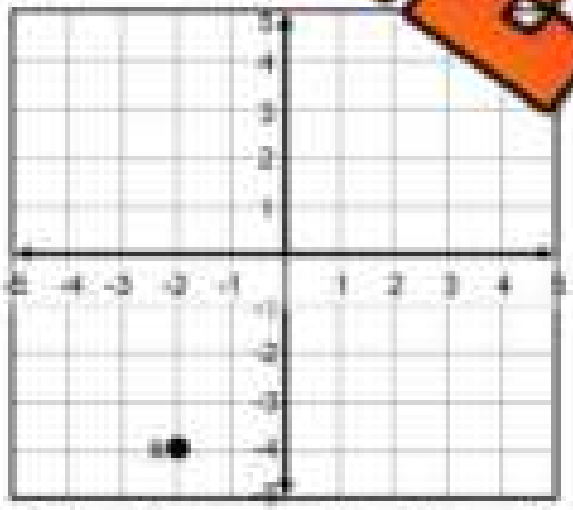
1) Reflection across the line x = 3



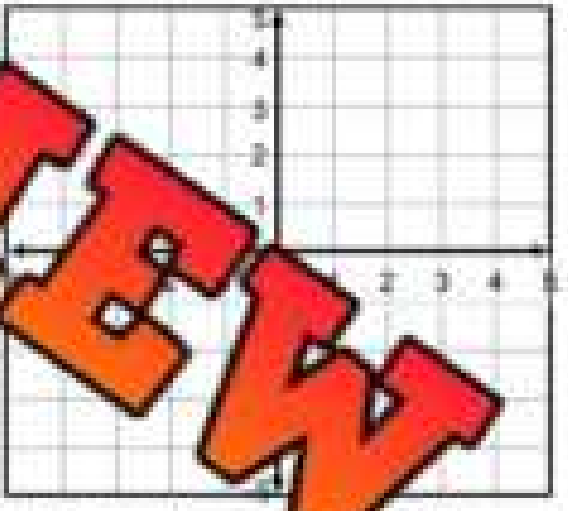
2) Reflection across the line y = 2



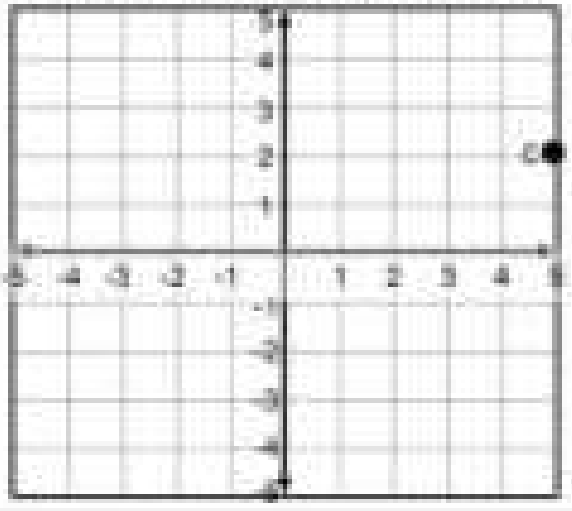
3) Reflection across the line x = -2



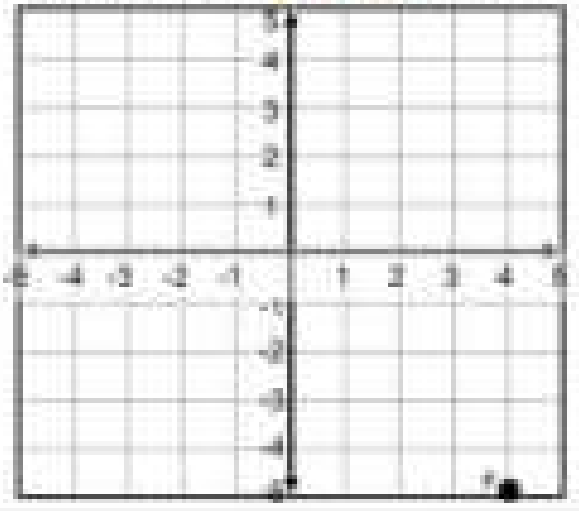
4) Reflection across the line x = -1



5) Reflection across the line x = 2



6) Reflection across the line y = -3

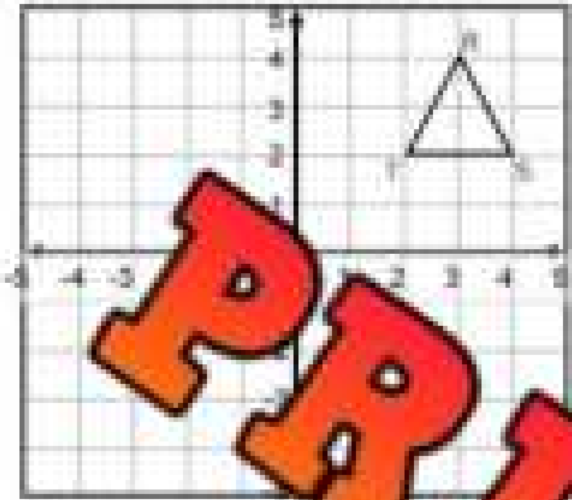


Name: ______________________ 75

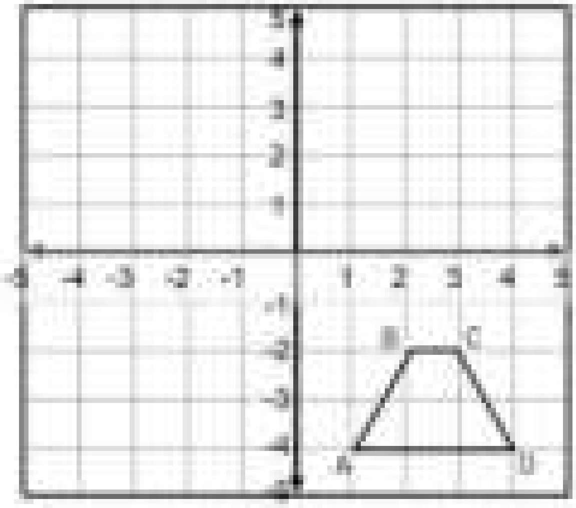
Reflecting a Shape Using a Mirror Line

Instructions Graph the new position of each shape after the given reflection

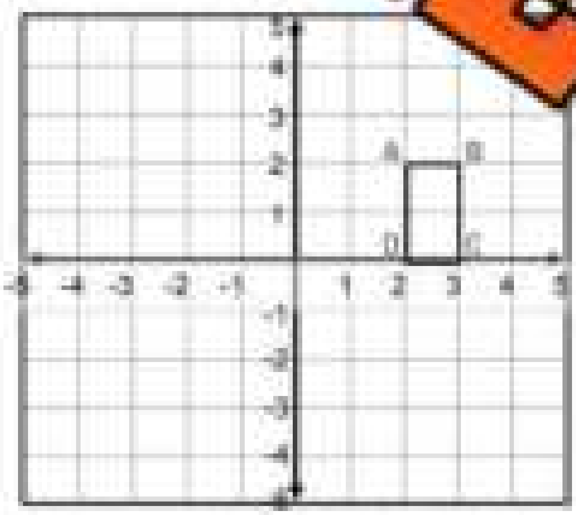
1) Reflection across the y-axis



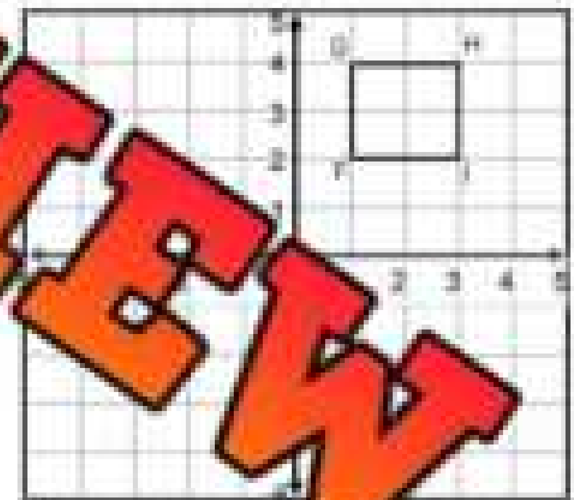
2) Reflection across the x-axis



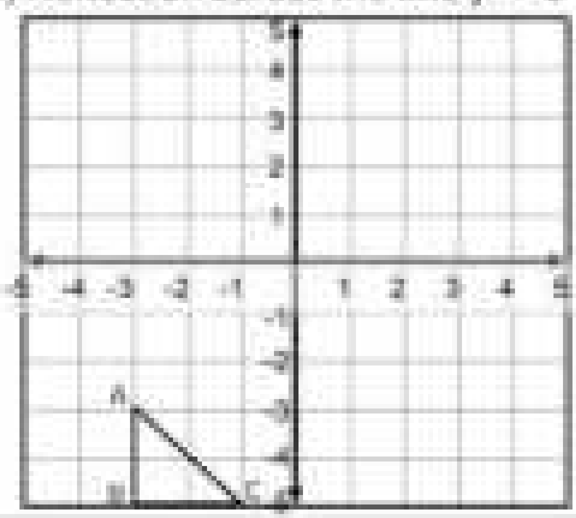
3) Reflection across th



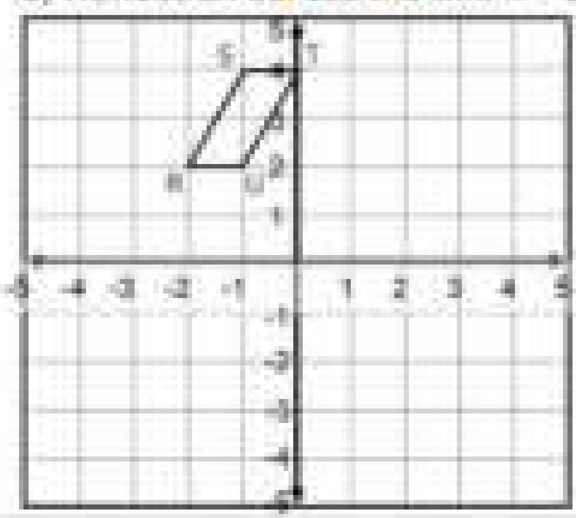
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection across the line x = 1



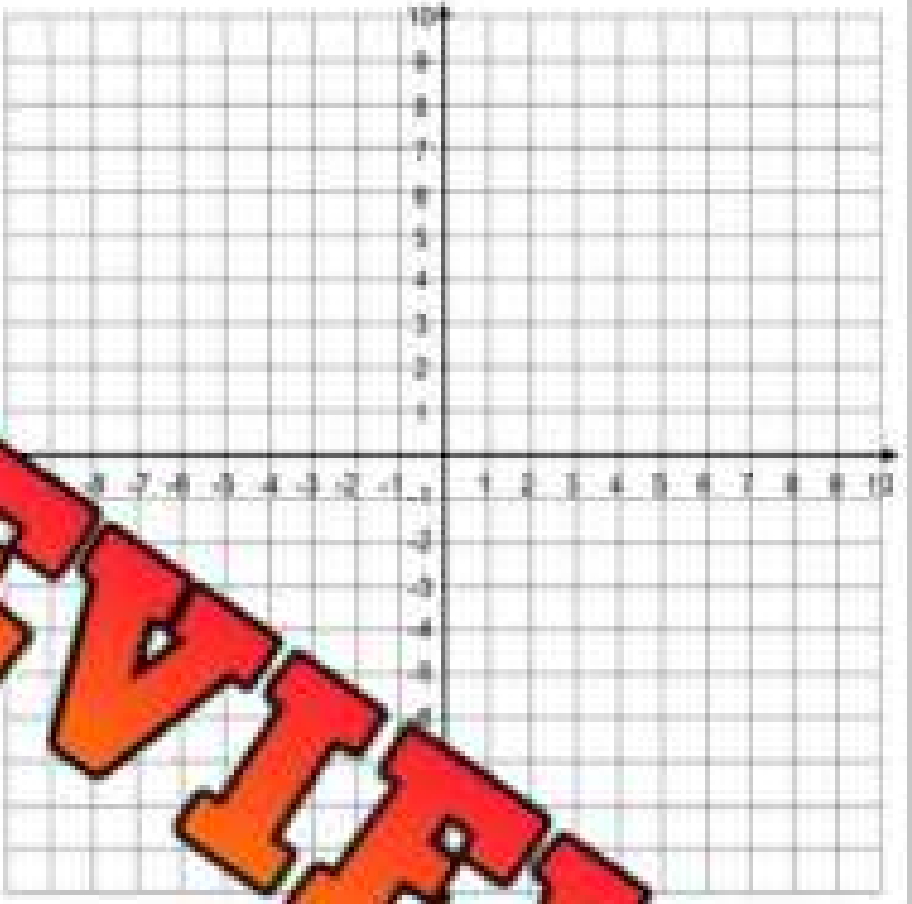
Name: _____ 77

Reflections – Coordinates

Part 1 Draw the shapes using the coordinates provided. Then reflect the shapes

Shape A
P(6,4), Q(2,2), R(7,2)
Reflect over the x-axis
New Coordinates
P(,), Q(,), R(,)

Shape C
J(-3,-9), K(-5,-2), L(-9,-5)
Reflect over the y-axis
New Coordinates
J(,), K(,), L(,)



Part 2 Give the coordinates of each point after the reflection

	Original Coordinate	Reflection across the line...	New Coordinates
1)	P(5, 4)	y-axis	P(5, -4)
2)	S(3, 6)	x-axis	
3)	Q(-4, 5)	y-axis	
4)	P(-7, -1)	y-axis	
5)	T(-8, 6) Y(-5, -7)	x-axis	
6)	S(-13, -10) R(9, 12)	x-axis	
7)	N(-5, 5) K(6, -7)	y-axis	
8)	P(6, -3) E(-6, 5)	x-axis	

Name: _____ 84

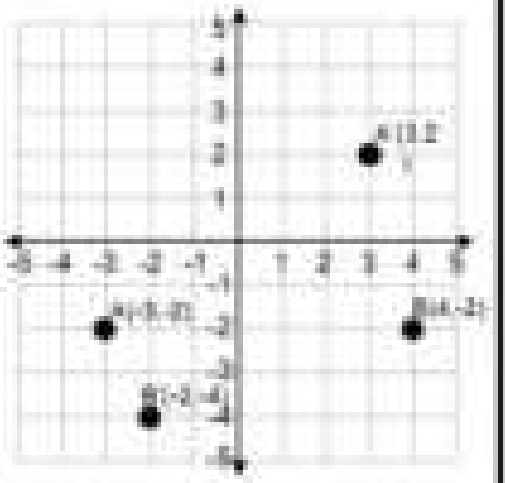
Rotating a Point

Mapping Rules for Rotations

Each point on a shape moves according to the mapping rule.

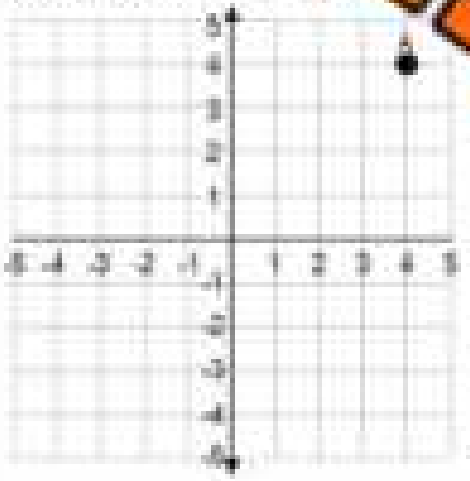
- a shape rotated 90° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-y, x)$.
- a shape rotated 180° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-x, -y)$.
- a shape rotated 270° counterclockwise has a mapping rule of: $(x, y) \rightarrow (y, -x)$.

In the ex... was rotated 180° counter-clockwise.
In the ... rotated 90° clockwise.



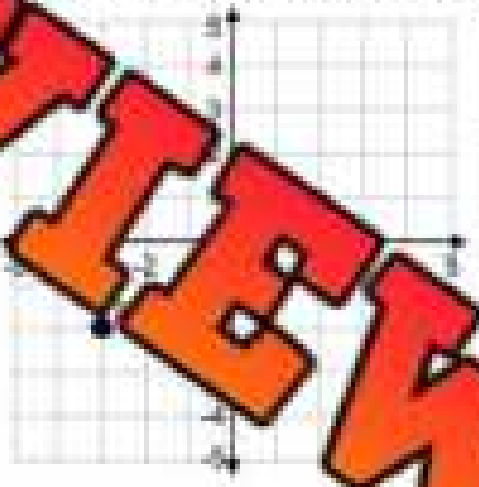
Instructions: ... n after rotating around the origin.

1) 90° clockwise rota...



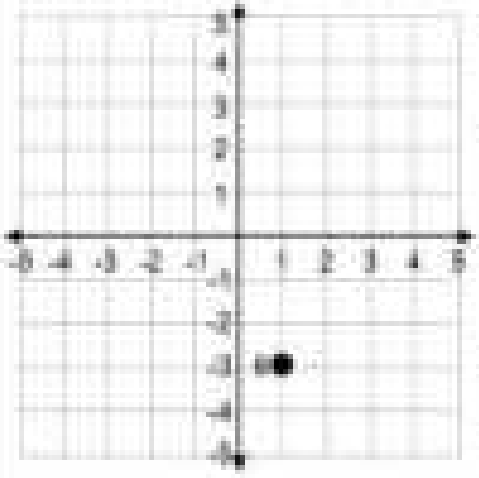
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° counterclockwise rotation



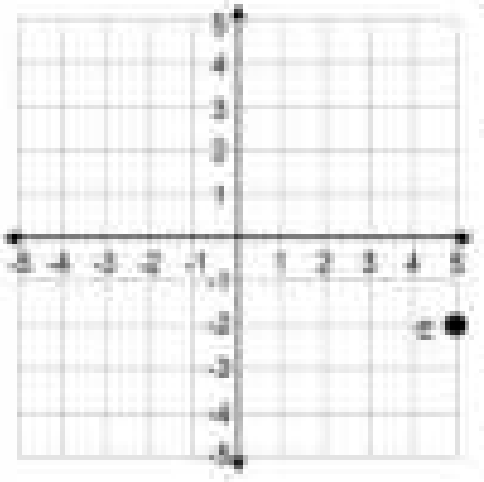
Original Coordinates
E(,)
Rotated Coordinates
(,)

3) 180° rotation



Original Coordinates
B(,)
Rotated Coordinates
B(,)

4) 90° clockwise rotation



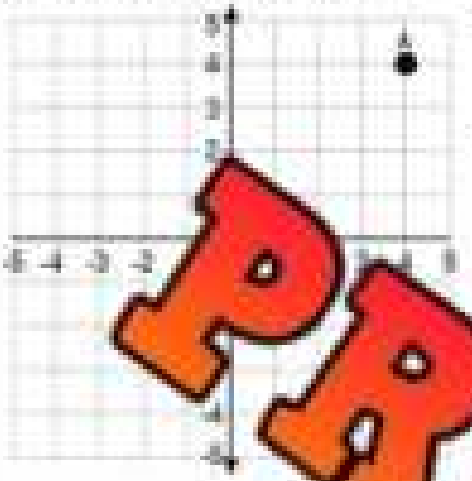
Original Coordinates
E(,)
Rotated Coordinates
E(,)

Name: _____ B6

Rotating a Point

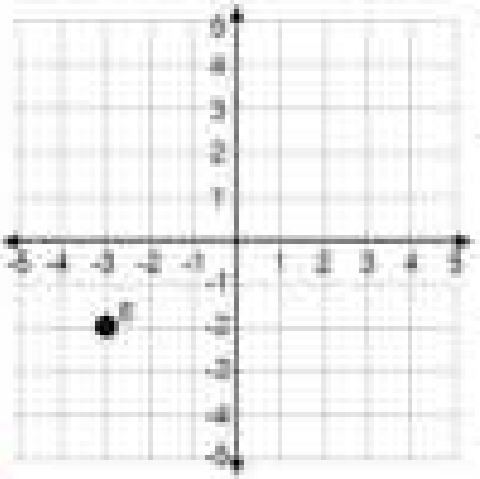
Instructions Graph the new position after rotating around the origin

1) 90° clockwise rotation



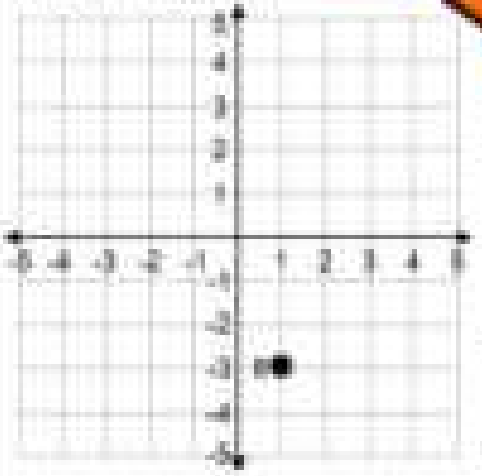
Original Coordinates
A(,)
Rotated Coordinates
(,)

2) 90° counterclockwise rotation



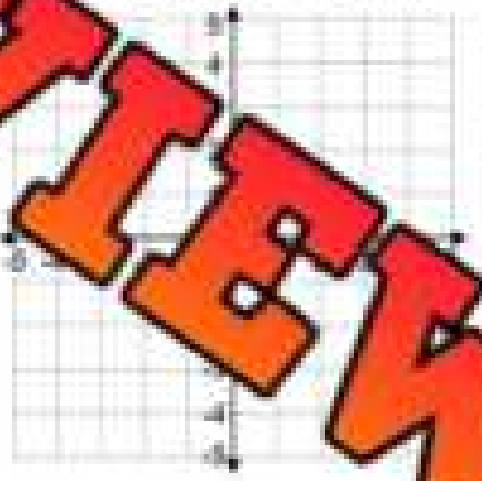
Original Coordinates
E(,)
Rotated Coordinates
E(,)

3) 180° rotation



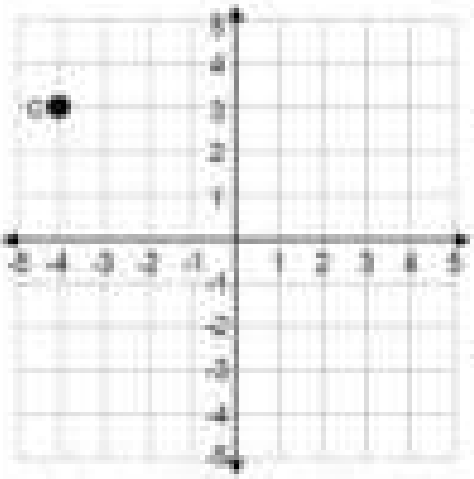
Original Coordinates
B(,)
Rotated Coordinates
B(,)

4) 90° clockwise rotation



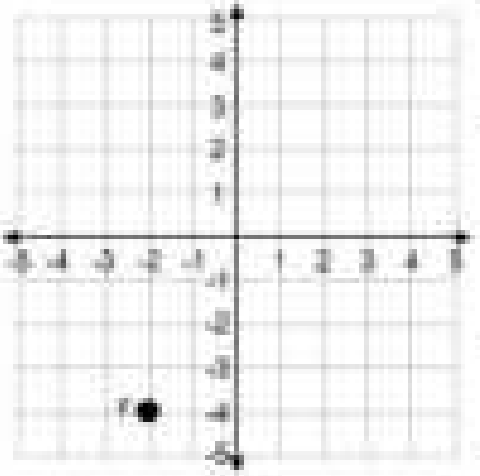
Original Coordinates
E(,)
Rotated Coordinates
(,)

5) 90° counterclockwise rotation



Original Coordinates
C(,)
Rotated Coordinates
C(,)

6) 180° rotation



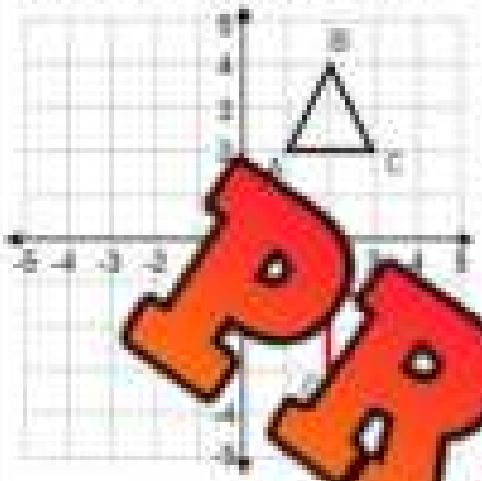
Original Coordinates
F(,)
Rotated Coordinates
F(,)

Name: _____ 87

Rotating Shapes

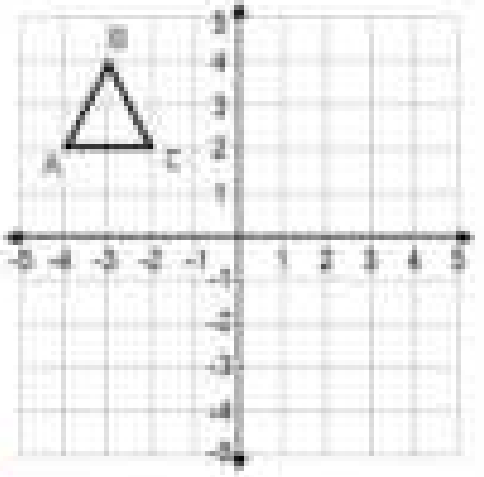
Instructions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



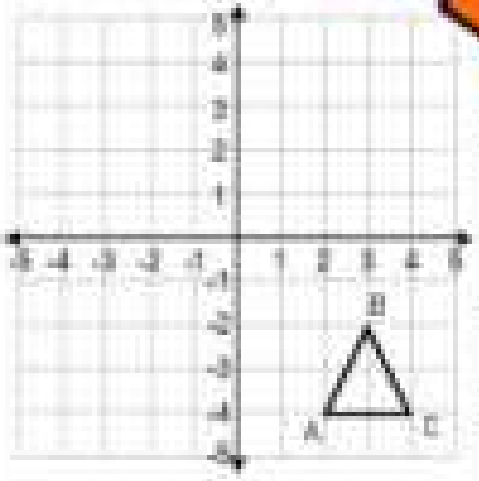
Original Coordinates
A(1, 2)
B(2, 4)
C(3, 2)
Rotated Coordinates
A(2, -1)
[illegible]
[illegible]
B(,)
C(,)

2) 90° counterclockwise rotation



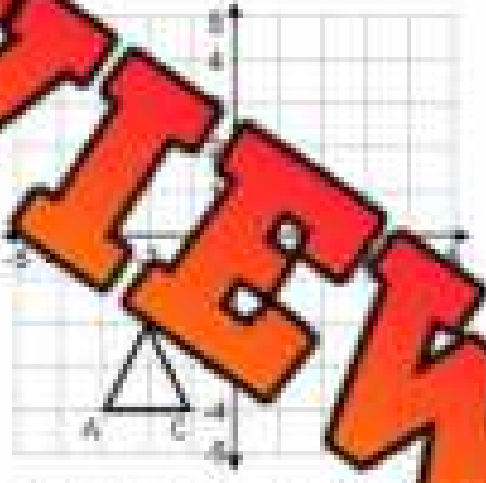
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

3) 180° rotation



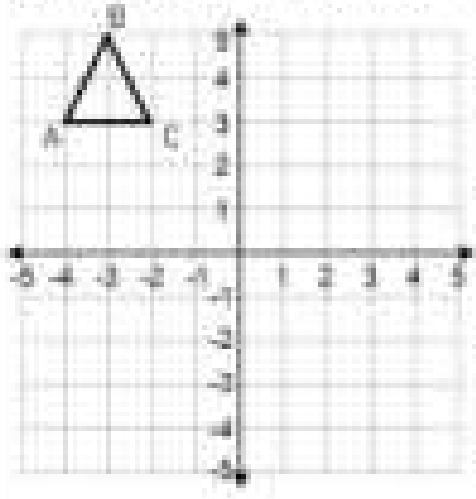
Original Coordinates
[illegible]
[illegible]
[illegible]
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

4) 90° clockwise rotation



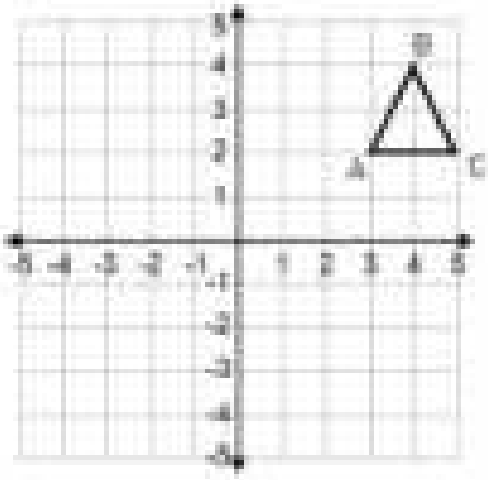
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
[illegible]
[illegible]
[illegible]

5) 90° clockwise rotation



Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

6) 90° counterclockwise rotation



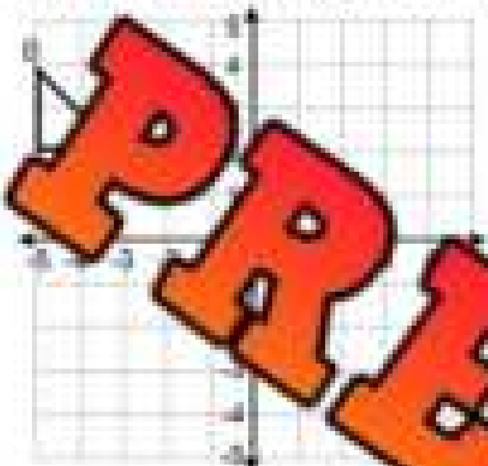
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________________

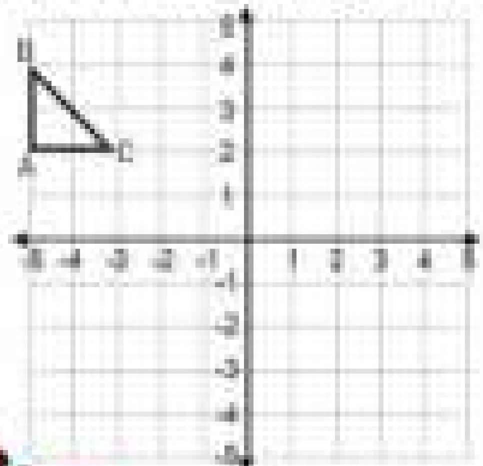
Graph the new position of shape after the 180° counterclockwise rotation.



Original	A(,)	B(,)	[illegible]
Rotated	A(,)	B(,)	C(,)

Name: ______________________

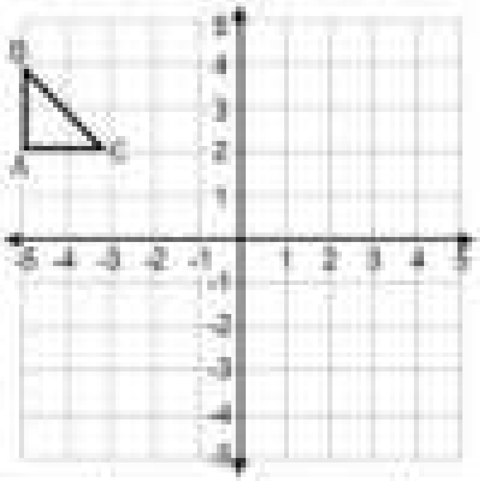
Graph the new position of shape after the 180° counterclockwise rotation.



[illegible]	A(,)	B(,)	C(,)
[illegible]	[illegible]	B(,)	C(,)

Name: ______________________

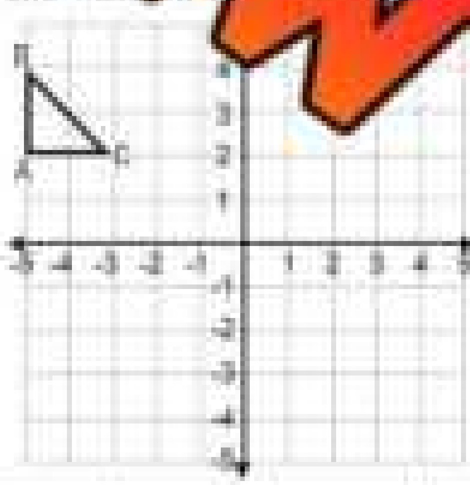
Graph the new position of shape after the 180° counterclockwise rotation.



Original	A(,)	B(,)	C(,)
Rotated	A(,)	B(,)	C(,)

Na[illegible]

Graph [illegible] after the 180° co[illegible]



Original	A(,)	B(,)	C(,)
Rotated	A(,)	B(,)	C(,)

Name: _____ 90

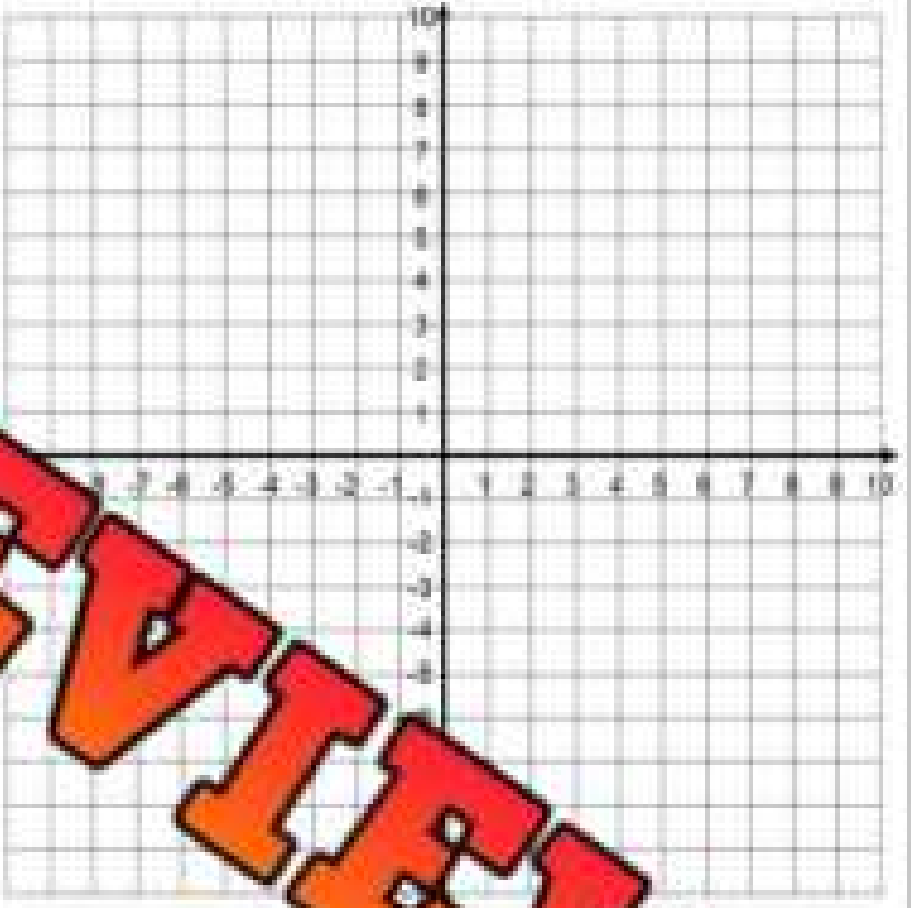
Rotations – Coordinates

Part 1 Draw the shapes using the coordinates provided. Then rotate the shape about the origin.

Shape A
P(9,2), Q(6,4), R(3,2)
90° counterclockwise rotation
New Coordinates
P(,), Q(,), R(,)

F(,), G(,), H(,)
180°
New Coordinates
F(,), G(,), H(,)

Shape C
J(-2,-9), K(-8,-6), L(-2,-2)
90° counterclockwise rotation
New Coordinates
J(,), K(,), L(,)



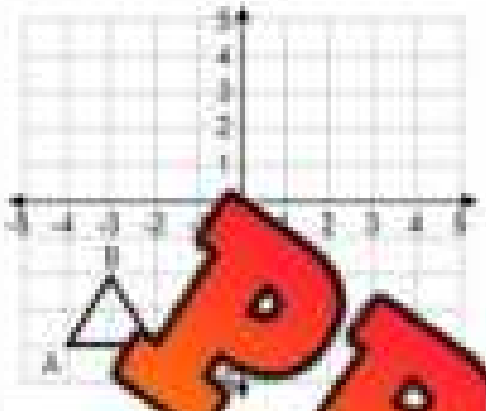
Part 2 Give the coordinates of each point after the rotation.

	Original Coordinate	Rotation Instructions	New Coordinates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(2, 6)	180° rotation	
3)	Q(-3, 7)	360° rotation	
4)	P(-5, -8)	90° counterclockwise rotation	
5)	T(-6, 3) Y(-2, -5)	90° clockwise rotation	
6)	S(-8, -4) R(5, 7)	180° rotation	
7)	N(-5, 5) K(6, -7)	90° clockwise rotation	
8)	P(6, -3) E(-6, 5)	180° rotation	

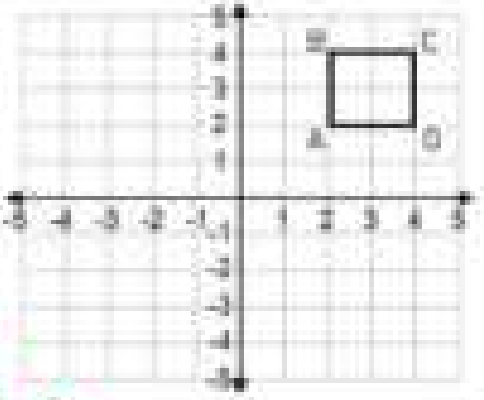
Name: _____ 96

Performing Multiple Transformations

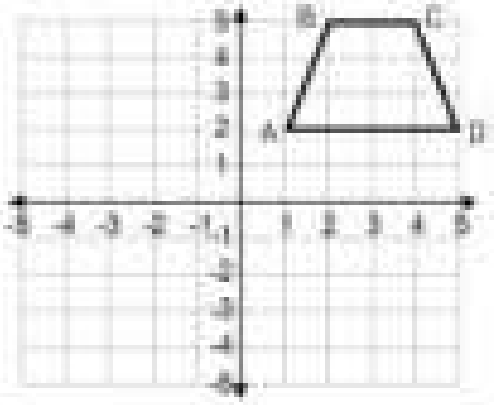
Instructions Complete the following combination of transformations



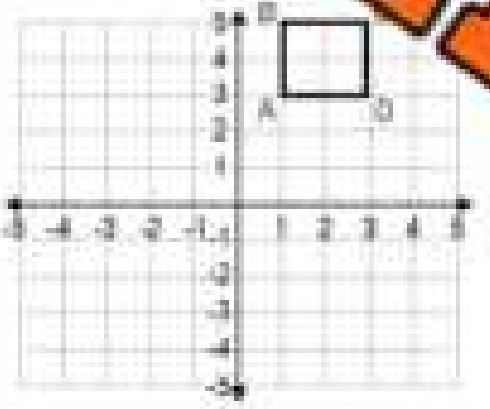
1) 180° rotation, translate down 3



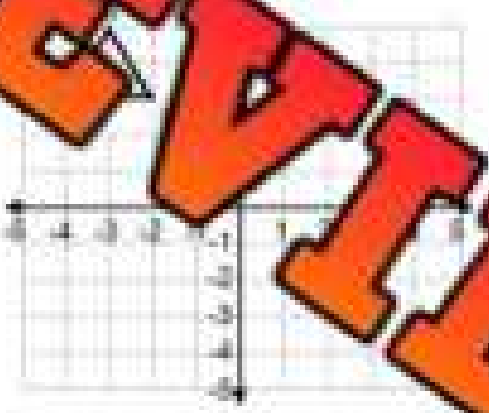
2) Reflect across the x-axis and translate left 4



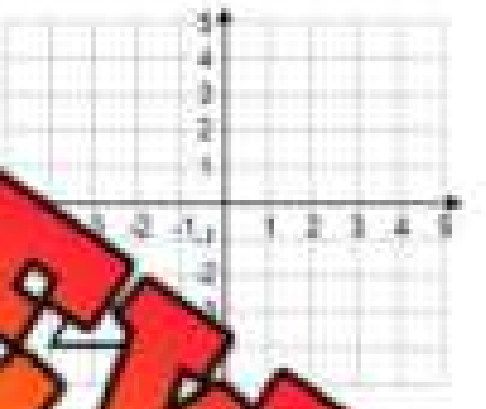
3) Rotate 90° clockwise and reflect across the y-axis



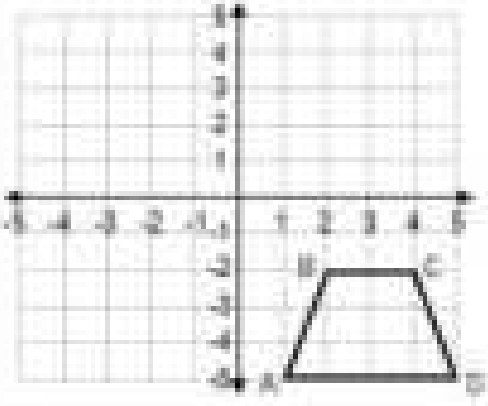
4) 90° counterclockwise rotation, translate right 3



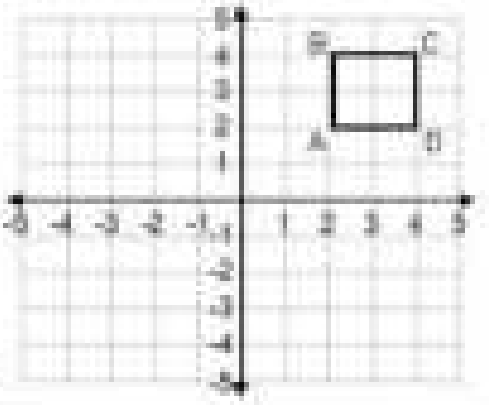
5) Translate down 3 and reflect across the y-axis



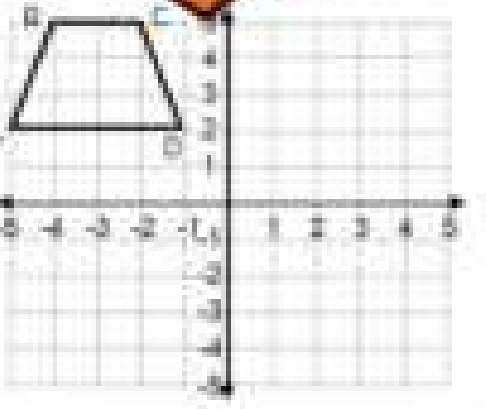
6) Reflect across the x-axis and translate up 4



7) 180° rotation, translate down 5



8) Reflect across the x-axis and translate left 6

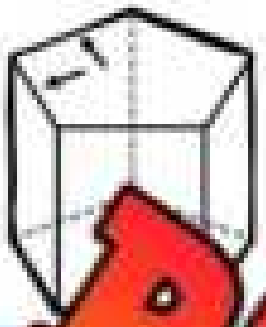


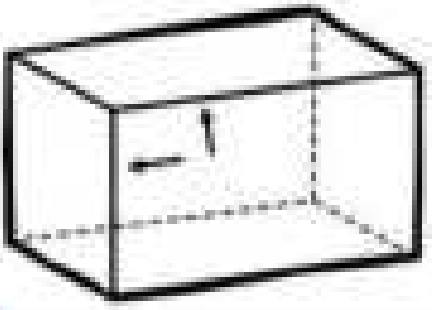
9) Rotate 90° clockwise and reflect across the x-axis

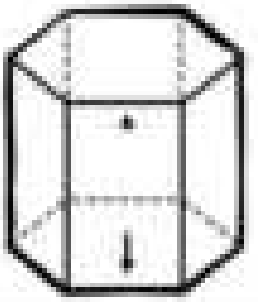
Name: _____ 100

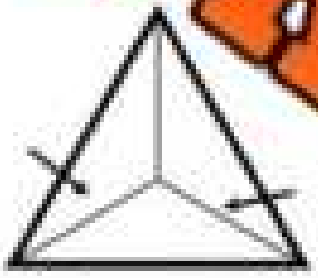
Geometry Test

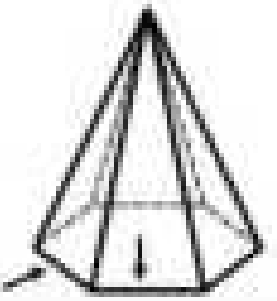
Part 1 Are the lines parallel, intersecting, or perpendicular?





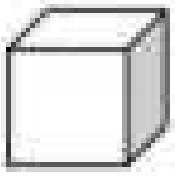






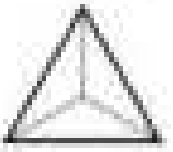
Part 2 Draw the axis and the order of rotational [illegible] for each object

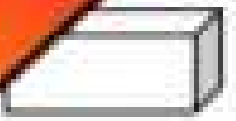
1)



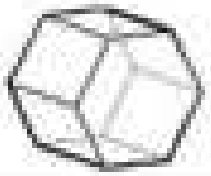
2)

3)

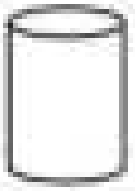




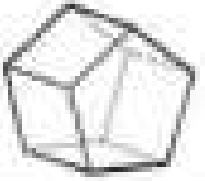
5)



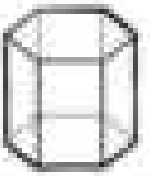
6)



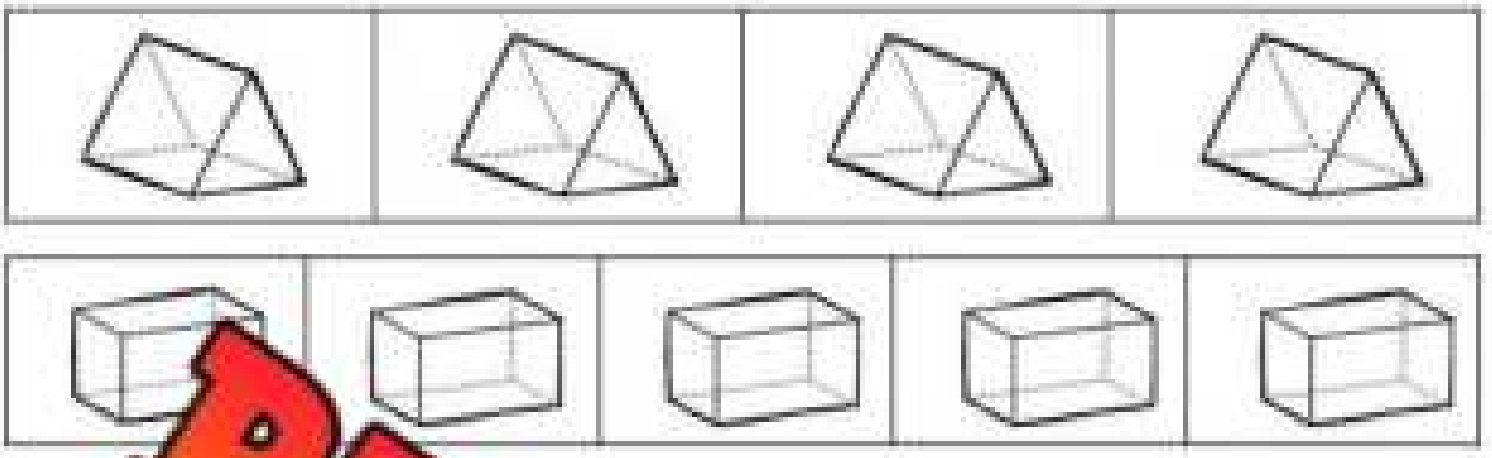
7)



8)

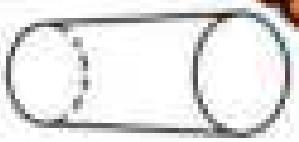


Part 3 Draw the planes of symmetry for the 3D objects below

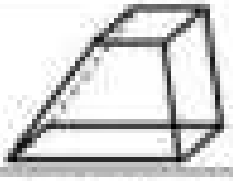


Part 4 Explain why the objects below are not cylinders, pyramids, or prisms

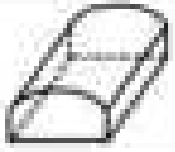
1) Why is the [illegible] not a cylinder?



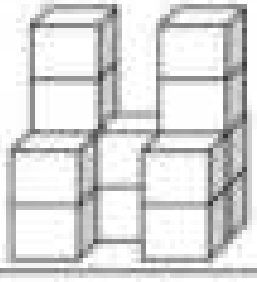
2) Why is the object below not a pyramid?



3) Why is the object below not a prism?



Part 5 Draw the top, front, and side view of the objects below

Original Shape	Top View	Front View	Side View
			

Part 6 Answer the questions below using the scale factors given

1) A bridge is 4500cm long. If 1cm equals 500cm, how many centimetres long would the bridge be using a scaled drawing?

2) The dimensions of a house are 48m by 24m. If one centimetre equals 8m, what are the scaled dimensions of the house?

Part 7 Answer the questions below

1) A [illegible] 21m wide. A scaled [illegible] to represent the park.

What scale was [illegible] the

8cm

3cm

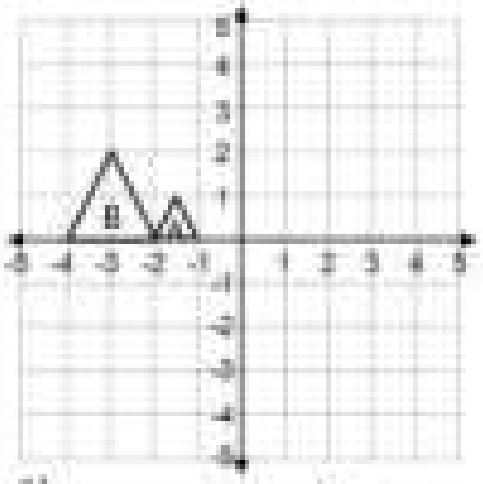
2) A TV has the following dimensions 100cm by 35cm. A scaled drawing w[illegible] created to represent the TV.

What scale was used in the drawing?

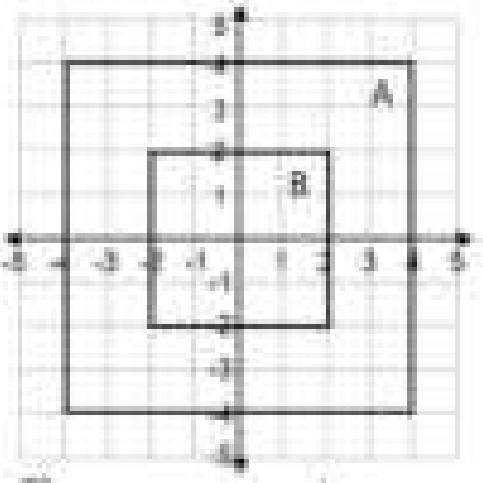
10cm

3.5cm

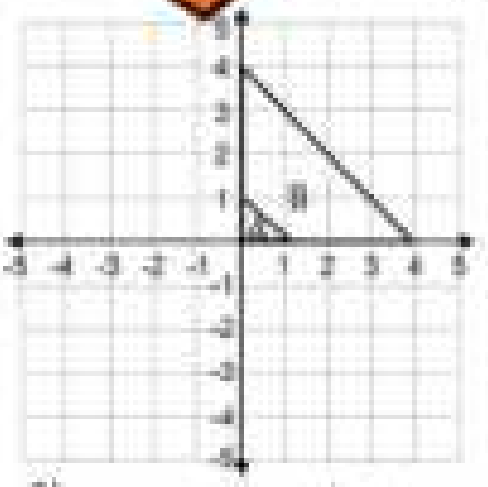
Part 8 Is the dilation an enlargement or reduction? Then find the scale factor



1) _____ k = ____

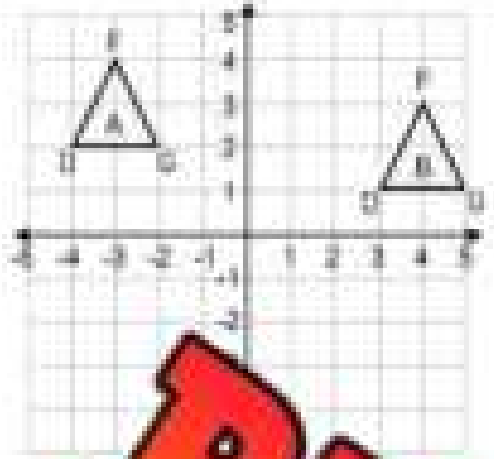


2) _____ k = ____



3) _____ k = ____

Part 9 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



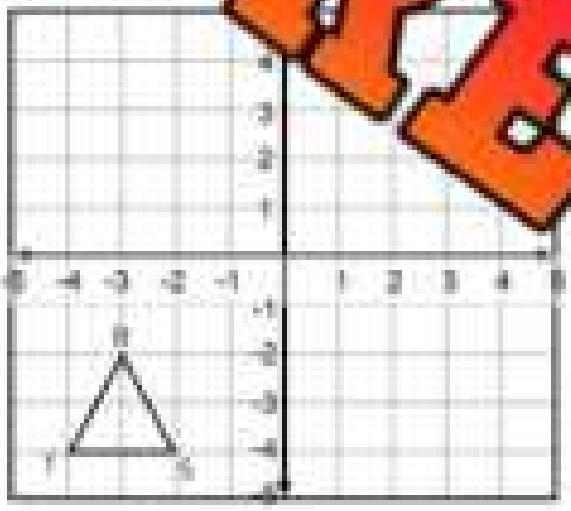
Coordinates A	Coordinates B

Describe the translation

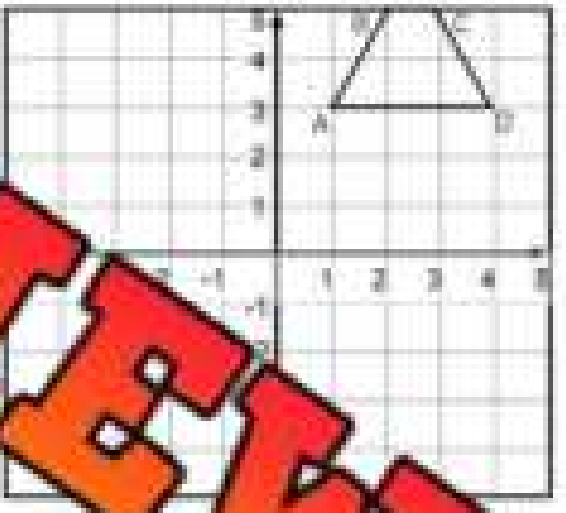
Translate Shape C from Shape B Left 3 units and down 4 units	Coordinates C

Part 1 ...position of each shape after the given reflection

1) Reflection ac...

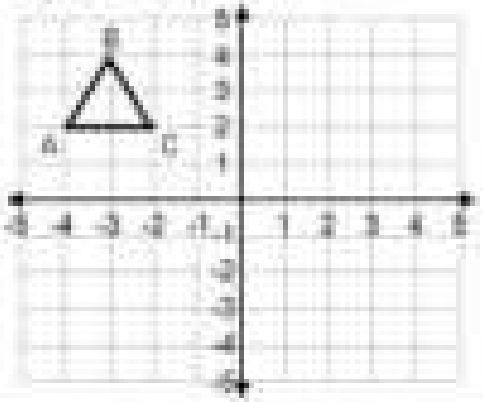


2) Reflection across the line x = 1



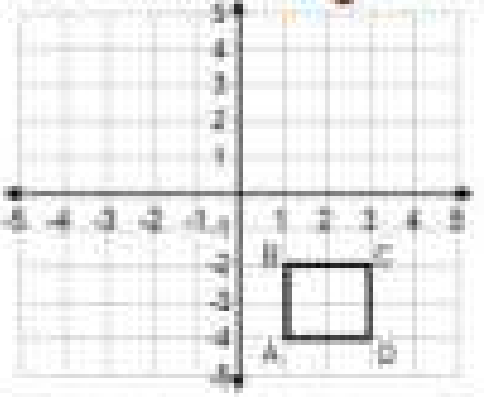
Part 11 Graph the new position of each shape after the g...

1) 180° rotation



Original	A(,)	B(,)	C(,)
Rotated	A(,)	B(,)	C(,)

2) 90° counterclock... rotation



Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

Grade 7
E2 – Measurement

	Curriculum Expectations	Pages That Cover the Expectations
E2.1	describe the differences and similarities between volume and capacity, and apply the relationship between millilitres (mL) and cubic centimetres [illegible] solve problems	105 – 134
E2.2	[illegible] solving perimeter, area, and [illegible] converting from one metric unit of [illegible]	135 – 167
E2.3	use the rela[illegible]adius, diameter, and circumfere[illegible] the formula for finding the circ[illegible] related problems	168 – 182
E2.4	construct circles when given the ra[illegible] diam[illegible] circumference	183 – 185
E2.5	show the relationships between the radius, diameter, and area of a circle, and use these relationships to explain the formula for measuring the area of a circle and to solve related problems	
E2.6	represent cylinders as nets and determine their surface area by adding the areas of their parts	204 – 216
E2.7	show that the volume of a prism or cylinder can be determined by multiplying the area of its base by its height, and apply this relationship to find the area of the base, volume, and height of prisms and cylinders when given two of the three measurements	217 – 233

Name: _____ 106

Metric System Units – Capacity – Decimal Conversions

Millilitre (mL)	Litre (L)	Kilolitre (kL)
1000 mL = 1L	1000L = 1kL	1kL = 1000L
		

Part 1 Fill in the tables below

mL	L
1000	
2000	
3000	
	4
	5
6000	
7000	
8000	
	9
	10

	L
	3.5
4500	
5500	
6500	
	7.5
8500	
	9.5
10500	

L	kL
1000	1
	2
	3
8000	
10000	

L	kL
1100	
1200	
	1.3
	1.4
1500	
	1.6
	1.7
	1.9

Part 2 Convert the units of measurement below

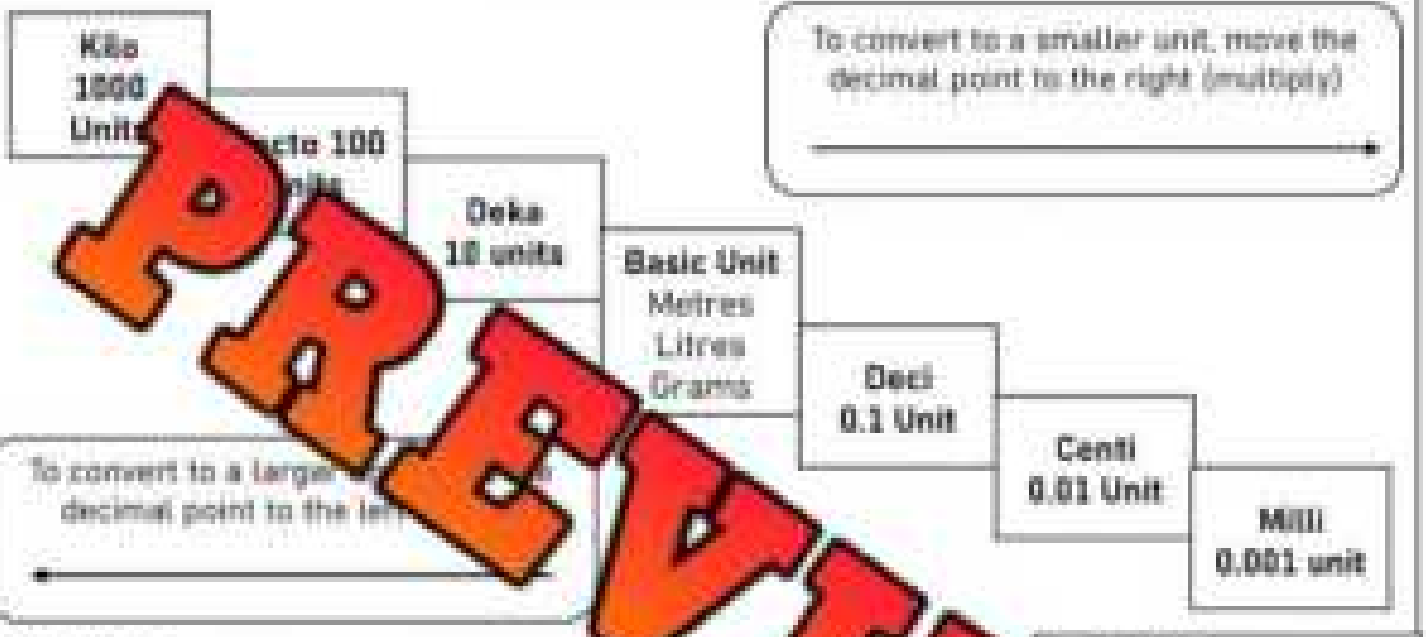
1) 1.7L	_____ mL	5) 6.4kL	_____ L	9) 4.5L	_____ mL
2) 5.4L	_____ mL	6) 4700mL	_____ L	10) 5500mL	_____ L
3) 8400mL	_____ L	7) 8400mL	_____ L	11) 4.5kL	_____ L
4) 3200L	_____ kL	8) 7.7kL	_____ L	12) 2500L	_____ kL

Name: _____ 107

Converting Units - Ladder Method

We can use the ladder method to convert any metric unit of measurement to another simply by following the rules below.

Ladder Method



Instructions

1. Find your starting unit of measurement
2. Count the jumps to get to your ending unit of
3. Move the decimal the number of jumps up or do
   Moving Up = Left and Moving Down = Right

EXAMPLE
___ mL
down =
decimal 3 right)

Practice Convert the units of measurement below

1) 3.2L	_____ mL	5) 7.4kL	_____ L	9) 603.8L	_____ kL
2) 453mL	_____ cL	6) 954L	_____ kL	10) 251.1mL	_____ L
3) 112cL	_____ mL	7) 231.7L	_____ kL	11) 15.85L	_____ mL
4) 605.3L	_____ kL	8) 605.4mL	_____ L	12) 4313.2mL	_____ kL

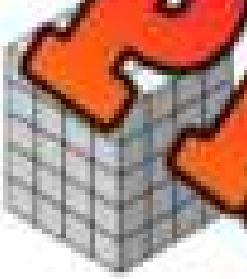
Name: _____ 115

Calculating Volume - Blocks

Rectangular Prism - Calculating Volume		
To find the volume of a rectangular prism, multiply the length by the width by the height.		v = l x w x h v = 5cm x 2cm x 4cm v = 40cm³

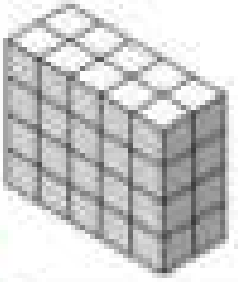
Instruction Label the rectangular prisms and then calculate the volume

1)



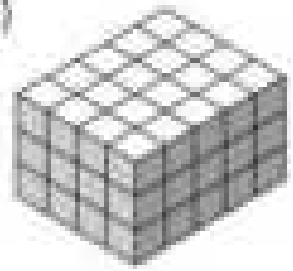
l = _____
w = _____
h = _____
v = _____

2)



l = _____
w = _____
h = _____
v = _____

3)

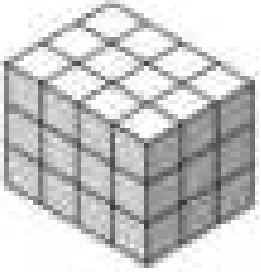


l = _____
w = _____
h = _____
v = _____

4)

l = _____
w = _____
h = _____
v = _____

5)

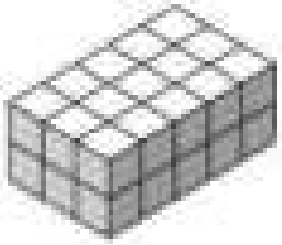


l = _____
w = _____
h = _____
v = _____

6)

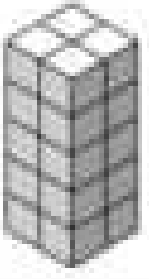
l = _____
w = _____
h = _____
v = _____

7)



l = _____
w = _____
h = _____
v = _____

8)



l = _____
w = _____
h = _____
v = _____

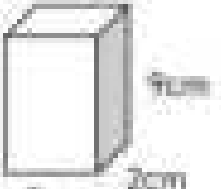
Name: _____ 117

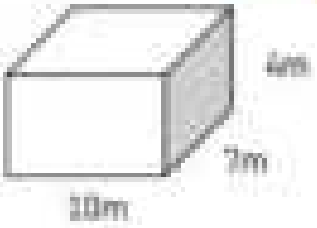
Calculating Volume of Rectangular Prisms

Rectangular Prism - Calculating Volume		
To find the volume of a rectangular prism, multiply the length by the width by the height.		v = l x w x h v = 6cm x 2cm x 4cm v = 48cm³

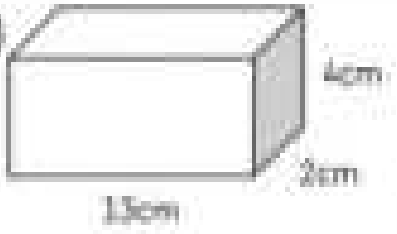
Instructio Calculate the volume of the rectangular prisms

1) 

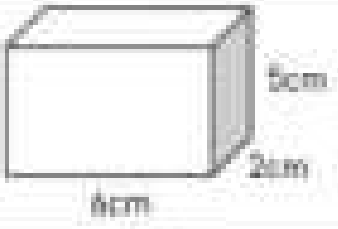
2) 

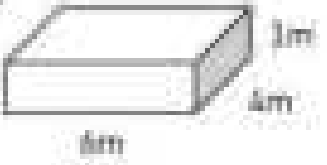
3) 

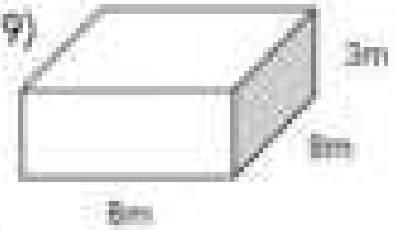
4) 

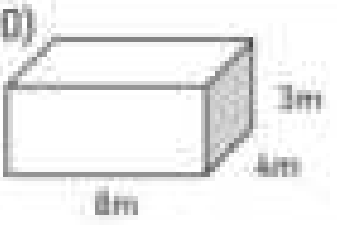
5) 

6) 

7) 

8) 

9) 

10) 

Name: _____ 118

Calculating Volume of Rectangular Prisms

Part 1 A variety of small boxes are used for packaging. Find the volume of each box.

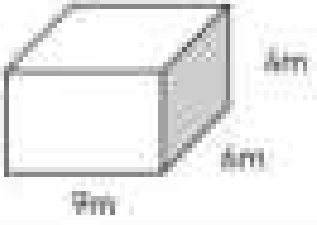
Box Type	Length	Width	Height	Volume
Box 1	9cm	6cm	2cm	
Box 2	7cm	5cm	10cm	
Box 3	6cm	8cm	3cm	
Box 4		9cm	3cm	
Box 5		8cm	6cm	
Box 6			8cm	
Box 7	7cm		4cm	

Part 2 Calculate the volume of the rectangular prism.

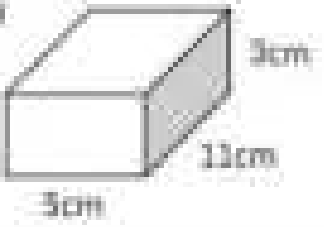
1)

2)

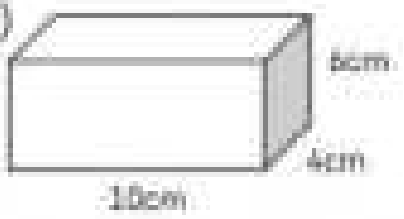
3)



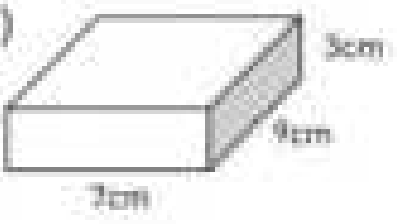
4)



5)



6)



Name: _____ 119

Calculating Volume of Rectangular Prisms

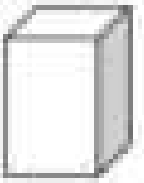
Instructions Label the rectangular prisms and then calculate the volume

1)

l = 4m
w = 300cm
h = 400cm

v = _____

2)



l = 550cm
w = 2.5m
h = 9m

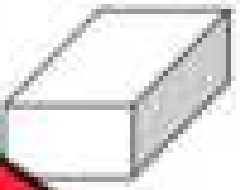
v = _____

3)

w =
h =

v = _____

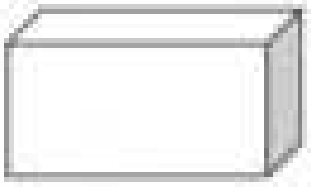
4)



l = 90cm
w = 0.3m
h = 15cm

v = _____

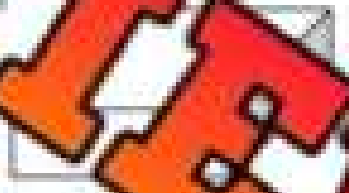
5)



l = 1.1m
w = 35cm
h = 0.8m

v = _____

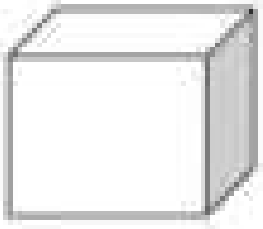
6)



l = 6.2m
w = 815cm
h = 140cm

v = _____

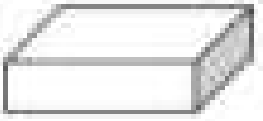
7)



l = 7.65m
w = 325cm
h = 5.31m

v = _____

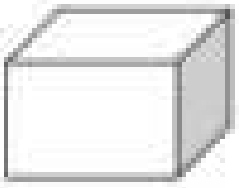
8)



w = 373cm
h = 158cm

v = _____

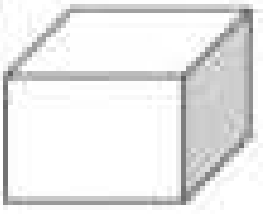
9)



l = 10.5m
w = 603cm
h = 4m

v = _____

10)



l = 9.4m
w = 807cm
h = 4.2m

v = _____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: ____________________

1) What is the volume of the rectangular prism?

V = ____________

2) A swimming pool is 10m long, 5m wide, and 2.5m deep. What is the volume of the swimming pool?

____

Name: ____________________

1) What is the volume of the rectangular prism?

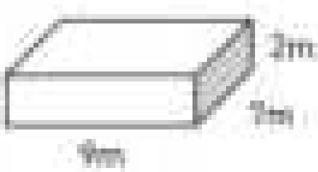
V = ____________

2) A swimming pool is 10m long, 5m wide, and 2.5m deep. What is the volume of the swimming pool?

____

Name: ____________________

1) What is the volume of the rectangular prism?



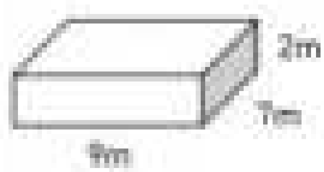
V = ____________

2) A swimming pool is 10m long, 5m wide, and 2.5m deep. What is the volume of the swimming pool?

____

Name: ____________________

1) What is the volume of the rectangular prism?



V = ____________

2) A swimming pool is 10m long, 5m wide, and 2.5m deep. What is the volume of the swimming pool?

____

Name: ____________________ 122

Volume Jeopardy

Objective What are we learning about?

To reinforce students' understanding of calculating the volume of rectangular prisms by solving problems in a fun and competitive game format.

Mat... ...u will need for the activity.

- Jeopardy ... n...
- Buzzer or bell

Instructions How you will comp... ...acti...

1. Print the Jeopardy board on the next p...
2. Divide the class into two teams.
3. Ask one team to go first by selecting a point value.
4. Read the question aloud from the point value.
5. The first team to ring the bell or buzzer gets to answer.
6. If they answer correctly, award them the points. If not, another team can answer.
7. Continue the game until all questions have been answered.
8. Tally the points to determine the winning team.
9. Conclude by discussing what they learned about the topic in the questions.

Name: _____ 123

Jeopardy Questions | Ask students the questions below

$100	$200	$300	$400	$500
L=2m, W=5m, H=4m, V=?	The base is 12 cm² and the height is 6 cm. What is the volume?	The volume is 240 cm³ and the height is 6 cm. What is the base area?	L=2, W= H=3, V=48. Find W	The volume is 400 cm³ and the height is 8 cm. What is the base area?
L=3 W= H=2cm	The volume is and the m³.	The base is 20 cm² and the height is 5 cm. What is the volume?	The volume is 300 cm³ and the height is 10 cm. What is the base area?	The volume is 500 cm³ and the height is 10 cm. What is the base area?
L=4cm, W=5cm, H=3cm, V=?	The cm² height is 8 What is the volume?	L=4	The base is 30 cm² and the height is 4 cm. What is the volume?	The volume is 180 cm³ and the base is 15 cm². What is the height?
L=2m, W=8m, H=3m, V=?	The volume is 400 cm³ and the height is 10 cm. What is the base area?	L=15cm, W=20cm, H=10cm, V=?	The cm³ height?	The volume is cm³ and the ght is 15 cm. base
L=5m, W=5m, H=3m, V=?	The volume is 240 cm³ and the base is 20 cm². What is the height?	The volume is 360 cm³ and the base is 12 cm². What is the height?	The volume is 600 cm³ and the base is 50 cm². What is the height?	volume is 720 cm³ and the base is 24 cm². What is the height?
L=7cm, W=5cm, H=3cm, V=?	The volume is 300 cm³ and the height is 10 cm. What is the base area?	L=70m, W=40m, H=20m, V=?	The volume is 450 cm³ and the height is 9 cm. What is the base area?	The volume is 600 cm³ and the height is 15 cm. What is the base area?

Name: _____ 125

Metric System Units – Decimal Conversions

In Canada, we use the metric system. The metric system has 4 main units that we use to measure distances.

Examples

Millimetre (mm)	Centimetre (cm)	Metre (m)	Kilometre (km)
15mm = 1.5cm 1500mm = 1.5m	150cm = 1.5m 1cm = 10mm	1.5m = 150cm 1500m = 1.5km	2.3km = 2300m

Part 1 Complete the tables below

mm	cm
5	
15	
	2.5
	3.5
45	
55	
	6.5
75	
85	
	9.5

cm	m
	0.5
	1.5
250	
350	
550	
650	
	7.5
850	
950	

m	km
1500	
	3.5
5500	
7500	
	9.5
10000	
	15.5
	19.5

Part 2 Convert the units of measurement below

1) 1.1m	_____cm	5) 8.12m	_____cm	9) 831cm	_____m
2) 42mm	_____cm	6) 515mm	_____cm	10) 75mm	_____cm
3) 3.7cm	_____mm	7) 426mm	_____cm	11) 6.89m	_____cm
4) 9.3cm	_____mm	8) 7.5cm	_____mm	12) 562cm	_____m

Name: _____ 126

Converting Units - Ladder Method

We can use the ladder method to convert any metric unit of measurement to another simply by following the rules below.

Ladder Method

To convert to a smaller unit, move the decimal point to the right (multiply)

Kilo 1000 Units	Hecto 100 units	Deka 10 units	Basic Unit Metres Litres Grams	Deci 0.1 Unit	Centi 0.01 Unit	Milli 0.001 unit

To convert to a larger unit, move the decimal point to the left

Instructions

1. Find your starting unit of measurement
2. Count the jumps to get to your ending unit
3. Move the decimal the number of jumps up or down
   Moving Up = Left and Moving Down = Right

EXAMPLE

_____ mm

down –

decimal 3 right)

m

Practice Convert the units of measurement below

1) 2.8m	_____mm	5) 7.4km	_____m	9) 11 518m	_____km
2) 418mm	_____cm	6) 807m	_____km	10) 7921mm	_____m
3) 278cm	_____mm	7) 3045m	_____cm	11) 9.52m	_____mm
4) 277.5m	_____km	8) 5232cm	_____mm	12) 12cm	_____mm

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Convert the units of measurement below.

a) _____m

b) _____mm

c) _____m

2) Solve the problem below

Noah and Olivia both walk to school. Noah walks 16.32km and Olivia walks 1653m. Who walks further to school?

_____

Name: _____

1) Convert the units of measurement below.

a) 1.333km = _____m

b) 415m = _____mm

c) 7775cm = _____m

2) Solve the problem below

Noah and Olivia both walk to school. Noah walks 16.32km and Olivia walks 1653m. Who walks further to school?

_____

Name: _____

1) Convert the units of measurement below.

a) 1.333km = _____m

b) 415m = _____mm

c) 7775cm = _____m

2) Solve the problem below

Noah and Olivia both walk to school. Noah walks 16.32km and Olivia walks 1653m. Who walks further to school?

_____

Name: _____

1) Convert the units of measurement below.

a) 1.333km = _____m

b) 415m = _____mm

c) 7775cm = _____m

2) Solve the problem below

Noah and Olivia both walk to school. Noah walks 16.32km and Olivia walks 1653m. Who walks further to school?

_____

Name: _____ 129

Memory Game: Matching Equivalent Units

Objective What are we learning about?

Students will practice converting and matching equivalent units of measurement, such as centimeters to millimeters and meters to centimeters, to enhance their understanding of metric conversions.

Materials What you will need for the activity.

- Set of Memory Game cards with units of measurement
- Tables or clear space for each group to lay out their cards

Instructions How you will implement the activity.

1. Divide the class into groups of 3 or 4 students each.
2. Give each group a set of Memory Game cards.
3. Have each group lay all the cards face down in a grid on the table.
4. Students take turns flipping over two cards at a time, trying to find a match with equivalent units of measurement.
5. If a student finds a match (e.g., 1 meter and 100 centimeters), they remove those cards from the grid and keep them.
6. If the cards do not match, they are turned back over, and the next student takes a turn.
7. The game continues until all the cards have been matched.
8. After the game, review the equivalent units of measurement with the class, ensuring students understand the conversions.

Name: _____ 133

Cards: Memory Game Cards

489 centimeters	489 millimeters
868 [illegible]eters	86.3 centimeters
32 kilometers	20[illegible] meters
0.059 meters	59 centim[illegible]ers
77.73 centimeters	777.3 millimeters

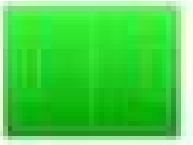
Name: _____ 134

Estimating Distance

Part 1 Estimate the length of each description below by circling the distance

1) Length of a pencil
a) 30cm
b) 10mm
c) 1km
d) 10cm

2) Length of a soccer field
a) 100m
b) 500m
c) 2km
d) 500cm



3) Distance [illegible] Ottawa to Toronto
a) 10km
b) [illegible]
c) [illegible]
d) 500[illegible]

4) Length of a gym
a) 15m
b) 3m
c) 300cm
d) 200mm

5) Width of a c[illegible]stor
a) 3km
b) 1m
c) 30cm
d) 20mm

6) Length of your shoe
a) 1km
b) 1m
c) 20cm
d) [illegible]

7) Height of a desk
a) 20km
b) 2m
c) 90cm
d) 200mm

8) Hei[illegible] NBA player (tall person)
a) [illegible]
b) [illegible]
c) [illegible]cm
d) [illegible]

9) Length of a bus
a) 1km
b) 13m
c) 300cm
d) 2000mm

10) Width [illegible] of a pencil
a) 2km
b) 2m
c) 10cm
d) 10mm

Part 2 Estimate the length/distance of each description below

Description	Estimate
1) Length of your foot	
2) Height of the door	
3) Distance between your home and your school	
4) Height of a computer screen	
5) Width of a cell-phone	

Description	Estimate
6) Height of your teacher	
7) Width of your seat	
8) Distance from your school to the CN Tower	
9) Height of your school building	
10) Width of a paper	

Name: _____ 135

Perimeter Formulas

Mathematicians use formulas to help them solve questions faster and easier. When finding the perimeter of a quadrilateral, we can use the following formulas.

Formula 1		Formula 2
a + b + a + b 9 + 3 + 9 + 3 = 24cm		a + b x 2 9 + 3 x 2 = 24cm

Instruction Use both formulas to calculate the perimeter of the quadrilaterals

	Shape	Formula 1	Formula 2
1)			
2)			
3)			
4)			
5)			
6)			

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Convert the units and calculate the perimeter of the shape.

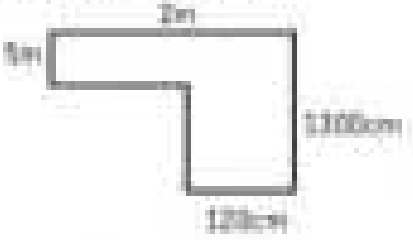
Perimeter = _____

2) A rectangular swimming pool is 34m by 1100cm. What is the perimeter of the swimming pool?

_____

Name: _____

1) Convert the units and calculate the perimeter of the shape.



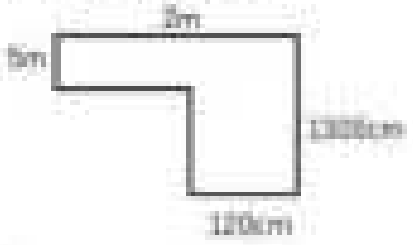
Perimeter = _____

2) A rectangular swimming pool is 34m by 1100cm. What is the perimeter of the swimming pool?

_____

Name: _____

1) Convert the units and calculate the perimeter of the shape.



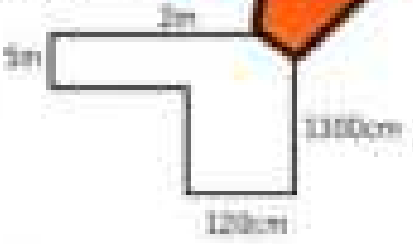
Perimeter = _____

2) A rectangular swimming pool is 34m by 1100cm. What is the perimeter of the swimming pool?

_____

Name: _____

1) Convert the units and calculate the perimeter of the shape.



Perimeter = _____

2) A rectangular swimming pool is 34m by 1100cm. What is the perimeter of the swimming pool?

_____

Name: _____ 140

Activity: Perimeter Race

Objective What are we learning about?

Students will practice calculating the perimeters of irregular and regular polygons by racing to answer questions quickly and accurately.

Materials What you will need for the activity

- Index cards
- Markers
- Timer (optional)

Instructions How you will play

1. Prepare a stack of index cards with perimeter questions. Include a mix of regular polygons (e.g., squares, rectangles) and irregular polygons (e.g., shapes with various side lengths).
2. Have students line up in a single file (or you can have them sit at their desks).
3. Call the first two students in line to the front. Explain that they will race to answer the perimeter question that the teacher pulls from the stack.
4. Pull a card from the stack and read the question aloud. The first student to answer correctly wins the round.
5. The student who answers correctly stays at the front to compete against the next student in line. The student who loses goes to the end of the line.
6. Optional: If a student wins five rounds in a row, they move to the back of the line to give others a chance to play.
7. Continue the game until all students have had a chance to compete multiple times or until the designated game time is up.

Name: _____ 1.4.4

Index Cards | Cut out the index cards below

A farmer fenced his field in the shape of an irregular pentagon. The side lengths were 18m, 22m, 27m, 33m, and 35m. What is the perimeter of the fi

A town square was designed in the shape of an irregular hexagon. The side lengths were 10m, 15m, 20m, 25m, 30m, and 35m. What is the perimeter of the town square?

Sarah jogge[illegible] like a regular [illegible] was 60m long. Wha[illegible] Sarah jogged?

Rachel created a kite with a frame in the shape of a regular quadrilateral. Each side of the quadrilateral was [illegible]ng. What is the perimeter of [illegible]ame?

A school playground was designed in the shape of an irregular quadrilateral. The side lengths were 20m, 25m, 30m, and 35m. What is the perimeter of the playground?

A gard[illegible] the shape of an irreg[illegible] lengths were 12m[illegible] What is the perime[illegible] garden?

John built a birdhouse with a base in the shape of a regular pentagon. Each side was 5m long. What is the perimeter of the base?

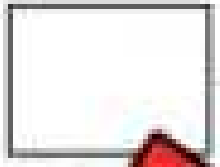
A parking lot was built in the shape of a regular octagon. Each side of the octagon was 40m long. What is the perimeter of the parking lot?

Name: _____ 145

Finding the Area of Rectangles

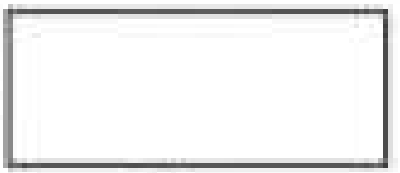
Instructions | Find the area (A= b x h) | *Not to Scale

1)



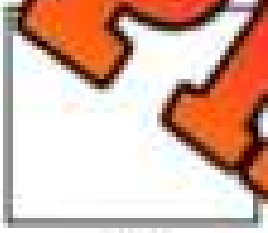
Area = _____

2)



Area = _____

3)



Area = _____

4)

Area = _____

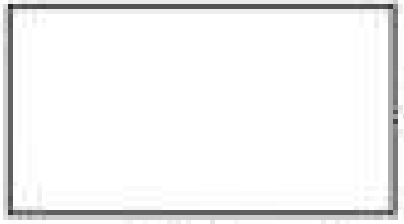
5)

Area = _____

6)

Area = _____

7)



Area = _____

8)

Area = _____

9)

Area = _____

10)

Area = _____

Name: _____ 152

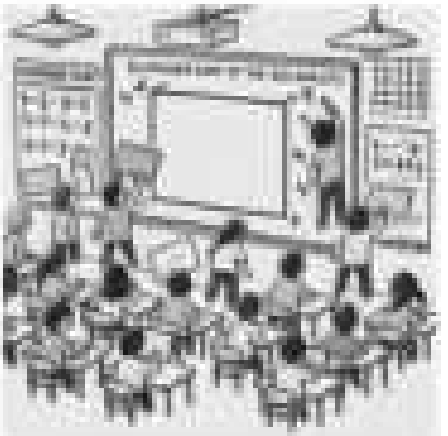
Scavenger Hunt: Area of Rectangles

Objective What are we learning about?

Students will practice calculating the area of rectangles, enhancing their understanding of this geometric concept through a fun and engaging scavenger hunt.

Materials What you will need for the activity

- [illegible] area questions (provided)
- [illegible] for each team to collect their cards
- Tape to hide [illegible] or in a designated safe [illegible]



Instructions How you will [illegible]

1) **Prepare the Cards**: Write different area questions [illegible] rectangles on index cards. Use the questions generated above.
2) **Hide the Cards**: Hide the cards around the classroom [illegible] and safe outdoor area. Tape them under chairs, desks, or [illegible] obvious spots.
3) **Divide into Teams**: Divide the class into small teams and give each team a bag or envelope to collect their cards.
4) **Explain the Game**: Explain the game to the students. Each team will search for a card, solve the problem on it as quickly as they can, and return to you for verification.
5) **Start the Game**: Say "Go!" and each team rushes to find their first card.
6) **Verify Answers**: When a team thinks they have the correct answer, they come back to you. If correct, they receive a checkmark and move on to find the next card.
7) **Continue Playing**: The game continues until all cards are found or you call time. The team with the most correct answers wins.
8) **Discuss**: After the game, discuss the problems and solutions each team encountered, focusing on the methods used to calculate the area and perimeter.

Name: _____ 156

Index Cards | Cut out the cards below

A rectangular piece of wood has an area of 32 cm². If the height is 4 cm, what is the base in millimetres?

A rectangular field has a width of 10 m and a length of 2500 cm. What is the area of the field?

A rectangular [illegible] perimeter of 5[illegible] m, what is the [illegible] millimetres?

A garden has an area of 35 m². The base of the garden is 700 cm. What is the height of the garden?

A garden plot measures 7.5 m by 4 m. If you divide the plot into 5 equal sections lengthwise, what is the area of each section?

A rec[illegible] ban[illegible] has an area of 2.5 m². [illegible] wi[illegible] corner is 50 cm, what [illegible] metres?

A square painting has an area of 1.44 m². What is the length of one side in centimeters?

A piece of rectangular cloth is 120 cm by 0.75 m. What is the area in square centimeters?

Name: _____ 157

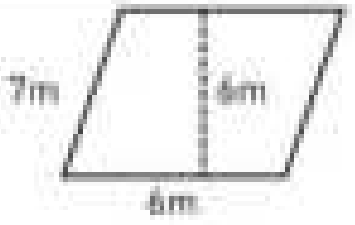
Perimeter and Area of Parallelograms

Instructions Find the perimeter and area of the parallelograms below (A= b x h)

1)

Perimeter = _____ Area = _____

2)

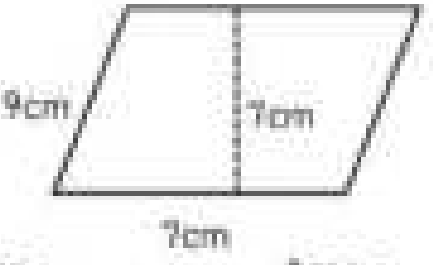


Perimeter = _____ Area = _____

3)

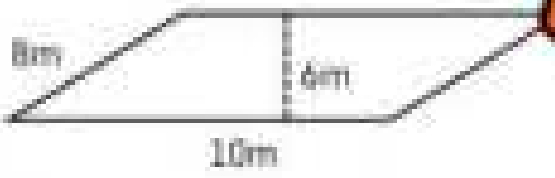
Perimeter = _____ Area = _____

4)



Perimeter = _____ Area = _____

5)

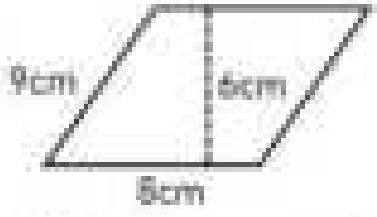


Perimeter = _____ Area = _____

6)

Perimeter = _____

7)

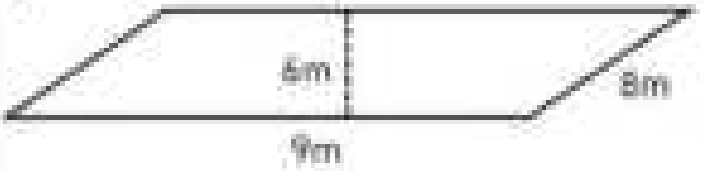


Perimeter = _____ Area = _____

8)

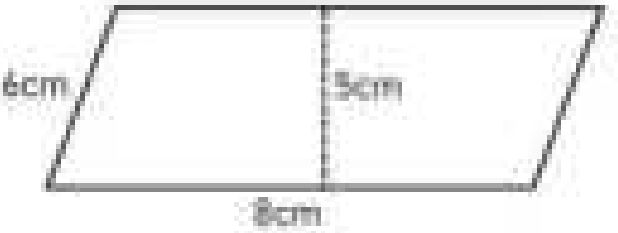
Perimeter = _____ Area = _____

9)



Perimeter = _____ Area = _____

10)



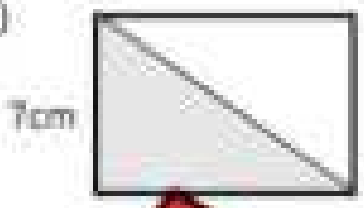
Perimeter = _____ Area = _____

Name _____ 159

Introduction – Area of a Triangle

Instructions Find the area of the rectangles and triangles below

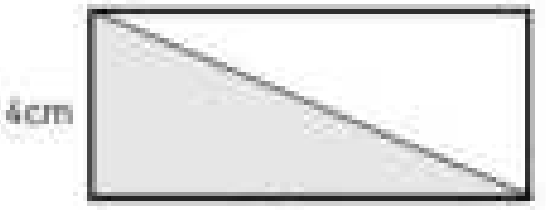
1)



Area of a rectangle = _____

Area of a triangle = _____

2)



Area of a rectangle = _____

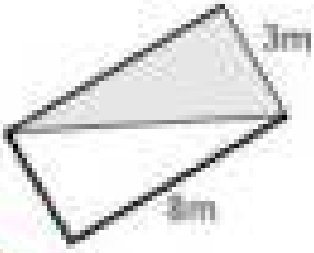
Area of a triangle = _____

3)

Area of a rectangle = _____

Area of a triangle = _____

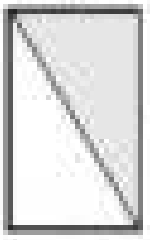
4)



Area of a rectangle = _____

Area of a triangle = _____

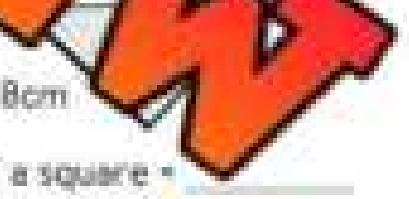
5)



Area of a rectangle = _____

Area of a triangle = _____

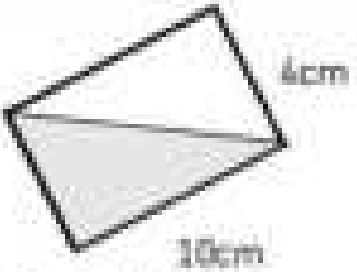
6)



Area of a square = _____

Area of a square = _____

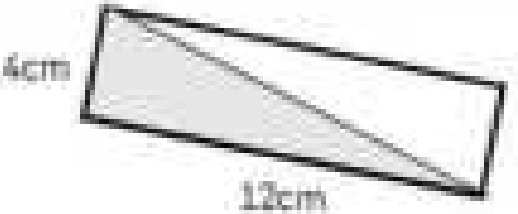
7)



Area of a rectangle = _____

Area of a triangle = _____

8)



Area of a rectangle = _____

Area of a triangle = _____

Name: _____ 162

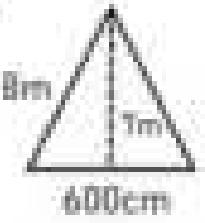
Area of a Triangle

Part 1 Find the area of the triangles below (A= b x h ÷ 2)

1)

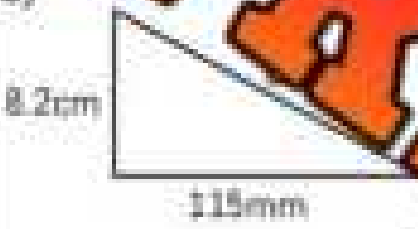
Area = _____

2)



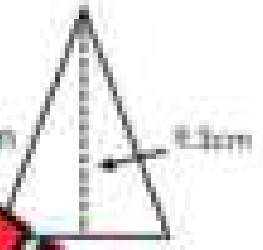
Area = _____

3)



Area = _____

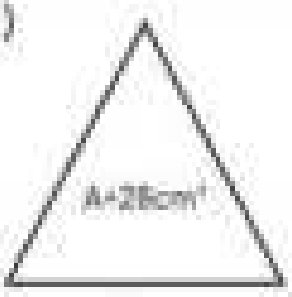
4)



Area = _____

Part 2 Find the missing value

1)



Base = _____

Height = _____

Area = _____

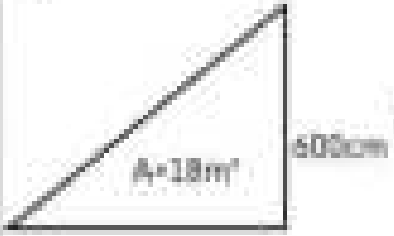
2)

Base = _____

Height = _____

Area = _____

3)

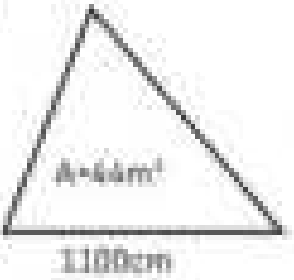


Base = _____

Height = _____

Area = _____

4)



Base = _____

Height = _____

Area = _____

Name: _____ 163

Area of a Triangle - Word Problems

Questions | Answer the questions below

1) Liam wants to build a triangular treehouse platform. The platform will have a base of 3 meters and a height of 2.5 meters. After calculating the area of the platform, he plans to cover it with wooden planks. If each wooden plank covers 0.5 square meters, how many wooden planks will he need to cover the entire floor?

2) A triangular stage for a play has a base of 6 meters and a height of 4 meters. After finding the area of the stage, students plan to cover it with a carpet. The carpet is sold by the square meter and costs $25 per square meter. How much will the students need to spend in total to cover the entire stage?

3) Ella plans to make a triangular banner for her school's sports event. The base of the banner is 3 meters, and the height is 2 meters. After calculating the area of the banner, Ella wants to paint it using two colours, with each colour covering half of the area. If a can of paint covers 1.5 square meters, how many cans of each color will she need?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)

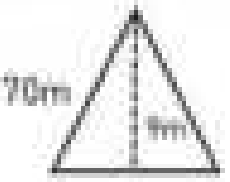
800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)



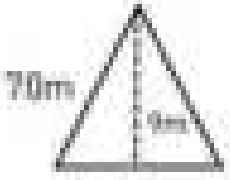
800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)



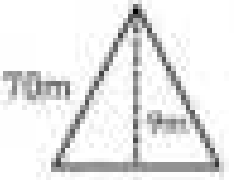
800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)



800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

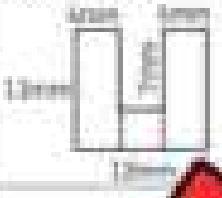
_____

Name _____ 165

Area of Composite Polygons

Find the area of the polygons below by splitting them into separate shapes.

Example



Area = area of rectangle 1 + area of rectangle 2 + area of rectangle 3

Rectangle 1:
A = 11 x 4
A = 44 mm²

Rectangle 2:
A = 4 x 4
A = 16mm²

Rectangle 3:
A = 4 x 11
A = 44mm²

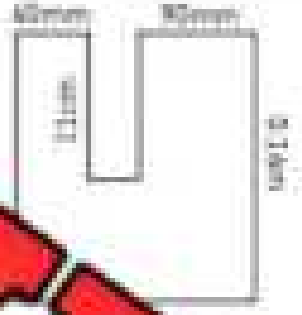
Area = 44 + 44 + 16
A = 104mm²

Instructio Find the area of the composite polygons below

1)

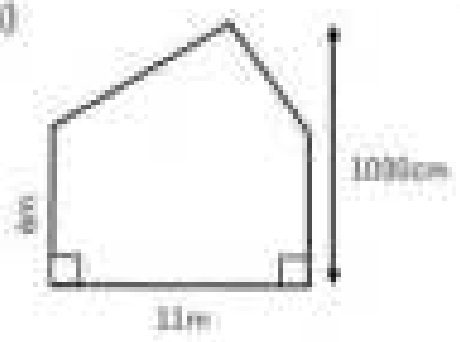
Area = _____

2)



Area = _____

3)

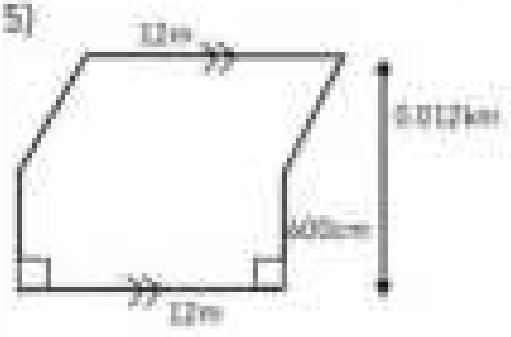


Area = _____

4)

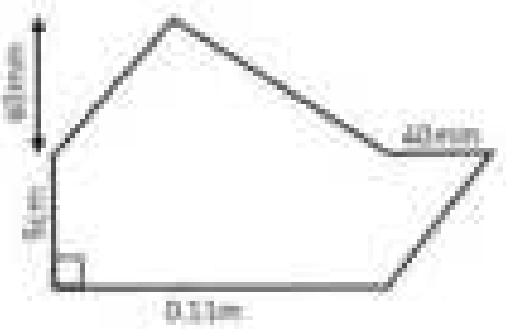
Area = _____

5)



Area = _____

6)



Area = _____

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

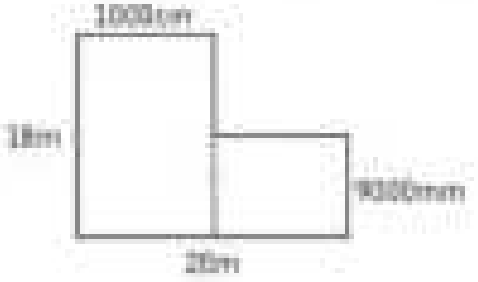
Name: _____

Find the area of composite shape

Area = _____

Name: _____

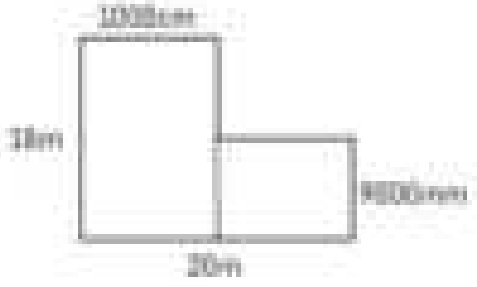
Find the area of composite shape



Area = _____

Name: _____

Find the area of composite shape



Area = _____

Name: _____

Find the area of

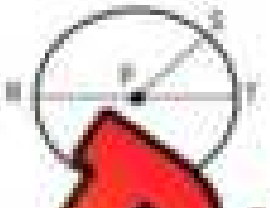
Area = _____

Name: _____ 168

Intro – Radius and Diameter

Instructions Identify the elements for each question. The first one is done for you

1)

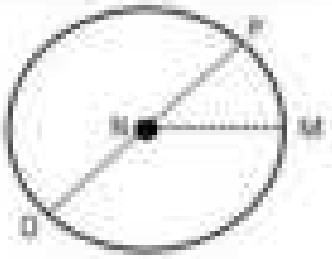


Centre = P

Radius = PS

Diameter = _____

2)

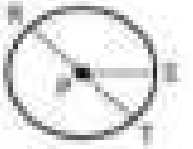


Centre = _____

Radius = _____

Diameter = _____

3)

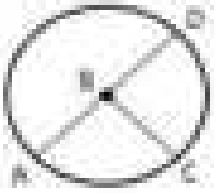


Centre = _____

Radius = _____

Diameter = _____

4)



Centre = _____

Radius = _____

Diameter = _____

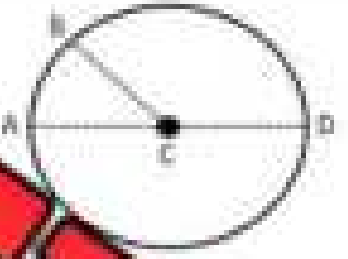
5)

Centre = _____

Radius = _____

Diameter = _____

6)

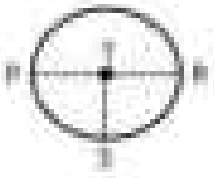


Centre = _____

Radius = _____

Diameter = _____

7)

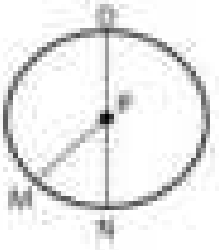


Centre = _____

Radius = _____

Diameter = _____

8)

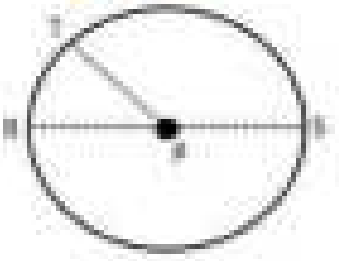


Centre = _____

Radius = _____

Diameter = _____

9)



Centre = _____

Radius = _____

Diameter = _____

Name: _____ 170

Calculating Radius and Diameter

Calculating Radius Formula

$r = \frac{d}{2}$ or $r = d \div 2$

Calculating Diameter Formula

$d = 2r$ or $d = r \times 2$

Instructions Find the radius and diameter of each circle below

1)

Radius = _____

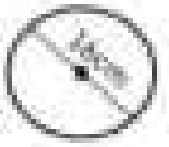
Diameter = _____

2)

Radius = _____

Diameter = _____

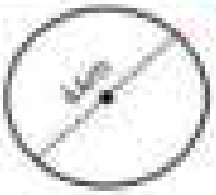
3)



Radius = _____

Diameter = _____

4)



Radius = _____

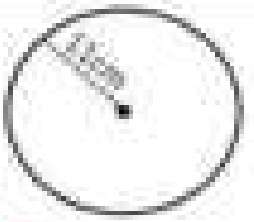
Diameter = _____

5)

Radius = _____

Diameter = _____

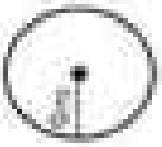
6)



Radius = _____

Diameter = _____

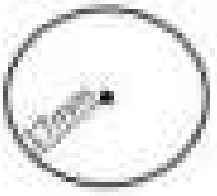
7)



Radius = _____

Diameter = _____

8)



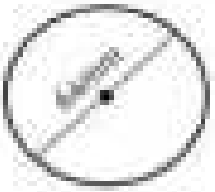
Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

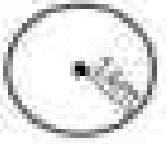
10)



Radius = _____

Diameter = _____

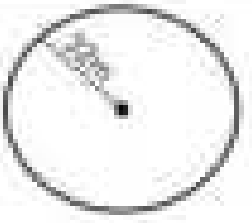
11)



Radius = _____

Diameter = _____

12)



Radius = _____

Diameter = _____

Name: _____ 171

Calculating Radius and Diameter

Part 1 Find the radius and diameter of each circle below

1) 

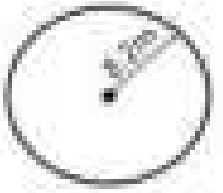
Radius = _____

Diameter = _____

2) 

Radius = _____

Diameter = _____

3) 

Radius = _____

Diameter = _____

4) 

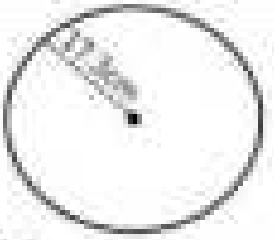
Radius = _____

Diameter = _____

5) 

Radius = _____

Diameter = _____

6) 

Radius = _____

Diameter = _____

Part 2 Fill in the blanks below

	Radius	Diameter
1)	7cm	
2)		28mm
3)		35m
4)	19cm	
5)		53mm

	Radius	Diameter
6)	5.5cm	
7)	13.5m	
8)		77cm
9)		85mm
10)	62.2cm	

Part 3 Answer the word problems below

1)	A pizza slice is 12cm long. What is the width of the entire pizza?	
2)	A circular pool is 13m long across the middle of the pool. How far is the middle of the pool from the side?	

Name: _____ 172

Radius and Diameter – Word Problems

Questions | Answer the questions below

1) Emily found a round stone in her backyard and decided to make a necklace pendant out of it. She measured the diameter of the stone as 3 cm. She needs to drill a hole in the middle of the rock. How many cm from the outside of the rock is the middle?

2) A chef prepares a pizza with a diameter of 31 cm. The chef wants to know where the middle of the pizza is so they can [illegible]. How many cm is the middle of the pizza from the outside?

3) A circular pond in a park has a radius of [illegible] meters. The park manager wants to install a decorative bridge straight across the pond that [illegible] length of the bridge?

4) A circular ice rink has a radius of 15 meters. The rink owner plans to [illegible] ary divider straight across the rink to create separate sections for beginners [illegible] anced skaters. How long should the divider be?

5) In a botanical garden, there is a circular flower bed with a diameter of 16 meters. The gardener plans to place a wooden plank halfway across the flower bed for maintenance purposes. How long should the plank be?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: ______________________

1) Find the radius and diameter of the circle.

Radius = ______________

Diameter = ______________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ______________________

1) Find the radius and diameter of the circle.

Radius = ______________

Diameter = ______________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ______________________

1) Find the radius and diameter of the circle.

Radius = ______________

Diameter = ______________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ______________________

1) Find the radius and diameter of the circle.

Radius = ______________

Diameter = ______________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

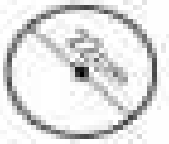
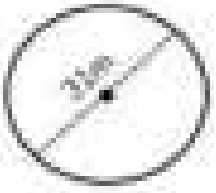
____

Name: _____ 174

Estimating Circumferences

The perimeter of a circle is called its circumference (c). The circumference is a little more than 3 times the length of the diameter. When we do not need a precise calculation of circumference, we can estimate by multiplying the diameter by 3. We may estimate the circumference of a pizza to know how large a box we need.

Part 1 Estimate the circumference of the circles below

1) Radius = _____ Diameter = _____ Circumference = _____	2)  Radius = _____ Diameter = _____ Circumference = _____	3)  Radius = _____ Diameter = _____ Circumference = _____
4)  Radius = _____ Diameter = _____ Circumference = _____	5)  Radius = _____ Diameter = _____ Circumference = _____	 Radius = _____ Diameter = _____ Circumference = _____

Part 2 Answer the word problems below

1)	Chase is drawing a circular logo. He needs the logo to be approximately 18cm in circumference. What will the radius of the logo be?	
2)	Leon is building a deck around his pool. He needs an estimate of the circumference of his pool, so he knows how much wood to buy. The radius of the pool is 3.3m. What is an estimate of the circumference?	

Name: _____ 175

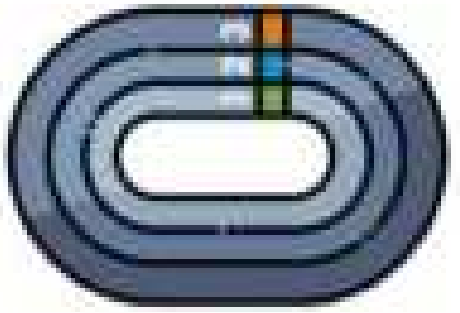
Math Race: Circumference, Radius, and Diameter

Objective — What are we learning about?

Students will practice calculating the circumference, radius, and diameter of circles by quickly answering related questions in a competitive and engaging game format.

Materials — What you will need for the activity

- List ... out circumference, radius, and
- Op... Tim... atch
- Chairs ar... ...ctivity



Instructions — How ... activity

1. Setup: Arrange chairs in a ... seated in a chair. One student stands behind a seated student to ... ga...
2. Explain the Game: Explain to the students th... y w... rticipating in a race around the circle by answering question... circ... adius, and diameter. The goal is to move around the e... their original position. Students should use mental math and ... (pi...
3. Start the Game: The teacher reads out a question (e.g., "... ...nce of a circle with a radius of 3 cm?"
4. Answering the Question: The standing student and the seated stud... front of them compete to answer the question first. The student who answers correctly first moves to stand behind the next seated student, while the other student remains seated.
5. Continue the Race: The teacher continues reading out questions, and the process repeats. The standing student continues to move around the circle, answering questions at each stop.
6. Winning the Game: The first student to make it around the entire circle and return to their original position wins the race.
7. Review: After the game, review some of the questions and answers with the class to reinforce the concepts and ensure understanding.

Name: _____ 177

Questions	Use the questions below for the game

Questions
A frisbee has a diameter of 30 cm. What is its circumference?
If a circle has a circumference of 96 cm, what is its radius?
The diameter of a circular rug is 50 cm. What is its circumference?
What is [illegible]cumference of a circle with a radius of 7 cm?
A circ[illegible] radius of 100 m. What is its circumference?
The [illegible]cle is 42 cm. What is its radius?
A round po[illegible]. What is its circumference?
What is the radi[illegible]mference of 15 cm?
The diameter of a circ[illegible] is [illegible]t is its circumference?
If a circle has a circumferen[illegible]ameter?
A circular pizza has a radius of 20 [illegible]What i[illegible]nce?
What is the diameter of a circle with a circ[illegible]nce[illegible]
The circumference of a circular field is 150 m. W[illegible]ame[illegible]
A round cake has a diameter of 40 cm. What is its circ[illegible]er[illegible]
What is the radius of a circle with a circumference of 54 cm?
The diameter of a circular fountain is 10 m. What is its circumferen[illegible]
If a circle has a circumference of 63 cm, what is its diameter?
A circular track has a diameter of 500 m. What is its circumference?
What is the diameter of a circle with a circumference of 39 cm?
The circumference of a circular playground is 306 m. What is its diameter?
A roundabout has a diameter of 38 m. What is its circumference?
What is the radius of a circle with a circumference of 48 cm?

Name: _____ 178

Calculating Circumferences

The circumference of a circle is slightly more than 3 times the length of the diameter, or a little more than 6 times the length of the radius. When we need to calculate the circumference of a circle more precisely, we use pi (π). Pi is equal to approximately 3.14, but it is an irrational number, meaning it never ends!

Calculating Circumference (Diameter)	Calculating Circumference (Radius)
$c = \pi d$ or $c = \pi \times d$	$c = 2\pi r$ or $c = 2 \times \pi \times r$

Practice Calculate the circumference of the circles below

1)

Radius = _____

Diameter = _____

Circumference = _____

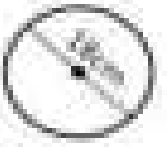
2)

Radius = _____

Diameter = _____

Circumference = _____

3)



Radius = _____

Diameter = _____

Circumference = _____

4)

Radius = _____

Diameter = _____

Circumference = _____

5)

Radius = _____

Diameter = _____

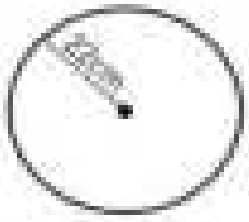
Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

7)

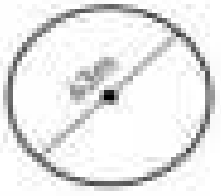


Radius = _____

Diameter = _____

Circumference = _____

8)

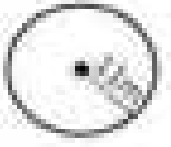


Radius = _____

Diameter = _____

Circumference = _____

9)



Radius = _____

Diameter = _____

Circumference = _____

Name: _____ 179

Calculating Circumferences

Calculating Circumference (Diameter)
$c = \pi d$ or $c = \pi \times d$

Calculating Circumference (Radius)
$c = 2\pi r$ or $c = 2 \times \pi \times r$

Part 1 Fill in the table with the missing information

	Radius	Diameter	Circumference
1)	cm		
2)			
3)		22m	
4)		46cm	
5)	18		
6)			
7)	2.5km		
8)	6.8m		
9)			
10)		48.6mm	

Part 2 Answer the word problems below

1)	Harrison is deciding which pizza to buy. He has two options. Option A: Pizza with the radius of 18cm Option B: Pizza with a circumference of 108cm Which pizza is larger? 	
2)	You need to wrap a label around a can. If the diameter of the can is 9.5cm, what length does the label need to be? 	
3)	Alexa needs to wrap a cake she made with a ribbon. The cake has a radius of 12.5cm. How long does the ribbon need to be? 	

Name: _____ 180

Circumferences Word Problems

Questions | Answer the word problems below

1) An asteroid hit the moon and created a massive round crater. Scientists measured the diameter of the crater as 31.2km. What is the circumference of the crater?

2) Ge[illegible] a fence around his circular yard. His house is in the centre of [illegible] from his house to the edge of the yard is 15.5 metres.

a) [illegible]at is [illegible] of his yard?

b) If 1 metre [illegible] how much will his fence cost him?

3) Mark can run 100m in 14 secon[illegible]s at [illegible] track and is trying to figure out how long it will take him to r[illegible]. Th[illegible] has a diameter of 16m.

a) What distance is the track?

b) Approximately how long will it take him to run aroun[illegible] four times?

4) The radius of your bicycle wheel is 40cm.

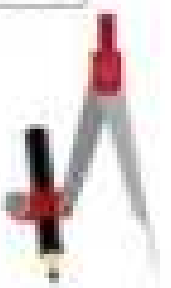
a) How far will your bike move in one turn of your wheel?

b) Neill thinks it will take around 3 rotations of the wheel to move 1m. Dane thinks it will take around 4. Who is correct?

Name: _____ 183

Drawing Circles Using Radius and Diameter

A circle is a shape that has all points in a plane that are equal distance from the centre point. Therefore, an oval is not a circle. We can draw a circle by using a tool called a compass.



Draw Use a compass and a ruler to draw the circles below

1)

Radius = 2cm

Diameter = _____

2)

Radius = _____

Diameter = 3cm

3)

Radius = _____

Diameter = 6cm

4)

Radius = 2.5cm

Diameter = _____

5)

Radius = _____

Diameter = 40mm

6)

Radius = 1cm

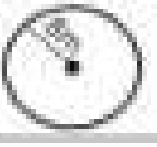
Diameter = _____

Name: _____ 186

Area of a Circle - Radius

The area of a circle is the region inside the circle. We can calculate the area of a circle by using its radius. For most calculations, we can use 3.14 for pi. The formula is pi x radius^2. We can write this as $a = \pi r^2$

Calculating Area Using Radius



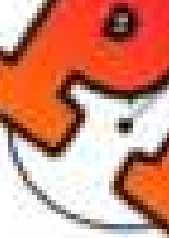
$a = \pi r^2$

$a = \pi \times 8 \times 8$

$a = 200.96\ m^2$

Practice Calculate the area of the circles using the radius

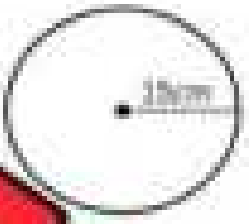
1)



Radius = _____

Area = _____

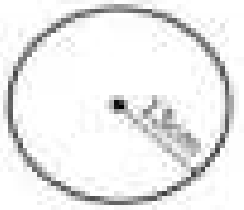
2)



Radius = _____

Area = _____

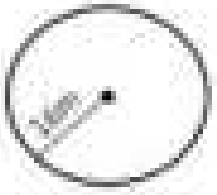
3)



Radius = _____

Area = _____

4)



Radius = _____

Area = _____

5)

Radius = _____

Area = _____

Radius = _____

Area = _____

7)

Radius = _____

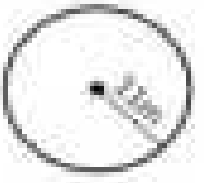
Area = _____

8)

Radius = _____

Area = _____

9)



Radius = _____

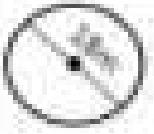
Area = _____

Name: _____ 187

Area of a Circle - Diameter

When we know the diameter of a circle, we can divide it by two to get the radius. Once we have the radius, we can use it to calculate the area of a circle using the formula: $a = \pi r^2$

Calculating Area Using Diameter



$a = \pi r^2$
diameter = 18, radius = 9
$a = \pi \times 9 \times 9$
$a = 254.34\ m^2$

Practice Calculate the area of the circles using the diameter

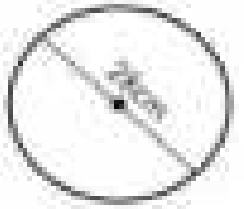
1)

Diameter = _____
Radius = _____
Area = _____

2)

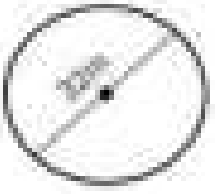
Diameter = _____
Radius = _____
Area = _____

3)



Diameter = _____
Radius = _____
Area = _____

4)



Diameter = _____
Radius = _____
Area = _____

5)

Diameter = _____
Radius = _____
Area = _____

Diameter = _____
Radius = _____
Area = _____

Word Problems Solve the problems below

	Questions	Answer
1)	A dinner plate has a diameter of 14cm. What is the area of the plate?	
2)	A circular table is 1.2 metres wide. What is the area of the table in centimetres?	

Name: _____ 188

Calculating Area of a Circle - Circumference

We can calculate the radius of a circle by using the circumference. Once we have the radius of a circle, we can figure out its area.

Calculating Radius From Circumference

$$r = \frac{c}{\pi} \div 2$$

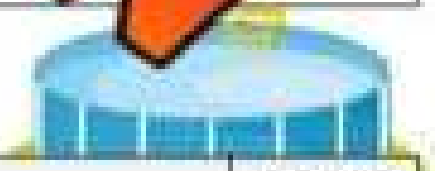
Calculating Area Using Radius

$$a = \pi r^2$$

Practice Calculate the area and radius. Round to the nearest tenth

	ce	Radius	Area
1)		1.9 mm	11.3 mm^2
2)			
3)			
4)	42 cm		
5)	36 m		
6)	58 mm		
7)	55 km		
8)	17 m		
9)	63 cm		
10)	76 mm		

Part 2 Answer the word problems below



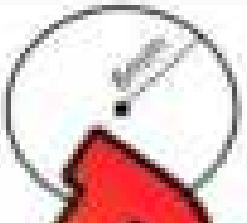
	Questions	Answer
1)	A pool has a perimeter of 15m. What is the area inside the pool?	
2)	A ribbon that wraps around a circular present is 42cm. What is the area of the present?	
3)	The city of Williamsport is building a circular track. The track is 400m long. What will the area inside the track be?	

Name: _____ 191

Circle – Mixed Review

Practice Fill in the blanks below

1)



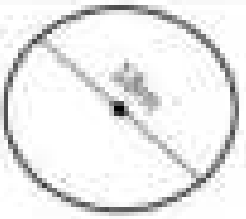
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

2)



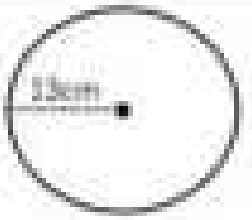
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

3)



Radius = _____

Diameter = _____

Circumference = _____

Area = _____

4)

Radius = _____

Diameter = _____

Circumference = _____

Area = _____

5)

Radius = _____

Diameter = _____

Circumference = _____

Area = _____

6)

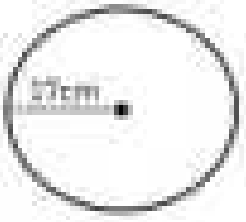
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

7)



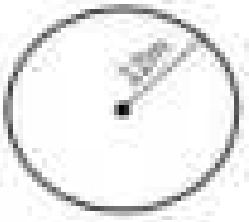
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

8)



Radius = _____

Diameter = _____

Circumference = _____

Area = _____

9)

Radius = _____

Diameter = _____

Circumference = _____

Area = _____

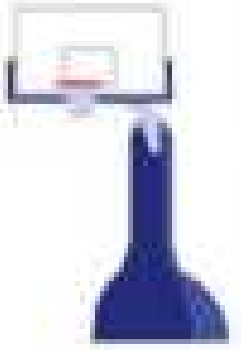
Name: _____ 197

Circle – Basketball Word Problems

Questions | Answer the word problems below

A basketball hoop has a circumference of 145cm. A standard NBA basketball has a circumference of 75cm.

a) Can 2 NBA basketballs fit through the hoop at the same time?



b) A WNBA basketball has a circumference of [illegible]cm. How many NBA basketballs fit through the hoop at the same time?

Name: _____ 199

Semi - Circle

A semi-circle is half of a circle. If we can find the area of a full-circle, we can divide it by two to find the area of a semi-circle.

Calculating Area of Semi-Circle

$a = \pi r^2 \div 2$

diameter = 10, radius = 5

$a = 3.14 \times 5 \times 5 \div 2$

$a = 78.5\ cm^2 \div 2$

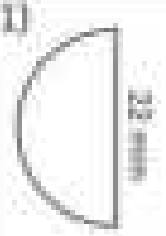
area of semi-circle = $39.25\ cm^2$

Part 1 the table below

	ameter	Radius	Area of Full Circle	Area of Semi-Circle
1)	6			
2)	4 km			
3)	24 m			
4)	10 mm			
5)	16 m			
6)	30 cm			

Part 2 Calculate the area of the semi-circles

1)

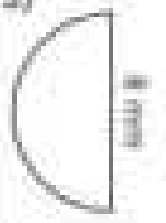


2)

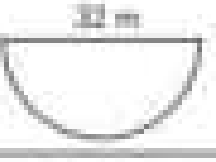
3)

4)

5)



6)



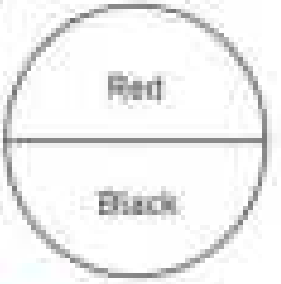
Name: _____ 200

Semi - Circle – Word Problems

Questions | Answer the word problems below

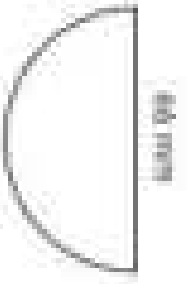
1) A semi-circle shaped rug has a diameter of 44cm. What is the area of the rug?

2) A circular spinner has 2 sections, half red and half green. The spinner has a radius of [illegible]. What is the area of the red side of the spinner?



3) A circular spinner has 6 sections. Half are [illegible]. If the diameter of the spinner is 18cm, what is the area of [illegible] sections of the spinner?

4) A semi-circle window has a diameter of 66cm. What is the area of the window?

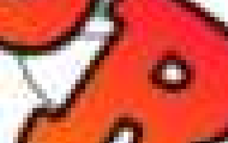


Exit Cards

Cut Out | Cut out the exit cards below and have students complete them at the end of class

Name: ______________________

1) Calcu[illegible] area of the semi-circle.



Area = ______________

2) A semi-circle playg[illegible] radius of 10 meters. What [illegible] of the playground?

____

Name: ______________________

1) Calculate the area of the semi-circle.

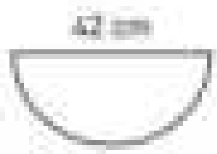
Area = ______________

[illegible] A semi-circle playground has a [illegible] of 10 meters. What is the area [illegible]ground?

____

Name: ______________________

1) Calculate the area of the semi-circle.



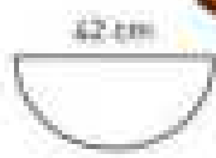
Area = ______________

2) A semi-circle playground has a radius of 10 meters. What is the area of the playground?

____

Name: ______________________

1) Calculate the [illegible] circle.



Area = ______________

2) A semi-circle playground has a radius of 10 meters. What is the area of the playground?

____

Name: _____ 202

Quiz - Circles

Part 1 Fill in the table below

	Radius	Diameter
1)	12 cm	
2)		17 mm
3)		45 m

	Radius	Diameter
4)	7.5 km	
5)	22.5 m	
6)		86 cm

Part 2 Fi... Au...

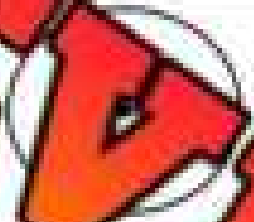
1)

Radius = _____

Diameter = _____

Circumference = _____

2)

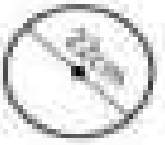


Radius = _____

Diameter = _____

Circumference = _____

3)



Radius = _____

Diameter = _____

Circumference = _____

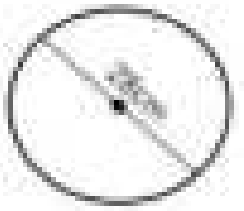
Part 3 Calculate the diameter and radius. Round to the nearest t...

	Radius	Diameter	Circumference
1)	5 mm		
2)		16 m	
3)			22 cm
4)	32 mm		
5)			55 m

Part 4 — Use a compass and a ruler to draw circles below

1)	2)
Radius = 2	Radius = _____
Diameter =	Diameter = 3cm

Part 5 — Cal[illegible] of the circles

1)	2)	3)
		
Diameter = _____	Diameter = _____	Diameter = _____
Radius = _____	Radius = _____	Radius = _____
Area = _____	Area = _____	Area = _____

Part 6 — Solve the problems below

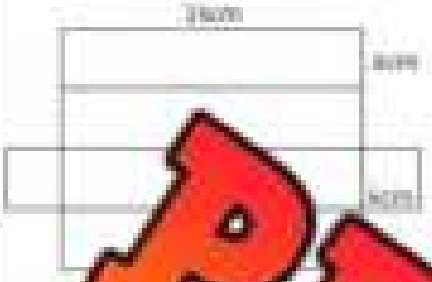
	Questions	Answer
1)	The distance around a carousel is 18m. What is its radius? 	
2)	A dog has its leash tied to a stake in a backyard. The dog's leash is 6.5 metres long. How much area can the dog play in?	
3)	The diameter of a wheel on a car is 25 centimetres. How far does the car move with one rotation of the wheel? 	

Name: _____ 204

Surface Area Using Nets – Prisms

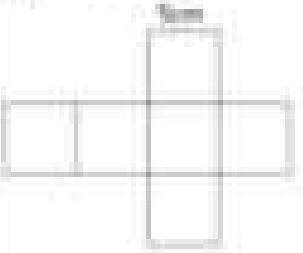
Instruction Find the surface area of the 3D objects using the nets below

1) Rectangular Prism



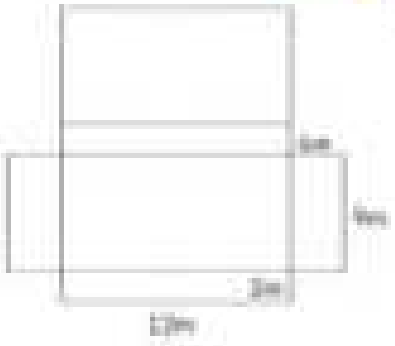
Surface Area: _____

2) Cube



Surface Area: _____

3) Rectangular Prism

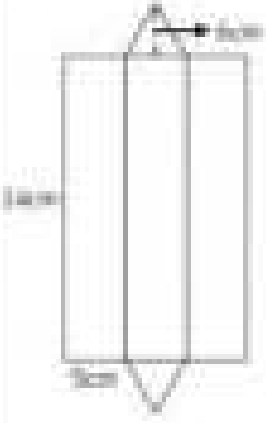


Surface Area: _____

4) Triangular Prism

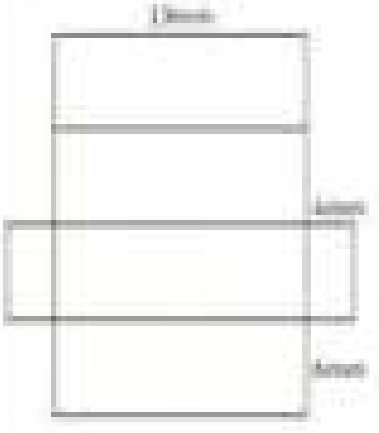
Surface Area: _____

5) Triangular Prism



Surface Area: _____

6) Rectangular Prism



Surface Area: _____

Name: _____ 206

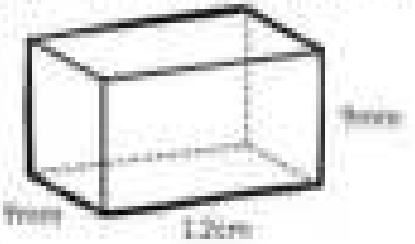
Calculating Surface Area Using Nets – Prisms

Instruction Find the surface area of the 3D objects below

1) Rectangular Prism

Surface Area: _____

2) Rectangular Prism



Surface Area: _____

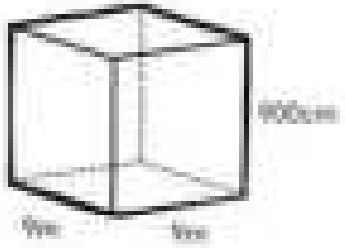
3) Triangular Prism

Surface Area: _____

4) Rectangular Prism

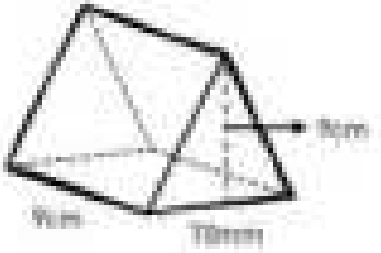
Surface Area: _____

5) Cube



Surface Area: _____

6) Triangular Prism



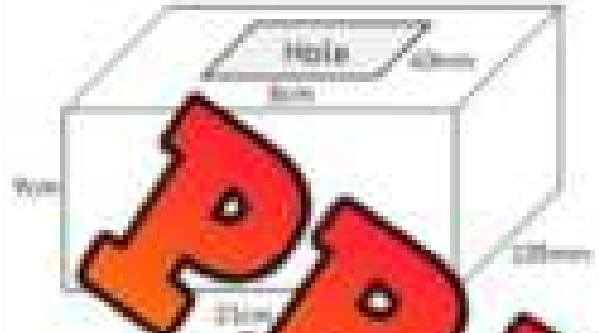
Surface Area: _____

Name: _____ 208

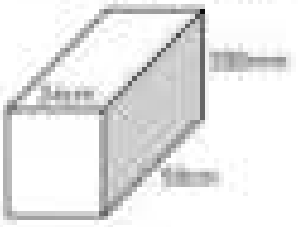
Surface Area – Prism – Word Problems

Instruction Solve the word problems below

1) Find the surface area of the tissue box below.



2) Edward is pain[illegible] needs to find the surface area so he can buy the amoun[illegible] mailbox has no door on the front. Find the surface area [illegible] diagram below.



3) Kaitlyn needs to wrap her mom's birthday present. She has enough wrapping paper to cover a surface area of 3500cm². Does she have enough paper?

Name: _____ 209

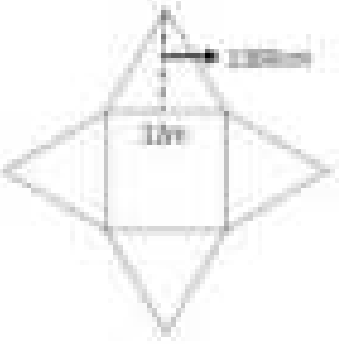
Calculating Surface Area - Pyramids

Instruction Find the surface area of the pyramids using the nets below

1) Triangular Pyramid

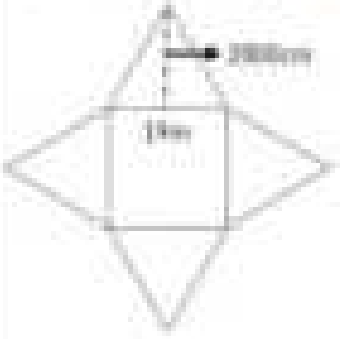
Surface Area: _____

2) Square Pyramid



Surface Area: _____

3) Square Pyramid

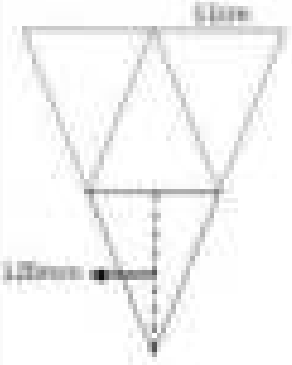


Surface Area: _____

4) Triangular Pyramid

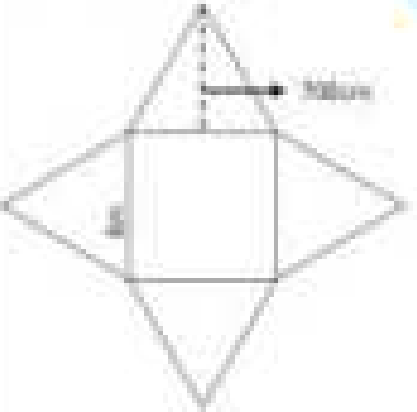
Surface Area: _____

5) Triangular Pyramid



Surface Area: _____

6) Square Pyramid



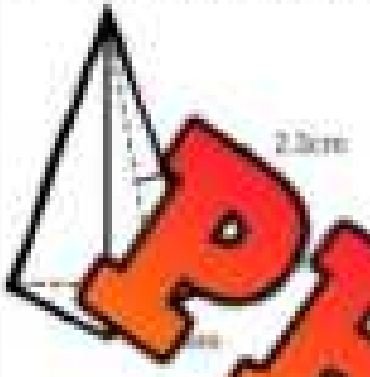
Surface Area: _____

Name: _____ 210

Calculating Surface Area - Pyramids

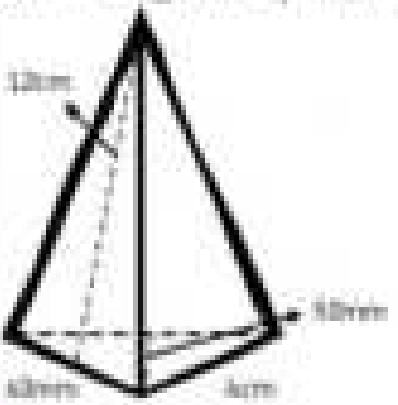
Instruction Solve the questions below

1) Triangular Pyramid



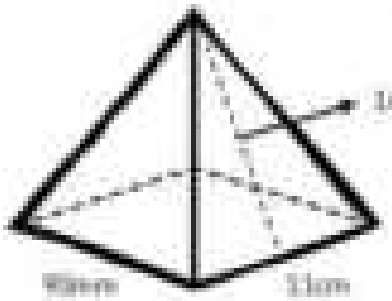
Surface Area: _____

2) Triangular Pyramid



Surface Area: _____

3) Rectangular Pyramid

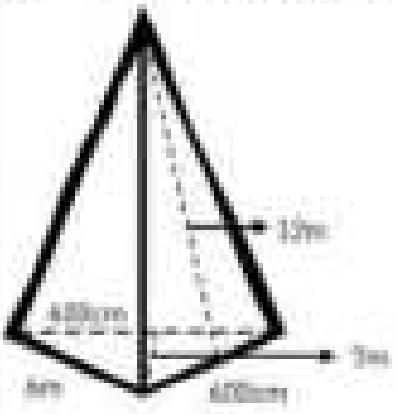


Surface Area: _____

4) Square Pyramid

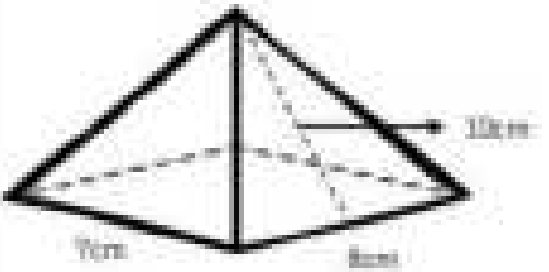
Surface Area: _____

5) Triangular Pyramid



Surface Area: _____

6) Rectangular Pyramid



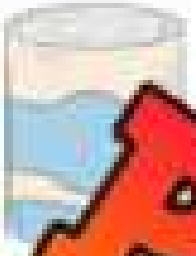
Surface Area: _____

Name: _____ 214

Surface Area - Cylinders

Instruction Solve the questions below

1) A can of soup has a diameter of 9cm and a height of 19cm. What is the surface area of the can?



2) A can of tuna has a radius of 7.5cm and a height of 12cm. What is the surface area of the can?

3) A battery is composed of 2 cylinders. The main battery cylinder has a radius of 7cm and a height of the main cylinder is 8cm. The smaller cylinder on top of the battery has a diameter of 8cm and a height of 1cm.

What is the total surface area of the battery?

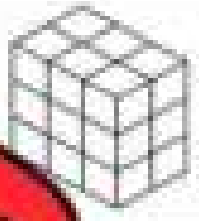
4) A barrel has a diameter of 74cm and a height of 1.62m. What is the surface area of the barrel?

Name: _____ 217

Calculating Volume Using the Base

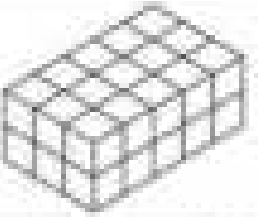
Instruction Fill in the blanks to investigate the area of the base and the height

1)



Area of Base	Height	Volume
		18

2)

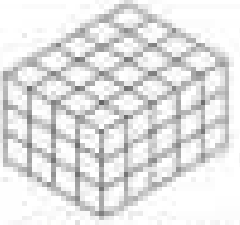


Area of Base	Height	Volume

3)

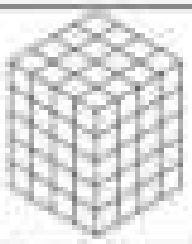
Area of Base	Height	Volume

4)



Area of Base	Height	Volume

5)

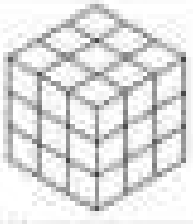


Area of Base	Height	Volume

6)

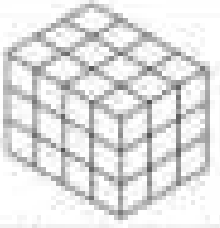
Area of Base	Height	Volume

7)



Area of Base	Height	Volume

8)



Area of Base	Height	Volume

Name: _____ 218

Calculating Volume Using the Base

Part 1 Fill in the blanks to investigate the area of the base and the height

	Area of Base	Height	Volume
1)	10 cm^2		80 cm^3
2)	13 mm^2	6 mm	
3)		5 cm	75 cm^3
4)		8 mm	96 mm^3
5)		9 m	
6)	16		144 mm^3
7)			132 km^3
8)	15 m^2		210 m^3

Part 2 Answer the questions below

1) A box of cereal has a base with a length of 12[illegible] 9cm. The height of the box is 22cm. What is the vo[illegible] of box?

2) A juice box is 9cm wide and 5cm long. The height of the juice box is 12cm. What is the volume of the juice box?

3) A railway car is 6.5m long and 2.2m wide. The railway car is 3.1m tall. What is the volume of the railway car?

Name: _____ 221

Volume - Cylinders

Part 1 Fill in the blanks to investigate the area of the base and the volume

	Radius	Area of Base	Height	Volume
1)	6 mm		12 mm	
2)	mm		18 mm	
3)			9 cm	
4)			7 km	
5)	9		7 cm	
6)	12 c		8 cm	
7)	4 m		13 m	
8)	7 m		m	

Part 2 Answer the questions below

1) The radius of a swimming pool is 3.6 metres. The depth of the pool is 1.8 metres. What is the volume of the swimming pool?

2) A can's base has an area of 32 cm^2. The volume of the can is 288cm^3. What is the height of the can?

3) A bucket has a height of 8cm. The bucket's base has an area of 20cm^2.

a) What is the volume of the bucket?

b) If 1cm^3 of volume has the capacity to hold 1mL of water, how many mL can the bucket hold?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

1) Fill in the blanks to investigate the area of the base, height, and the volume.

	Radius	Area of Base	Height	Volume
1)			10cm	
2)			15cm	
3)			20cm	392.5cm³
4)	7cm	154cm²		924cm³

2) A cylindrical water tank has a base area of 200 cm² and a height of 2 meters.

a) What is the volume of the water tank in cubic centimeters (cm³)?

b) If 1 liter of water is equal to 1,000 cm³, how many liters of water can the tank hold?

Name: _____

1) Fill in the blanks to investigate the area of the base, height, and the volume.

	Radius	Area of Base	Height	Volume
1)	6cm		10cm	
2)	4cm		15cm	
3)	2.5cm		20cm	392.5cm³
4)	7cm	154cm²		924cm³

2) A cylindrical water tank has a base area of 200 cm² and a height of 2 meters.

a) What is the volume of the water tank in cubic centimeters (cm³)?

b) If 1 liter of water is equal to 1,000 cm³, how many liters of water can the tank hold?

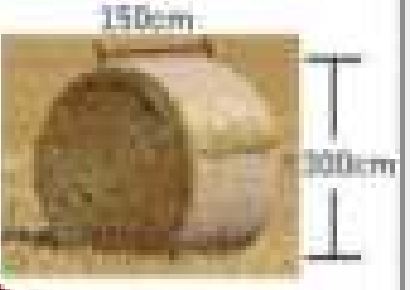
Name: _____ 224

Volume of Cylinders

Instruction Answer the questions below

1) There are two types of hay bales – one that is in the shape of a cylinder and one that is in the shape of a rectangular prism. The cylinder-shaped hay bale is 300cm tall and 150cm long. The rectangular-shaped hay bale has the following dimensions: 1.5m by 1.0m by 2.0m.

a) Wh[illegible] of hay bale contains more hay?



b) Joel thinks tha[illegible] linder-shaped hay bale out of 3 [illegible]-sha[illegible]bales. Is he right? Explain.

2) You are planning to make candles to sell. What wou[illegible] candles be?

a) Draw a picture of one of the candles and label the dimensions.

b) What is the volume of the candle?

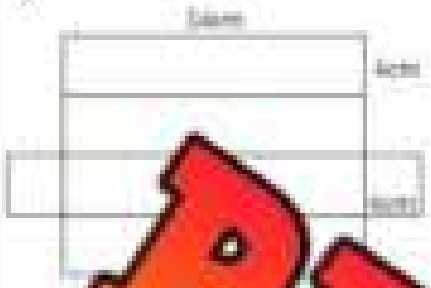
c) For every $10cm^3$, it costs you 30 cents. How much would the candle cost you in total?

Name: _____ 230

Unit Test – Surfaces Area and Volume

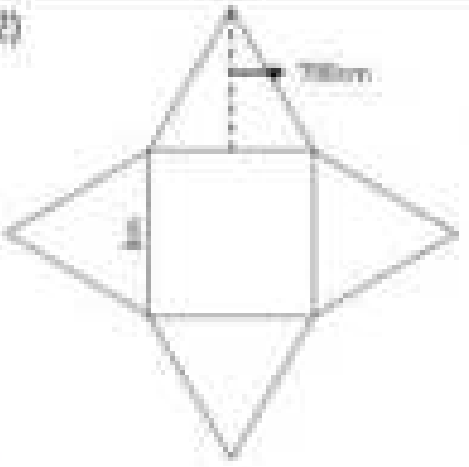
Part 1 Find the surface area of the 3D objects using the nets below

1)



Surface Area: _____

2)



Surface Area: _____

3)

Surface Area: _____

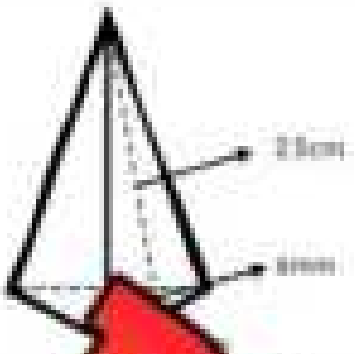
Surface Area: _____

Part 2 Solve the question below

A medicine jar has a diameter of 6 cm and a height of 12cm. What is the surface area of the jar?

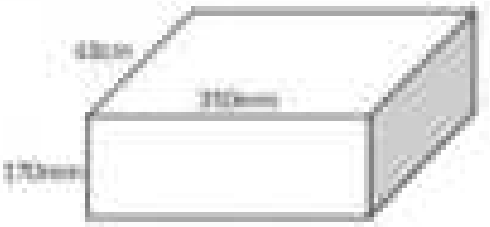
Part 3 Find the surface area of the objects below

1)



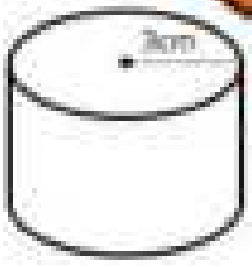
Surface Area: _____

2)



Surface Area: _____

3)



Surface Area: _____

4)

Surface Area: _____

Part 4 Solve the question below

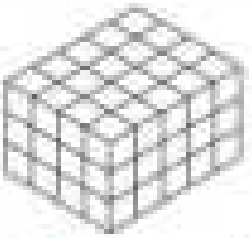
Becky takes the lid off a can of soup. The can's dimensions are labelled on the picture.

a) What is the surface area of the can without the lid?

b) What is the surface area of the lid?

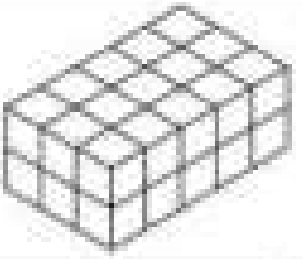
Part 5 Fill in the blanks to investigate the area of the base and the volume

1)



Area of Base	Height	Volume

2)



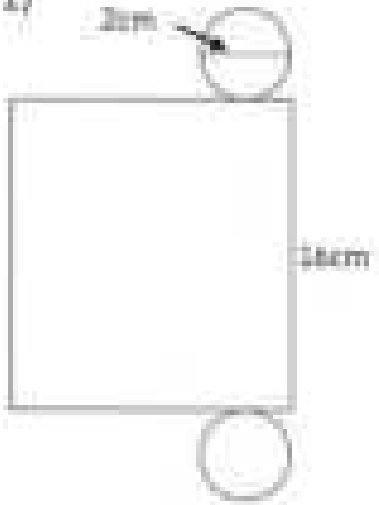
Area of Base	Height	Volume

Part ks to investigate the area of the base and the volume

		Height	Volume
1)	11		110 cm^3
2)	15 mm^2		
3)			96 cm^3
4)		11 m	132 mm^3

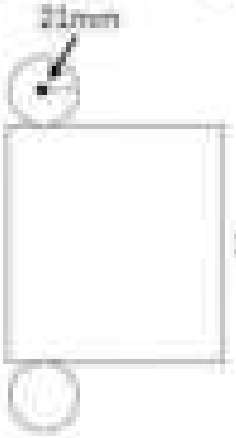
Part 7 Find the area of the base and th

1)



Area of the Base: _____ Volume: _____

2)



Area of the Base: _____ Volume: _____

Part B Answer the questions below

1) The radius of a swimming pool is 4.2 metres. The height of the pool is 1.6 metres.

a) What is the volume of the pool?

b) If $1cm^3$ of volume has the capacity to hold 1mL of water, how many mL can the pool hold?

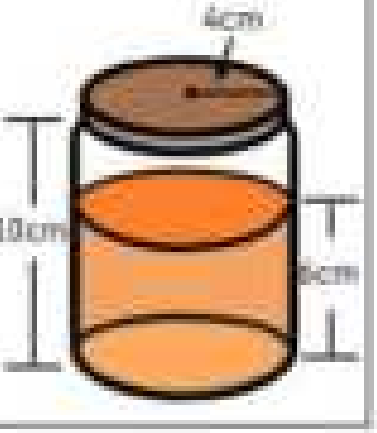
2) A [illegible]se has an area of 37 cm^2. The volume of the can is [illegible] is the height of the can?

3) A bucket has a h[illegible]cm [illegible]'s base has an area of 16cm^2. What is the [illegible]

4) A jar is missing some honey. When it was bought from the store, it was full to the top of the jar.

a) What is the volume of the jar?

b) How much honey is missing from the jar?



Workbook Preview

Grade 7
F1. Money and Finances

	Curriculum Expectations	Pages That Cover the Expectations
F1.1	identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa	5 – 20
F1.2	identify and describe various reliable sources	
F1.3		
F1.4	identify various societal and personal factors that may influence financial decision making, and describe the effects that each might have	45 – 55
F1.5	explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time	56 – 64
F1.6	compare interest rates and fees for different accounts and loans offered by various financial institutions, and determine the best option for different scenarios	65 – 91

Name: _____ 5

Exchange Rates - Intro

There are 180 different currencies that are recognized in the world. Every currency is valued differently. This means that a lot of money in one currency could be worth very little in another. For example, if you took one dollar in Canadian money to Japan, it would be worth 90 Japanese Yen.

Exchange rates keep track of how much money is worth. A rate compares two or more currencies together. Therefore, the exchange rate between a Canadian Dollar and Japanese Yen is 1 CAD to 90 JPY.

Part 1 Answer the questions below

1) Why do you need exchange rates?

2) How much do you think a candy bar would cost? Explain your answer.

Part 2 Convert money between CAD and Yen using multiplication and division

	Canadian Dollar	Japanese Yen
1)	$1	
2)	$2	
3)	$5	
4)	$10	
5)	$20	
6)	$1000	

	Japanese Yen	Canadian Dollar
1)	¥630	
2)	¥900	
3)	¥2700	
4)	¥4500	
5)	¥8100	
6)	¥90000	

Name: _____ 6

World Currency Exchange Rankings

Out of the 180 currencies worldwide, each one has their own value. This means that 1 dollar is worth a lot more and a lot less in different currencies. The list below is of the top 10 currencies worldwide.
One value of each currency can be exchanged for the money shown in CAD.
This means for every Kuwaiti Dinar, you would exchange it for $4.14 Canadian [illegible]. If you had 1 US Dollar, you would exchange it for $1.25 Canadian [illegible].

[illegible] changes all the [illegible] in [illegible] by the second [illegible] of country's [illegible] the value of their [illegible] in a country earn a lot [illegible] country will have a stronger [illegible] and therefore, a higher value.

Rank	Currency	CAD Rate
1)	Kuwaiti Dinar	$4.14
2)	Bahraini Dinar	$3.31
3)	Omani Rial	$3.24
4)	Jordanian Dinar	$1.76
5)	British Pound Sterling	$1.70
6)	Cayman Islands Dollar	$1.50
7)	European Euro	$1.44
8)	Swiss Franc	$1.34
9)	US Dollar	$1.25
10)	Canadian Dollar	$1.00

Part 1 — Answer the questions below

1) If you could have 100 of any of these currencies, which would you choose? Explain your choice.

Part 2 — Convert money from other currencies to Canadian Dollars (CAD)

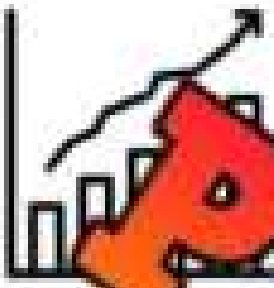
	Money	Other Currency	CAD
1)	$2	Swiss Franc	
2)	$3	US Dollar	
3)	$5	Cayman	
4)	$10	Euro	
5)	$10	Kuwaiti Dinar	

	Money	Other Currency	CAD
6)	$3	British Pound	
7)	$4	Bahraini Dinar	
8)	$10	US Dollar	
9)	$20	Omani Rial	
10)	$100	Jordanian Dinar	

Name: _____ 7

Value of a Currency - Factors

You must be wondering who or what determines the value of a country's currency. Well, there are 5 not so simple factors that will raise or lower the value of a currency.



1. Inflation Rates – An **inflation rate** is the rate in which prices increase over time. When an inflation rate is high, smaller purchases can cost a lot of money. For example, if in 10 years a candy bar costs $50, that would indicate a very high inflation rate. This would mean our money isn't worth as much as it was before. A stable and low inflation rate is indicative of a stable currency.

2. Interest Rates – When interest rates are high, a country will have a more valuable currency. High interest rates lead to banks earning more money, which allows them to pay more money in interest. When banks pay more money to investors, there are more foreign investments. Foreign investors are people and businesses who send money to a country with expectations to earn more money than they bring to our country.

3. Government Debt – When a country owes money, their currency is going to be worth less. Owing a lot of debt is not a good sign of a strong economy.

4. International Trade – The ratio of earnings from exports vs the spending on imports will impact a country's currency. If a country spends more on imports than they make on exports, their economy will not be as strong as they will earn less money.

5. Political Stability and Performance – If a country's government is unstable, people and businesses from other countries will not invest in that country. Instability could come from wars in a country or from a leader who makes irrational political decisions. When foreign investors see these problems, they spend their investment money elsewhere.

Name: ______________________________ #

Questions	Use evidence from the text to support your answers

1) Why does inflation lead to a lower valued currency?

____

____

____

____

2) How do[illegible] political stability of a country affect its currency?

____

____

____

____

True or False	Is [illegible] t[illegible]se? Circle your answer

1) A lower interest rate leads to a more [illegible] cur[illegible]	True	False
2) Countries need foreign investments to have a v[illegible] cu[illegible]	True	False
3) A high government debt is a bad sign for a cou[illegible]	True	False
4) When inflation rates are high, a currency will be more [illegible]	[illegible]	False
5) A country needs to earn money through trade to have a valu[illegible] currency	[illegible]	[illegible]alse

Making Connections	What does this reading remind you of? What did you already know?

____

____

____

____

____

Name: _____ 9

Converting Currencies

The table displays the top 5 used currencies around the world. The Canadian Dollar is number 6. If you converted one Canadian Dollar into the other currencies, you would get the money shown in the table.
For example, 1 CAD will be exchanged for $0.80 USD (80 cents).

Rank	Currency ($1 CAD To)	$
1)	US Dollar	$0.80
2)	Euro	$0.70
3)	Japanese Yen	$90.00
4)	Pound Sterling	$0.60
5)	Australian Dollar	$1.10

Part 1: Convert CAD to other currencies

	CAD	Other Currency	$
1)	$20	US Dollar	
2)	$50	Euro	
3)	$200	Japanese Yen	
4)	$500	Pound Sterling	
5)	$1000	Australian Dollar	

	CAD	Other Currency	$
6)	$1200	US Dollar	
7)	$1550	Euro	
8)	2321	Japanese Yen	
9)		Pound Sterling	
10)	505	ralian Dollar	

Part 2: Answer the questions below

1) Shelly is going on vacation to Australia. She takes $250 into ... rt it to Australian Dollars. How much should she get in Australian ...

2) Courtney spends $96 CAD on a purse. She is from the United States, so she used USD. How much did it cost her in USD?

3) Kirk bought a cup of coffee in London, England. It cost her $3.50 CAD. How much was the coffee in Pounds?

4) Dan converted $500 CAD to Euros for his upcoming trip to Paris, France. How many Euros did he get?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

a) Convert the CAD to other currencies

CAD	Other Currency	$
$1234	Japanese Yen	
$999	Euro	
$840	Australian Dollar	
$2150	Pound Sterling	

b) Zara is travelling from Canada to Japan. She converts $300 CAD to Japanese Yen. How much Yen will she receive?

Name: _____

a) Convert the CAD to other currencies

CAD	Other Currency	$
$1234	Japanese Yen	
$999	Euro	
$840	Australian Dollar	
$2150	Pound Sterling	

b) Zara is travelling from Canada to Japan. She converts $300 CAD to Japanese Yen. How much Yen will she receive?

Name: _____ 11

Exchange Rate - Canteen

Menu	$USD
Sports Drink	$2.50
Water	$1.50
Chips	$2.50
Chocol[illegible]ar	$2.00
Cand[illegible]	$3.00

The Westdale Secondary School track team is at a track and field meet in New York City, USA. Members of the team visit the canteen for snacks. All they have is Canadian currency, but they are in luck, as the canteen will accept Canadian money.

The exchange rate the canteen uses is 1.00USD to 1.25CAD.

Questi[illegible] the questions below

1) Jacob orders [illegible] dri[illegible] of chips. How much will he need to pay in Canadian Dollars?

2) Henry orders a bag of candy, chip[illegible] a wat[illegible] will he need to pay in Canadian Dollars?

3) Stephanie orders a water, chocolate bar, and a candy [illegible] How much will she pay in CAD?

4) Cindy meets a friend from the USA that she does an exchange of money with. She gives her friend $10CAD and gets $7USD in return. Did she get a fair exchange rate from her friend?

5) Kim orders one of everything on the menu. She gives the person $20CAD. How much money in CAD will she get back?

Name: _____ 12

Exchange Rate – Ice Cream Shop

Menu	$CAD
Scoops	$1.00 each
Toppings	$1.00 each
Sugar Cone	$1.50
Waffle Co	$2.50

Becky works at an ice cream shop. Since the shop is near the USA/Canada border, they often get US visitors. Becky uses the exchange rate below to serve her customers.

The exchange rate the shop uses is 1.00CAD to 0.85USD.

Questi wer the questions below

1) A custom op with 1 topping on a sugar cone. How much will the custo USD?

2) A customer orders 3 scoops with 2 affle cone. How much will the customer owe in USD?

3) A customer orders 1 scoop with 3 toppings on a s ch will the customer owe in USD?

4) A customer orders 4 scoops with 5 toppings on a waffle cone. How much will the customer owe in USD?

5) A customer orders 3 scoops with 4 toppings on a waffle cone. If they pay with $10USD, how much change will they receive in CAD?

Name: _____ 13

Comparing Money – Different Currencies

Rank	Currency	$	CAD
1)	US Dollar (USD)	1USD	$1.25
2)	Euro (EUR)	1EUR	$1.45
3)	Japanese Yen (JPY)	1JPY	$0.011
4)	Pound Sterling (GBP)	1GBP	$1.70
5)	Australian Dollar (AUD)	1AUD	$0.92

The top 5 currencies in the world are displayed in the table. Their values are presented as a rate of 1 of their currency to CAD.

Example – If we convert 1JPY, we will get $0.01 or 1 cent. We will get $0.92CAD for 1AUD.

Part 1 Use the table to compare the currency amounts.

1)	$10.00C		$	6)	$75.00CAD		$80.00AUD
2)	$20.00USD			7)	$100.00CAD		$900.00JPY
3)	$5.00CAD		$		6.00CAD		$95.70EUR
4)	$19.00GBP		$20.00C	9)			$225.00CAD
5)	$40.00CAD		$30.00EUR		$69		$408.00CAD

Part 2 Answer the questions below

1) You have been given 5 donations from around the world. Rank the donations from greatest to least.

$425AUD, $583USD, $382GBP, $47000JPY, $408EUR

1)	2)	3)	4)	5)

2) Mark has been offered 5 different jobs from 5 different countries. The hourly wage for each job is listed below. Rank them from the lowest wage to the highest wage.

$2970JPY, $35.95AUD, $17GBP, $28.84USD, $26.33EUR

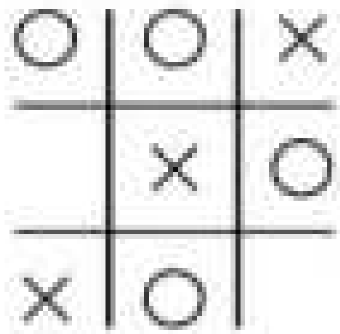
1)	2)	3)	4)	5)

Name: ______________________ 14

Tic-Tac-Toe: Currency Game

Objective What are we learning about?

To practise comparing amounts in different world currencies using <, >, or =



Materials ... you will need for the activity

- Whiteboa... ...ape...
- Markers or ... ...se m...
- Math Tic-Tac-To... ... drawn on the whiteboard or printed on paper)

Instructions How you will comp... ...activ...

1. Find a partner to play the game with.
2. The goal is to correctly compare the currency a... ...no... ...e and place your marker (X or O) if your answer is right.
3. One player will be "X" and the other will be "O".
4. Take turns choosing a square and solving the problem in that square.
5. After solving the problem, place your marker (X or O) in the square.
6. If the answer is wrong, you lose your turn and your partner gets a chance to solve it and claim the square.
7. The first player to get three markers in a row (horizontally, vertically, and diagonally) wins the game. Continue playing with different tic-tac-toe grids on the sheet.

Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

$1.70GBP — $1.25USD	$100.00USD — $125.00CAD	$78.00CAD — $105.50EUR
$0.92AUD — $0.011JPY	$92.00AUD — $90.00CAD	$42.00USD — $45.00CAD
$40.00CAD — $40.00CAD	$120.00CAD — $120.00CAD	$33.00EUR — $50.00AUD

$95.00EUR — $125	EUR — 70GBP	$125.00USD — $150.00CAD
$	0.011JPY — $0.92AUD	$300.00GBP — $510.00CAD
$ 00CAD	$500.00AUD — $460.00CAD	$100.00CAD — $100.00USD

$75.00CAD — $60.00USD	$28.00USD — $35.00EUR	$5 —
$105.00EUR — $100.00CAD	$2.00GBP — $3.00U CAD	$5 —
$30.00AUD — $30.00AUD	$1.00CAD — $1.00CAD	00AUD — $80.00CAD

$40.00EUR — $70.00CAD	$45.00USD — $50.00CAD	$583.00USD — $583.00CAD
$50.00JPY — $10.00CAD	$100.00AUD — $100.00CAD	$408.00EUR — $408.00CAD
$80.00AUD — $70.00CAD	$300.00CAD — $200.00EUR	$692.00GBP — $408.00CAD

Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

$10.00USD — $10.00USD	$60.00CAD — $45.00USD	$88.00USD — $90.00CAD
$50.00CAD — $50.00CAD	$70.00EUR — $110.00CAD	$35.00GBP — $55.00CAD
$40.00AUD — $30.00CAD	$75.00AUD — $60.00CAD	$100.00JPY — $1.00CAD

$0.92AUD — $1.[illegible]	[illegible]GBP — [illegible].00CAD	$250.00AUD — $200.00CAD
[illegible] — [illegible]	[illegible]20.00CAD — $18.00USD	$55.00EUR — $80.00CAD
[illegible] — [illegible].00USD	$33.00EUR — $33.00EUR	$75.00USD — $90.00CAD

$78.00CAD — $78.00CAD	$1.45EUR — $1.25USD	$69[illegible] — [illegible]
$150.00GBP — $255.00CAD	$0.92AUD — $0.92A[illegible]	$20.0[illegible] — [illegible]AUD
$40.00AUD — $45.00CAD	$0.011JPY — $0.011JPY	[illegible].00CAD — $100.00EUR

$408.00CAD — $692.00GBP	$105.00EUR — $145.00CAD	$300.00AUD — $276.00CAD
$30.00AUD — $40.00CAD	$50.00JPY — $0.50CAD	$33.00EUR — $50.00AUD
$35.00USD — $50.00CAD	$225.00CAD — $281.55USD	$233.55USD — $125.00CAD

Name: _____ 18

Currency Profiles

Part 1 Choose 3 currencies that you are interested in to compare

1) What are the names of the 3 currencies you chose? Name the country the currency is used in.		

2) Wh[illegible] rates - Ex. CAD to USD = 0.80 and USD to CAD = 1.25	
Curr[illegible] to CAD	CAD to Currency # 1:
Currency # 2:	CAD to Currency # 2:
Currency # 3: [illegible]	o Currency # 3:

Part 2 Convert the CAD to the currency [illegible] ch

	CAD	Currency # 1:	Currency [illegible]	[illegible] # 3:
1)	$10			
2)	$75.50			
3)	$300			
4)	$625.25			
5)	$1225.75			

Part 3 List the currency denominations of each of the currencies

Currency	Denominations
# 1:	
# 2:	
# 3:	

Name: _____ 19

Country Profiles – Currency and Costs

Part 1 Choose 1 country/currency to research and learn more about

1) Which country and currency did you choose?	

2) What is the exchange rates for the following

	to CAD	CAD to your currency

Part 2 Convert CAD to the currency you chose and vice versa

	CAD	Other Currency
1)	$10	
2)	$50	
3)	$250	
4)	$575	
5)	$1225	

	Other Currency	CAD
1)	$20	
2)		
3)		
4)		
5)		

Part 3 What currency denominations do they have? Draw a coin and a bill

List the currency denominations available (ex. CAD – Toonie, loonie, $5, $10, etc.)

Drawing of 1 Coin	Drawing of 1 Bill

Part 4 What do things cost in the country you chose?

	Item	Cost
1)	Chocolate Bar	
2)	Bread	
3)	Butter	
4)	Milk	
5)	Co[illegible]st Food	

	Item	Cost
6)	Cup of Coffee	
7)	1 Month Cell Phone Bill	
8)	Eggs	
9)	Car	
10)	Average Rent	

Part [illegible] [illegible] Minimum Wages in the country you chose

1) What is th[illegible] ann[illegible]	2) What is the minimum wage?

Part 6 What factors are affecting t[illegible]e of [illegible]?
Ex. interest rates, economy, political [illegible]y, e[illegible]ent rates

Name: ______________________ 21

Reliable Sources of Information

With so much information available to us, it is difficult to know which sources of information we can trust. Here are some reliable sources of financial information.

1. Financial Institutions – We can trust banks for financial advice. Banks have rules and regulations they must follow because they are monitored by the Financial Consumer Agency of Canada (FCAC). The FCAC makes sure banks [illegible] financial education and act in the best interest of us – the cons[illegible]e read something from a bank's website or social media, we can tru[illegible]

2. B[illegible]s Sec[illegible]wspapers – Many newspapers across Canada have a financial [illegible]ancial advice and news from around the world. These ne[illegible]rovi[illegible]d information for their audience to learn [illegible]papers with a Business section are the Nati[illegible]e [illegible] Mail, Toronto Star, Vancouver Sun, and the [illegible] Jo[illegible]papers are trustworthy because they need to [illegible] v[illegible]n before they publish anything.

3. Parents or Other Trusted Adults [illegible]an le[illegible]m the people around us. It is helpful to ask questions and learn fr[illegible]ren[illegible] what has worked for them in achieving their financial goa[illegible] str[illegible]ork well for one individual, but not another. Therefore, we n[illegible]d get multiple perspectives before we go all-in on o[illegible] or [illegible]e should not trust adults we do not know because they may hav[illegible]ning they may suggest you do something for them to benefit fin[illegible]

4. Certified Financial Planning Professionals – A Certified Financia[illegible]er (CFP) is someone who has completed a university or college degree a[illegible]as completed coursework as well as passed a CFP exam. These professionals have studied finances in depth, which make them a trustworthy source of financial information.

5. Books and Magazines on Personal Finance – Books and magazines are great places to learn about financial literacy. The Wealthy Barber is a book that has changed the lives of many people and families. In the book, the author outlines how small amounts of savings put away weekly or monthly will grow into retirement funds that could be worth millions of dollars.

Name: _____ 22

Reliable Sources of Information

Questions Use evidence from the text to support your answers

1) Why is it important to find reliable sources of financial information?

2) Rank the sources of information in order from your favourite to least favourite. Explain your favourite and least favourite.

True or False Is the statement true or false? Explain your answer.

1) All financial information we read is accurate and trustworthy	True	False
2) A CFP needs to have a certain level of education	True	False
3) Magazines and books are great ways to learn more about finances	True	False
4) We should listen to all adults about financial information	True	False
5) It is better to listen to just one source of financial information	True	False

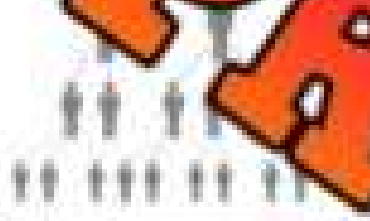
Making Connections Which source of information do you trust the most? Explain.

Name: _____ 23

Unreliable Sources of Information

Unreliable Sources of Information
When reading information, we need to understand the perspective of the person who wrote the information. If they will benefit from us following their advice, we should be wary that they are biased.

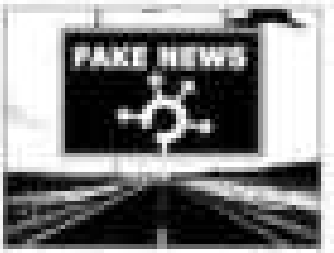
Pyramid Schemes
Pyramid schemes are illegal business models that pay members for recruiting more members. People towards the top of the pyramid earn more money based on how many members they have recruited below them. They will anything to get you to sign up to their business because they you in order to make money. They could use tactics like you their new car they paid for with earnings from the understand that these types of businesses are profitable for very few people towards the top



Selling Courses and Memb
Many successful business peo advice in the form of courses or memberships. They commonly show th an expensive house or car, but we have no idea if they own those Many ces are excellent sources of financial information, but many are sh into buying information from people we do not know or t

To get a better understanding of whether to should follow their content for awhile to learn more about th information they are selling might be available for free. D advertisements, when in doubt, wait to purchase after learning m

Financial Misinformation
Misinformation is "fake news" that exists across social media. Everyone an opinion and can now share that opinion easily to a large audience. The problem is that we should only trust financial experts, like CFP's or trusted adults. A trusted adult could be someone you trust online that has a large following who puts out a lot of free information. These people gain by having a large following, which incentivizes them to put out quality information.



On the other hand, if we see an advertisement or post online from a new account, we shouldn't trust it right away. Even if the account has a large following, we should read their content for awhile to learn more about their background and knowledge level. This helps us understand their perspective. If they are just trying to sell us something all the time, they may not be trustworthy.

Name: _____ 24

Questions

Use evidence from the text to support your answers

1) What are some examples of unreliable sources of financial information?

2) Should we trust advertisements that tell us we will be rich if we follow their advice? Why or why not?

Trustworthy?

Is the ... trustworthy – yes or no?

1) A bank advertisement ... interest rate	Yes	No
2) An advertisement that guarantees ... next year following their real estate program	Yes	No
3) A person you trust online is selling a ...	Yes	No
4) A government advertisement shares a free ... debt	Yes	No
5) A business wants you to help sell their herbal tea. If you ... people to sell the tea, you will earn more money		No

Making Connections

Explain 1 or more sources of financial misinformation you have seen

Interpreting Financial Advertisements

Is this ad trustworthy? Explain why or why not.

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Is this ad trustworthy? Explain why or why not.

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Study shows
save 5% of their
retire 10 years
In a study performed by Ottawa University, 5000 people were asked about their savings. The study concluded that on average, people who save 5% of their money each year will retire on average, 10 years earlier.
If you need help learning how to budget and save more of your money, call our bank toll free at 1-800-888-8888. We offer free consultations.

Name: _____ 26

Financial Goals

Financial goals can be long-term or short-term plans to change spending and/or earning habits. Check out the examples of different spending goals below.

Short-Term Spending Goals	Long-Term Spending Goals
- Spend less this week to save for pizza on Friday - Don't buy [illegible] this month to save for [illegible] game	- Stop buying pop at vending machines to save for college - Cancel video game subscription to save for hockey registration next year

Part 1 — [illegible]m Spending Goals

How much money [illegible] your spending habits in these examples.	
1) Stop buying a $2.25 po[illegible] from [illegible] machines for 2 week	
2) Stop buying $7.50 dollar vi[illegible]dy [illegible] for 1 month (4 weeks)	
3) Stop spending $12.50 a week on take-[illegible]s fo[illegible]hs (9 weeks)	
4) Stop buying a $1.75 chocolate bar each [illegible] for a [illegible]30	
5) Stop buying a $2.50 bag of candy each day for [illegible]ks.	
What would you do with these savings in the short term? What types of things could you use these savings for?	

Part 2 — Long-Term Spending Goals

How much money would you save by changing your spending habits in these examples.	
1) Stop paying for a video game subscription for 5 years that costs $179 each year	
2) Stop buying a $2.25 pop each day for a year (non-leap year)	
3) Stop buying a $7.50 lunch twice a week for one year	
4) Stop buying video game add-ons for 5 years that cost $50 a month	
5) Stop paying for a $2.75 bag of candy each day for 10 years.	
What would you do with these savings in the long term? What types of things could you use these savings for?	

Name: _____ 27

Financial Goals

When we want to have more money, we should create financial goals. We can create spending goals or earning goals. **Earning goals** are plans we make to earn more income.

Short-Term Earning Goals	Long-Term Earning Goals
- Cut my neighbours grass to earn $500 this summer - Finish ch… earn $10 this week - Sell hom… monade to earn $25	- Learn how to design websites so I can earn $10,000 for college - Learn how to make animated videos to upload to YouTube to make enough money to retire

Part 1 …rm Earnings

How much money… you e… these new earning habits?	
1) Selling 5 homemade … at $1… for 20 days.	
2) Selling 10 cups of lemonade …	
3) Cutting the grass for your neighbour for … $25 each time	
4) Performing yard work for 4 hours a day for 1 m… day … an hour	
5) Selling 12 homemade cookies a day at $1.25 ea…	
What would you do with the extra money in the short term?	

Part 2 Long-Term Earnings

How much money would you earn by starting these new earning habits?	
1) Post 100 videos on YouTube where each video earns you $2.50 a day. How much would you earn a year?	
2) Create 25 websites a year for 5 years where you charge a fee of $250 a website	
3) Sell 138 bags of homemade kettle chips a month for $8 a bag for 5 years.	
4) Cut your neighbours grass for the next 5 years, 20 times a summer for $25 each time	
What would you do with the extra money in the long term?	

Name: _____ 29

My Financial Spending Goals

So you want to have more money? The best way to achieve this goal is to make a plan. Fill in the action plan below to identify your spending goals in the short and long term.

Part 1 Short-Term Spending Goals – What can you change today?

1) What is your short-term financial goal? (Example: saving for new shoes, video game, etc.) How much do you want to save?

2) What can you stop spending money on to help you achieve your short-term financial goal?

3) Describe the details of you achieving your financial goal. (Example: I am trying to save $70 for a video game. I will stop [illegible] each day. It will take me 35 days to achieve my goal)

Part 2 Long-Term Spending Goals – What can you change [illegible] future?

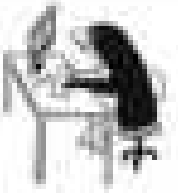
1) What is your long-term financial goal? (Example: saving for college, [illegible]) How much do you want to save?

2) What can you stop spending money on to help you achieve your long-term financial goal?

3) Describe the details of you achieving your financial goal?

Name: _____ 30

My Financial Earning Goals



The best way to have more money is to earn more money. Fill in the activity below to make a plan to earn more income.

Part 1 Short-Term Earning Goals – What can you do today to earn more?

1) What is your short-term earning goal? (*Example: earn $100 for new shoes*)

2) W[illegible] do to earn money? List at least 3 things.

3) Describe the details of [illegible] financial goal? What exactly will you do to make money and how mu[illegible] per item sold?

Part 2 Long-Term Spending Goals – What can [illegible] e future?

1) What is your long-term earning goal? (*Example: saving for $[illegible]*)

2) What long term ideas can you do to earn money in the future? (*Example – get a job with a family member or taking lessons online on how to design a phone app*)

3) Describe the details of you achieving your financial goal?

Name: _____ 31

Assignment – Reaching a Financial Goal

Assignment | Follow the directions below

Financial Goal – Scenario
Your class wants to contribute $500 to buy a new basketball net. How could your class fundraise to reach this financial goal?

Directions
1) Rese[illegible]line fundraising ideas
2) Cho[illegible]ble source and fill in the action plan below

Actio[illegible] | the table below

1) What is the [illegible] website that you found your [illegible]?	
2) How does the website [illegible] money?	
3) Is the website trustworthy? Explain why or why not.	
4) What is the idea you chose? How will the class earn $500?	
5) Explain the specifics of the fundraiser • How much will you need to spend on the fundraiser? • How much will you earn a day? • How many people will you need to collect money from? • How much $ will you need from each person? • Etc.	

Name: _____ 32

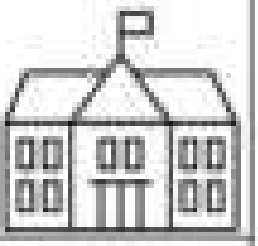
Reaching Financial Goals

Questions Read the profiles below and calculate if they met their financial goals

1) Ellie is trying to save $9,000 for college next year. She has 12 months to achieve her goal. Here are the details of her year long journey to achieve her financial goal.

- She earns $1200 a month
- She is on a budget, spending $35 a week
- Her car breaks down, and she needs to spend $2500 to fix it

Did she reach her financial goal of $9,000?



2) Kevin has a financial goal of saving $600 for a new gaming system. He wants to buy it on Black Friday when it is on sale for $600. Black Friday is in 25 weeks. The details of his plan are detailed below:

- He cuts two of his neighbours lawns for $40 each week.
- He buys lunch out twice a week for $
- After 10 weeks, Kevin decides to go to a concert with friends. The ticket cost $50.

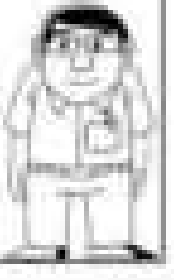
a) Did he reach his financial goal of $600 in the 20 weeks?

b) If Kevin charged $45 a week to cut his neighbours grass, would he reach his goal?

3) Ryan wants to retire in 10 years. He has calculated that he needs $ to retire. His journey of retiring is detailed below:

- He earns $44,000 a year with his current job.
- His family is on a budget where they spend $1,300 a month
- He decides to get a second job, doing his passion of selling artwork. He earns $12,000 a year extra
- Ryan has an unexpected health issue, causing him to pay an extra $500 a month

Did he reach his financial goal?



Name: _____ 33

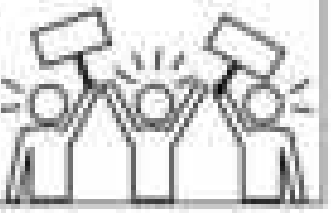
Negative Factors Affecting Financial Goals

Financial Goals
Having financial goals is important because it helps us understand why we are saving money and why we are working to earn money. Having a financial goal of saving for college will require someone to control their spending habits and consider their earning methods.

Factors Affecting Reaching Our Financial Goals
Throughout the journey of achieving our financial goals, it is likely we will face challenges that will make it more difficult. Consider the following factors:

- Changes in income due to losing job or having inconsistent earnings. In 2020, the Covid 19 [illegible] many businesses negatively and impacted many people's financial goals. In 2020, unemployment in Canada went from 7.9% to 13.1%. This means that [illegible] lost their jobs. It is estimated that 3 million jobs were lost due to [illegible].
- Changes in expenses [illegible] different situations, like property taxes increasing, interest rates [illegible] member to the family. These changes can make it harder to [illegible] as you will be spending more money.
- Changes in priorities can affect your [illegible] financial goals. You may want to buy a Lamborghini now, but as you [illegible], your [illegible] may change, and you might rather have a nice [illegible] or money saved in the bank.

- Changes in health will affect a person's financial [illegible] might not be able to work any longer, which will cause them to [illegible] income. They will have to adjust their financial goals. Dealing with health [illegible] increase in expenses, as some medications and medical equipm[illegible]
- Changes in personal and family situations affect how much money a household will have. When partners get divorced, this causes a change in how much income the family generates. Financial goals will need to be altered in this situation. Also, an addition of a baby will often create a need for changing financial goals. Grandparents moving in with their children will also affect the family's income and expenses.
- Changes in social factors like social inequalities will affect people's ability to earn an income. According to the Canadian Labour Congress, women still make on average 32 percent less than men. For Indigenous women, the gap is even higher, at 45 percent less than men. Even worse, immigrant women and women with a disability have a 55 percent and 56 percent wage gap. These numbers have improved over time, but until women are paid equally, these changes will affect a woman's financial goals.



Name: _____ 34

Negative Factors Affecting Financial Goals - Response

Questions | Use evidence from the text to support your answers

1) How can changes in income affect a person's ability to achieve their financial goals?

2) How d[illegible] pandemic affect people's ability to achieve their financial goals?

3) Do you think your [illegible]en you're older? What do you want now that you might not want later? [illegible]ght be interested in when your older?

Reflect | What are your thoughts [illegible]

1) What is the gender wage gap? How will the wage gap affe[illegible]e their financial goals? Is it fair?

2) Do you think only women face a wage gap? Which other groups might experience a wage gap?

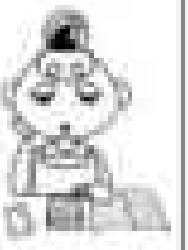
Name: _____ 35

Positive Factors Affecting Financial Goals

Factors Affecting Reaching Our Financial Goals

As our lives change, our financial goals can become easier or harder to reach. In many instances, events in our lives can change our income, saving, and spending situations. Check out the examples below.

- Changes in income can occur in many different situations. First, you could receive a promotion at work that increases your income. Second, your investments could go up, causing you to earn more income. You could inherit money or win money as a prize. There are many other scenarios, including getting a second job.



- Changes in expenses can affect your ability to reach your financial goals. You could create a budget system where you only spend a certain amount on food, entertainment, and clothing each month. Your expenses could go down by paying off a student loan or selling a car that you have payments on.

- Changes in priorities will definitely impact your financial goals. If you prioritize saving as opposed to spending, you will likely reach your financial goals sooner. If you prioritize spending money on investments instead of material possessions, you could set yourself up to reach your financial goals sooner.

- Changes in personal and family situations can have a positive impact on your financial goals. Adding a contributing member to a family will increase the income the family brings in. If a single person meets a partner, the household income could double if both partners are employed.

- Changes in social factors, like the gender wage gap could be a positive factor in people reaching their financial goals. From 1998-2018, women's wages went up 20.5%, from an average hourly wage of $22.34 to $26.92. In the same time frame, men's hourly wage went up only 12.9%, from $27.51 to $31.05. The gap is closing as more and more people support equality in the work force. As time moves forward, the gap will hopefully continue to close, meaning women can achieve their financial goals faster.

Name: _____ 36

Questions	Give an example of how each factor could improve your ability to reach your financial goals

Changes in...	Example – "I could get a promotion that increases my income"
Income	
Expertise	
Pri	
Family Situation	
Social Injustices	

Reflect What are your thoughts on this activity?

1) Give an example of someone you know or have heard of whose financial situation change? For example, a professional hockey player who in school, but earns millions of dollars in the NHL.

2) How can you change your priorities to improve your ability to reach your financial goals?

3) How can sticking to a budget improve your chances of reaching your financial goals?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Mark
/5

Fill in the blank space.

1) Adding a working partner to a household can increase total _____

2) Creating a budget to control spending is a change in _____

3) Choosing to save money instead of spending shows a change in _____

4) Getting a second job is an example of a change in _____

5) The wage gap shrinking shows a change in _____ factors.

Name: _____

Mark
/5

Fill in the blank space.

1) Adding a working partner to a household can increase total _____

2) Creating a budget to control spending is a change in _____

3) Choosing to save money instead of spending shows a change in _____

4) Getting a second job is an example of a change in _____

5) The wage gap shrinking shows a change in _____ factors.

Name: _____ 38

Gross vs Net Income

What is Gross Income?

Gross income is all the money you earn. For most people, their income comes from their work, but there could be other sources of income, such as lottery winnings, interest earnings, and the selling of assets and investments.

What is Net Income?

Net income is how much income is left after paying for non-negotiable expenses. For adults, taxes and retirement contributions are the most common costs.

Income Ta

Everyone [illegible] income tax. **Income tax** is a percentage of income that is paid to the g[illegible] come you earn, the more income tax you will pay.

An Ex

For example, [illegible] ns $54,000 in gross income yearly. Earning this much means you will [illegible] in i[illegible] This means the average Canadian takes home $41,887 in net inc[illegible] income of $100,000 will pay $27,084 in tax for a net income of $72,916.

Questions	Answer [illegible]ue

1)	Alex earned $38,413 from his emplo[illegible] He also [illegible] the lottery. He paid $9340 in taxes. What is his net inco[illegible]	
2)	Robert earned $79,575 from his job. He sold a [illegible] an additional $95,358. He paid $53,538 in taxes. W[illegible]	
3)	Suzanne earned $145,094 from her salary and from sel[illegible] She decided to contribute $45,095 towards her retirement s[illegible] income under 100,000. She paid $27,084. What is her net income	
4)	Claire has her own business that earned $278,500 last year. She paid [illegible] in business expenses and paid the rest of the money to herself. In the end, she paid $51,320 in taxes. What is her net income?	
5)	Zack earned $134,048 from his job and from selling 500 shares of a stock he owned. He contributed $25,000 to his retirement. His net income is $81,304. How much income tax did he pay?	
6)	Willow earned $51,530 from her job, $34,520 from her side business and she sold stocks she owned for $41,430. She paid $42,405 in taxes. How much gross income did she earn?	
7)	John is a professional athlete who earned $6,450,000 last year. He also earned $650,000 for endorsements he did. His paid $3,712,084 in taxes last year. How much net income did he earn?	

Name: _____ 39

Income Tax – Gross/Net Income

Income Tax
You will pay more income tax when you earn more gross income. The table shows how much income tax on average is paid for each income tax bracket.

Although this is not exactly how accountants determine how much income tax you pay, it gives a good idea of how income tax works. In actuality, if you earn $70,0[illegible] will pay 7.5% on $20,000, 15% on $20,000, [illegible], and 24% on $10,000.

To ge[illegible] use the average tax rates [illegible], if you earned $83,540, you would pay [illegible] in income tax. This would [illegible] net income of $61,819.60.

Gross Income Bracket	Avg. Tax Rate
$0 – $20,000	7.5%
$20,000 – $40,000	15%
$40,000 – $60,000	21%
$60,000 – $80,000	24%
$80,000 – $100,000	26%
$100,000 – $150,000	28%
$150,000 – $250,000	31%
$250,000 – $500,000	39%
$500,000+	50%

Questions Deter[illegible] tax would be paid and the net income

	Gross Income		Net Income
1)	$95,542	[illegible]	$70,701.08
2)	$42,826		
3)	$91,542		
4)	$105,635		
5)	$474,268		
6)	$3,547,852		

Word Problem Answer the question below

Peter owns a company that made high earnings last year. He ended up earning $273,049 but doesn't want to pay too much tax. He is debating contributing some money to his retirement so that he can bump down to the next lowest tax bracket.

a) How much will he need to contribute to his retirement to bump down?	
b) How much tax would he pay if he does contribute?	
c) How much will he pay if he doesn't?	
d) How much will he save on his taxes?	

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Mark

a) Determine how much income tax would be paid and the net income:

	Gross Income	Income Tax	Net Income
1)	$62,500		
2)			
3)			

b) Nina is a so... who made $86,000 this year. She wants to reduce her tax bill and is thinking ... if she donates enough to move to a lower income bracket, she could ... how much tax she pays.

i) How much tax would ... pay without ...

ii) How much tax would she pay after do...

Name: _____

Mark

a) Determine how much income tax would be paid and ...

	Gross Income	Income Tax	
1)	$62,500		
2)	$198,000		
3)	$1,340,800		

b) Nina is a software engineer who made $86,000 this year. She wants to reduce her tax bill and is thinking about donating to charity. If she donates enough to move to a lower income bracket, she could reduce how much tax she pays.

i) How much tax would she pay without donating?

ii) How much tax would she pay after donating?

Name: _____ 41

Budgets – Financial Plans

A **budget** is a plan that lists the money you earn and the money you spend over a particular length of time. Budgets help people plan how their money is used so they can avoid wasting money on things they don't need.

Part 1 Calculate your earnings

If your job pays you $20 per hour, how many hours would you want to work? Fill in the table below.

	Hours	Income (Earnings) ($)
Hours per day		
Hours per week		
Hours per month		

Part 2 Brainstorm the amount of money you would want to spend on each per month

Categories	Expected Money To Be Spent On Each Category Per Month
Food	
Rent/Mortgage	
Entertainment	
Cars	
Clothing	
Phone/TV/Internet	
Other:	
Total	

Part 3 Calculate your earnings, expenses, and savings for the periods of time below

Categories	Income	Expenses	Savings
1 Year			
5 Years			
10 Years			

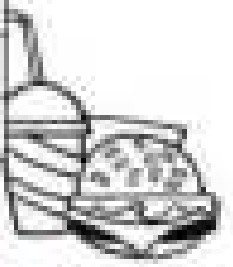
Name: _____ 42

Izzy's Budget

Izzy is going to college this year and has created a budget to help her understand how much she can spend on her different needs and wants. Izzy has saved $20,000.

Part 1 Calculate Izzy's total expenses and emergency fund

Categories	Expenses
Tuition	$5500
Books	$600
Food	$3000
[illegible]/Mortgage	$4800
[illegible]Entertainment	$3000
[illegible]	$1000
Pharmacy	$800
Taxes	
Emergency Fund	



Part 2 Answer the questions below

1) Why is it important to have an emergency fund? What [illegible] arise?

2) The school year is 8 months long. How much did Izzy budget per month?

Food	Rent	Entertainment

3) Oh no, Izzy spent $900 in her first month on entertainment. How much does she have left to spend on entertainment for the 7 more months? How much is it per month?

Name: _____ 43

Family Budget

The Wilson family has created a budget so they understand how much they can spend each expense.

Part 1 Fill in the budgets – income and expenses

Income		
Pay Pe…	Mom	Dad
2 …	…	$1300
4 We…		
6 Weeks		
26 Weeks		
1 Year		
Total 1-Year Income		

Expenses	
Rent/Mortgage	15000
Utilities	5000
Food	9000
Cars – Transportation	8000
Entertainment and Recreation	7000
Personal Care – Lifestyle	5000
…hone/TV/Internet	2500
…llaneous	5000
…Fund	10000
…enses	
Sa…	

Part 2 Answer the questions below

1) What surprised you from the Wilson's budget? Name at le…

2) Are everyone's budgets the same? What might look different with your family's budget?

3) The Wilson's parents both earned raises. The family now earns $10,000 more. Where should they allocate their extra income?

Name: _____ 44

Budget – Creating a Business Plan

A budget can also be used to make a business plan. For example, a business will use a budget to determine how much they will spend on materials and packaging. They will factor in how much they can sell their product for and how many products they think they can sell. Having a budget is important for a business so they know if they will be successful in earning a profit.

Questions | Fill out the information below to complete your budget

Your class [illegible] bracelets to the rest of the school. How much will you spend on the bracelets [illegible] will you sell the bracelets for? Answer the questions below.

	Cost per Bracelet	Appeal /10
Sa[illegible]	$0.30	3
[illegible]	$0.65	8
Black & W[illegible]	$0.40	4
Colourful Br[illegible]	$0.60	7
Personalized Name Be[illegible]	[illegible]	8
Plastic Gems	[illegible]	6

1) Which materials would you choose?

2) How much does 1 bracelet cost? _____ 100 Bracelets?

3) What will you charge for your bracelet? Explain your decision.

4) How much profit will you make per bracelet? _____

5) How many bracelets do you expect to sell? Why do you expect to sell that many?

6) How much profit (money) do you expect to earn after you sell all your bracelets?

Name: _____ 45

Consumerism – Need vs Want

Consumerism – What is it?
Needing to have the new "it" thing, or the latest fashion or technology trends is called **consumerism**. When you go to a store, or go online to purchase an item, you are a **consumer**. Being a consumer is buying goods, products, or services. The feeling that you always need to have new things is a result of the marketing campaigns companies use.

Need vs W
Whether [illegible] **need**, or a **want** determines whether the purchaser is par[illegible]erism. If you only buy what you need, you are not p[illegible]erism. The problem many people have is buying [illegible] which are called wants. A study in 2019 found that the aver[illegible] toys! That is too many toys to play with everyday, which [illegible] are not needed.

Another study [illegible] USA spend 1.2 trillion dollars on things they do not need. The p[illegible] people are affected by consumerism because they have this feeli[illegible] things constantly.

What Causes Consumerism
Companies want us to participate in consumer[illegible] their products. They pay marketing teams to turn us into co[illegible]. [illegible] develop campaigns designed around getting us to spend our hard-[illegible] products. They use strategic forms of advertising to appeal t[illegible] genders and many more categories of people.

When you go online, you will see targeted advertisement[illegible] search history, profiles, and online identity. They will make you [illegible] live without their products, and that you have a limited time to purchase. Marketers have named this strategy "a call to action", which means that you need to respond quickly. Some people also participate in consumerism to one-up their friends!

SPECIAL OFFER

Avoiding Consumerism
Before making purchases, think about the following questions: How will this product change your life? Is it worth the money you are spending? Will you use this daily? How have the marketers sold you on this product? Am I a sucker for giving them my money?

Name: _____ 46

Part 1 What are some examples of needs and wants?

Needs	
Wants	

Part 2 ...t are some questions you can ask yourself to avoid consumerism?

Part 3 Are the statements abo...sume... false

1. Consumerism is when you buy anything in a st...	True	False
2. You are a consumer when you buy something in a stor...	True	False
3. Consumerism is when you spend money on wants, not needs	True	False
4. Marketers and businesses want us to spend our money on their produ...	True	False
5. Marketers will target individuals based on their interests	True	False
6. Kids need 238 toys to stay happy	True	False
7. You can end consumerism by stopping and thinking before purchasing	True	False
8. You need the latest gadgets and toys to impress your friends	True	False
9. Marketers use information from your search history and profiles	True	False
10. Consumerism is the feeling you need the latest gadget, toy, or clothing	True	False

Name: _____ 61

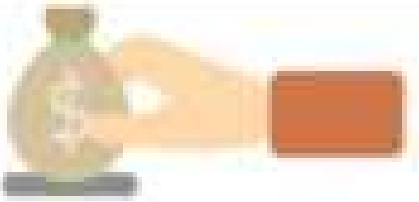
Role-Play: Factors That Influence Financial Decision Making

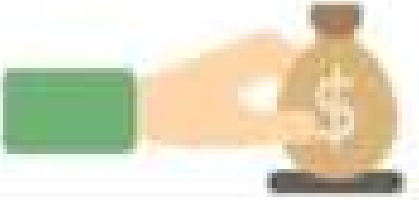
Objective — What are we learning about?

Students will understand how a variety of societal and personal factors can influence the financial decisions people make. Through role-playing scenarios, students will learn how factors such as social media, advertisements, family circumstances, peer pressure, and economic conditions can affect the choices individuals make about money and resources.

Materials — What you will need for the activity

- S[illegible] card[illegible] situations where financial decisions a[illegible]y different factors.
- Props or [illegible]tions





Instructions — How [illegible]ctivity

1. Divide the class into small g[illegible]
2. Provide each group with a scenario card that [illegible]ion where a financial decision is being made, and includes one [illegible]fluencing factors.
3. In each group, assign roles that fit the situation [illegible]g., the decision-maker, someone influencing the decision, [illegible]fa[illegible]n advisor).
4. If available, provide props or costume pieces to help students [illegible] roles more effectively.
5. Set a timer for groups to plan and rehearse their role-play.
6. Invite each group to perform their role-play for the class, showing how the factor(s) influenced the financial decision.
7. After each presentation, hold a short class discussion about the factor(s) shown, their impact, and how the decision could have been different without those influences.
8. Conclude by having students fill out a short reflection sheet describing what they learned about the different societal and personal factors that can influence financial decision making.

Scenario Cards | Cut out the topics below

Scenario Title	Scenario Description	Key Influencing Factor(s)
The Gaming Console Sale	A new gaming console is released, and influencers on TikTok and YouTube are posting about it non-stop. A student has saved $450 but was originally planning to buy a laptop for schoolwork. Their [illegible] keep tagging them in videos about how "everyone's getting one."	Social media, peer pressure, consumerism
The Limited-Edition Sneakers	[illegible] d for limited-edition sneakers [illegible] 220 and will sell out in [illegible] money from a recent birth[illegible] w[illegible] planning to save for new socce[illegible] season. If they buy the sneake[illegible] enough for the cleats and migh[illegible] wa[illegible] next month's allowance o[illegible] anot[illegible] the money.	Advertisements, budgeting priorities, consumerism
School Fundraiser Choice	The school is running two fundraisers [illegible] eco-friendly water bottles and another [illegible] popular brand-name hoodies. Students mus[illegible] decide which to buy to support the cause. One choice aligns with their environmental values, the other is more fashionable.	[illegible] eliefs, [illegible] ntal [illegible] ocial [illegible] vements, consumerism
Streaming Service Dilemma	A student is deciding between keeping two streaming services or cancelling one to save money for an upcoming school trip. Their friends all watch a show on one service, but their favourite show is on the other.	Peer pressure, personal interests, budgeting

Name: ______________________ 53

Scenario Cards | Cut out the topics below

Scenario Title	Scenario Description	Key Influencing Factor(s)
Job or Spo[illegible] Tryouts	A Grade 7 student has the chance to work part-time at a family friend's shop for extra spending money. The same week, sports team [illegible]youts are happening, but practice times would conflict with the job.	Employment and income, personal interests, time management
Phone Upgrade Urgency	[illegible] c[illegible]ring "today only" deals [illegible] promise it's way fast[illegible] the[illegible]ra yet. The student's pho[illegible] w[illegible] 2 years [illegible]	Advertisements, consumerism, economic marketing tactics
Big Move Budgeting	A student's family is moving to a di[illegible] because of a parent's new job. They ha[illegible] decide how to spend a $200 gift from relatives — on decorating their new room, buying sports equipment to make new friends, or saving it.	F[illegible]ces, [illegible]ng
Summer Concert Decision	A popular band is coming to town, and tickets are $95. A student can afford them but had planned to save for a new bike. Their friends are all going and have invited them along.	Peer pressure, budgeting priorities, personal values

Name: _____ 54

Peer Assessment	Mark a group member using the checklist below:

My Name		Who I Am Assessing	

Criteria	Description	Stars (1: Needs improvement, 5: Best)
Stayed in Character	The student remained in character throughout the performance.	☆☆☆☆☆
Listened to Others	The student listened carefully and responded appropriately to others.	☆☆☆☆☆
Supported Others	The student accepted others' ideas and contributed to the scene.	☆☆☆☆☆
Showed Creativity	The student demonstrated creativity in their actions and dialogue.	☆☆☆☆☆
Used Body Language	The student used body language to express their emotions and actions.	☆☆☆☆☆
Spoke Clearly	The student spoke loudly enough to be heard by others.	☆☆☆☆☆
Contributed to the Story	The student helped to develop and move the story forward.	☆☆☆☆☆
Reacted to Situations	The student reacted appropriately to situations presented in the scene.	☆☆☆☆☆

Learn and Question	**Learn**: Write two things you learned from the r… **Question**: Ask one question you have from the r…

Learn	
Learn	
Question	

Name: _____ 55

Reflection | Answer the questions below

1) What factor(s) influenced the financial decision in your role-play scenario?

2) Do you [illegible] the person in your role play made the right choice? Explain.

3) What are some [illegible] positive results of the decision?

Positive	Negative

4) How might the decision have been different if another person was mak[illegible]

5) How could family or personal circumstances change the outcome?

Name: _____ 56

Introduction to Interest

What is interest?
Interest is the amount of money earned from an investment or the cost of borrowing based on an interest rate.

Interest From Investments
We can earn interest on our investments, which means we are putting our money to work! If we invest $100 in the stock market, we hope that one hundred dollars is worth more at the end of the year. The average interest rate return in the stock market over the last 100 years is abo[illegible]0%. This means that after one year, your $100 is now worth $110.

Interest Fr[illegible]wing
Most peo[illegible]ed to borrow money to pay for things like cars, houses, or even water [illegible]sehold necessities. When we borrow money, we pay the lender (usu[illegible] The amount we pay in interest depends on the interest rate. A higher interest r[illegible] will [illegible]ay more back in interest. For example, if we borrow $100 with a 15% yearly in[illegible] wi[illegible]115 at the end of the year. It is important to shop around for the lo[illegible]est r[illegible]

Part 1 A bank pay[illegible] interes[illegible] your savings account – $5 per $100

Savings	Savings + Interest	Savings	Savings + Interest
1) $200	$210	5) [illegible]	
2) $450		[illegible]	
3) $625		[illegible]52	
4) $932		8) $2[illegible]	

Part 2 You pay 19% interest on your credit card – for every $[illegible] y[illegible] $119

Debt	Debt + Interest	Debt	Debt + Interest	Debt	Debt + Interest
1) $300	$357	4) $999		8) $4230	
2) $485		6) $1452		9) $5427	
3) $712		7) $2375		10) $7759	

Part 3 Answer the question below

What are your thoughts on interest? Is paying a 19% interest rate fair?

Name: _____ 59

Calculating Interest Rates - Investments

When dealing with interest rates, we are either paying interest or being paid interest. When we invest money in a savings account, we are paid interest. We can also invest in the stock market in hopes of being paid interest on our investment. We can calculate how much return we will get on an investment by using the following steps.

Steps to use % Button on a Calculator:

1) Enter the investment amount
2) Hit the % button
3) Type in the interest rate
4) Hit the = button (this will display how much earned from interest)
5) Click the + button (this will give you the total return)

Question: Use the steps above to calculate the return on investment

#	Investment	Interest	Return on Investment	15% Interest	Total Return
1	$28	$1.40		$4.20	$32.20
2	$37				
3	$41				
4	$97				
5	$150				
6	$370				
7	$525				
8	$855				
9	$1400				
10	$2755				

Name: _____ 60

Calculating Interest Rates - Borrowing

When we borrow money, we usually have to pay interest on the total amount we borrowed. We call this amount the **principal**. Depending on the type of loan, the interest rates will vary.

Steps to use % Button on a Calculator:

1) Enter the principal amount
2) Hit the + button
3) Type [illegible]terest rate
4) Hit th[illegible]n (this will display how much interest you will pay each year)
5) Click[illegible]utton (this will give you the total amount you need to pay back)

Questi[illegible] steps above to calculate the return on investment

#	Principal	[illegible]	5-Year Loan	Total 5-Year Loan Amount
1	$50		$25	$75
2	$85			
3	$152			
4	$225			
5	$310			
6	$485			
7	$657			
8	$832			
9	$1289			
10	$2472			

Name: _____ 61

Calculating Interest

Questions | Calculate how much interest we will pay in the situations below

1) If you borrow $600 for 6 years at an interest rate of 10%, how much interest will you pay?

b) How much in total will you pay?

2) How m[illegible]erest does a $430 investment earn at 6% over one year?

3) How much [illegible] $875 investment at 4% for six years?

4) How much interest will yo[illegible] borrow $325 for 2 years at a 12% interest rate.

5) Jacob invested $250 for 4 years. He earned [illegible] forgets his interest rate. He thinks it was either 5% or 10%. W[illegible]t ra[illegible]e get?

6) If you borrow $1750 for 3 years at an interest rate of 6%, how mu[illegible]est will you pay?

b) How much will you pay in total?

7) If you get a loan for $225,000 to buy a house with an interest rate of 2%, how much interest will you pay for a 10-year loan?

8) Hanna paid $28 of interest when she borrowed $200. Her father said she paid 28% interest, but she says she only paid 14%. Who is correct?

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____

a) Calculate the return on investment

#	Principal	10% Interest/Year	5-Year Loan	Total 5-Year Loan Amount	Principal
1	$385				
2	$1382				
3	$2685				

b) Marcus earned $90 in interest over 3 years on a $500 investment. His cousin thinks he earned 4% interest. Is that correct? If not, what was the correct interest rate?

Name: _____

a) Calculate the return on investment

#	Principal	10% Interest/Year	5-Year Loan	Total 5-Year Loan Amount	Principal
1	$385				
2	$1382				
3	$2685				

b) Marcus earned $90 in interest over 3 years on a $500 investment. His cousin thinks he earned 4% interest. Is that correct? If not, what was the correct interest rate?

Name: _____ 63

Growing Investments Over Time

When we invest money, we hope it will grow over time. The longer we leave an investment, the more interest the initial investment will earn, which leads to it being worth more. For example, if an initial investment of $1000 grows 15% in a year, it will earn $150 and be worth $1150. If the investment keeps growing at 15% a year, the following year it will earn $172.50 and will be worth $1322.50.

Over the course of many years, an initial investment can grow to become a large amount! This is called compound interest, which Albert Einstein coined the [illegible] der of the world!

Quest[illegible] how much the initial investment grows after 5 years

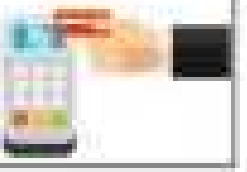
#	Initial Investment	[illegible] 10% Total	2-Year 10% Total	3-Year 10% Total	4-Year 10% Total	5-Year 10% Total
1	$200			$266.20	$292.82	$322.102
2	$500					
3	$850					
4	$1 250					
5	$1 875					
6	$2 500					
7	$8 000					
8	$14 500					
9	$25 000					
10	$50 000					

Name: _____ 64

Growing Debt Over Time

When we borrow money, we pay interest on how much we borrow. We need to consider how long it will take to pay back the debt before we decide to borrow. Borrowing money to buy things like a house or car are essential for most people even though those debts will take a long time to pay off. Luckily, mortgage interest rates are between 2-4% and car loans are typically around 5%.

On the other hand, borrowing to buy things we don't need can lead to us using credit cards to borrow. Credit cards have a 19% interest rate. Complete the table to show how credit card debt can become overwhelming with compound



Question: How much interest is paid after borrowing for up to 5 years

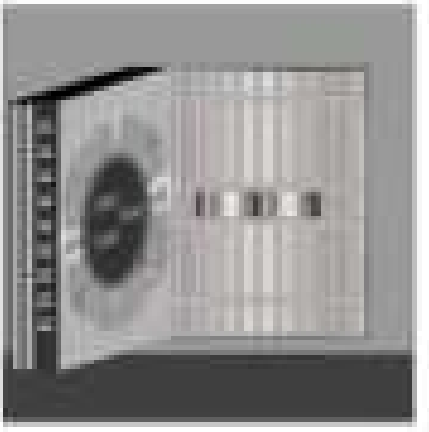
#	Initial Borrowed Amount	1-Year 19% – Total	2-Year 19% – Total	3-Year 19% – Total	4-Year 19% – Total	5-Year 19% – Total
1	$100			$168.52	$200.53	$238.64
2	$150					
3	$500					
4	$1200					
5	$1550					
6	$1950					
7	$2200					
8	$2750					
9	$3500					
10	$4200					

Name: _____ 65

Fees – Banking and Borrowing

What Are Fees?

A **fee** is a charge that is paid by a customer in exchange for using a service. For example, when you setup a new bank account, you may owe a one-time setup fee, of say $10. These fees may be charged on a one-time or ongoing basis. An on-going fee could be a monthly bank account fee of $15 a month.



What Do We Pay Bank Fees For?

Most bank accounts cost a monthly fee. Canadians on average spend $22[illegible] year in bank fees. People typically pay fees in exchange [illegible] banking services:

- Ta[illegible] bank using ATM's
- A[illegible]
- Fina[illegible] advi[illegible] should do with our money
- Keeping c[illegible]
- Sending ou[illegible] mon[illegible]
- Online banking
- Completing transac[illegible] card)
- Checking and savings ac[illegible] interest for the money we store at the bank

Per-Transaction Fees

Fees can be charged for each transaction we make. [illegible] we take money out of an ATM, we will sometimes need to pay a fee that [illegible]ge f[illegible]. This means if you want to take $20 out of your bank account, you w[illegible]tu[illegible]24 out. Using an ATM that your bank is responsible for will likely be fr[illegible]ut [illegible] ATM's will often cost an additional fee.

Sending electronic money transfers (EMT) can also be [illegible] basis. This means when you send an email transfer, you could be char[illegible] $1.50 per transaction.

Different bank accounts will give you access to a certain amount of [illegible] transactions per month. If you are on a free bank account, you could be limited to 10 or [illegible] transactions (number of times you can use your debit card). If you use it more than 10 times, you will be charged a per-transaction fee that could become costly.

Understanding The Details Of Your Bank Account

Bank accounts that are free with no monthly cost tend to offer less features, like no free ATM withdrawals or no free electronic money transfers. So, while you save on the monthly fees, your per-transaction costs could add up quickly.

It is important to understand how you plan to use a bank account before you choose a type of bank account. If you don't plan to make any EMT's or withdrawals from ATM's, you could choose the free option.

Name: _____ 66

True or False

Circle whether the statement is true or false

1) A fee is always a one-time fee, like to open up a bank account	True	False
2) Common per transaction fees are ATM withdrawals and EMT transactions	True	False
3) All bank accounts offer the same services	True	False
4) Per transaction fees can add up quickly	True	False
5) Free ba[illegible]nts are always the best option for customers	True	False

Fees

[illegible] the fees below based on the scenario

1) You send 9 [illegible] a c[illegible]1.50 per transaction	
2) You use your debit c[illegible] your plan only allows you [illegible] extra debit transaction costs $[illegible]	
3) You withdrew from an ATM 9 times last [illegible] went to your bank's ATM 3 of the times. The other times you were charged $3.50 each withdrawal	
4) You pay $14.99 per month for your bank accou[illegible] How much did you pay last year in bank fees?	
5) You sent 7 e-Transfers for $1.50 each transaction and withdrew money from an ATM 4 times with a per-transaction fee of $3.00 each time.	

Questions

Answer the questions using evidence from the text

1. Why is it important to understand the details of our bank accounts?

2. Why are per-transaction fees often more costly than paying a higher monthly fee?

Name: _____ 67

Choosing a Bank Account

Sale!

Limited Time Offer!

Super Bank – The Essentials Banking

- Free monthly fee
- 12 debits per month, $1.25 each thereafter
- 6 free e-Transfers, $1.50 each there
- Re point for every
- Us -Su M in Canada – $2 each
- Using Non- ATM of Canada – $3
- Using debit card o da – $1 each debit
- Bank drafts – $8 each
- Free online banking

Super Bank – No Limit Banking

- $14.99 monthly fee
- Unlimited debits per month
- Unlimited e-Transfers per month
- Receive 1 Super Bank point for every $1 you spend
- Free use of any ATM, anywhere in the world
- Use debit card free anywhere in the world
- 6 free bank drafts/year, $8.00 each thereafter
- Free online banking
- Receive a new Kwality brand 50-inch r free just for signing up!

Decision Time! If you were the person b hich ould you choose?

Jill is trying to figure out which bank account is right f wrot wi of her financial habits in the table below and needs your help to habit will cost for both bank accounts.

Financial Habit	Esse	No Limit
1) Monthly fee		
2) Jill plans to use her debit 15 times a month		
3) She plans to send 8 e-Transfers each month		
4) Jill plans to use her debit card 3 times a month outside of Canada		
5) She thinks she will use non-Super Bank ATMs 2 times a month		
6) She will use ATM machines outside of Canada once per month		
Total Cost		
7) She will spend around $500 a month. How many reward points will she earn?		

Questions Answer the questions based on the results of your research

1. Which bank account should Jill choose – Essentials or No Limit? Explain your choice.

____

____

____

____

____

2. Ar[illegible] always the best? Why is it important to research bank accounts before [illegible] choose[illegible]

____

____

____

____

____

Your Turn! Which bank account would you choose b[illegible] r fina[illegible] bits? Explain.

____

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Name: _____ 69

Creating Bank Account Details - Assignment

Banks are businesses that want our money. If banks don't get new customers, they could go out of business.

Assignment You are hired to create bank accounts that will entice people to join

Your boss wants you to create two bank accounts that has will make the bank a lot of money, but also entice customers to want to join. Create two different accounts, one with a high monthly fee and one that is free with extra per-transaction fees.

1) Who should get the first option of bank account? Describe the benefits.

2) Who should get the second option of bank account? Describe the benefits.

Name: _____ 70

Loans

A **loan** is an amount of money that is expected to be paid back with interest. When people get a loan, they are borrowing money that is not theirs.

To get a loan, people apply to a lender asking for a certain amount of money. The lender – often a bank, will need to investigate whether the person can afford to pay back the loan. They will look at how much income they earn, assets they own, and how much debt they already have.

People can apply for a fixed rate loan or a variable rate loan. A **fixed rate** loan has an interest ra[illegible] stays the same for the period of time chosen – typically 5 years. You can get a long[illegible]te, but the interest rate will rise the longer you request. These loans are safe bec[illegible] surprised by the payment you need to make as the rate and paym[illegible] rates are usually slightly higher than variable but less risky.

[illegible] ra[illegible] an interest rate that changes whenever the bank changes their prim[illegible] base interest rate that all loans are based on. Usually all five big ban[illegible] When they give any loan, they describe the loan as prime plus a c[illegible]mbe[illegible] a low mortgage rate might be prime plus 1%, whereas an experi[illegible] e plus 5.5%. In 2021, the prime rate was 2.45%, the lowest it h[illegible]e 20[illegible]ble rate could change each day as the prime rate changes. It [illegible]up[illegible] a bit riskier.

Part 1 If the prime rate is 2.45%, calculate [illegible] paid for 1 year

Loan Amount	Prime + 0.5%
1) $5000	
2) $15 250	
3) $250 000	

Am[illegible]	Prime + 4%
4) [illegible]	
5) $42 2[illegible]	
6) $66 750	

Part 2 Compare the fixed rate (5%) and variable-rate loans over the [illegible] of 5 years

1)	Loan	After 1 Year (2.45 +2%)	After 2 Years (2.75 +2%)	After 3 Years (3.5 +2%)	After 4 Years (4.2 +2%)	After 5 Years (5.1 +2%)
Fixed Rate (5%)	$1500					
Variable Rate	$1500					

2)	Loan	After 1 Year (2.45 +1.5%)	After 2 Years (3.65 +1.5%)	After 3 Years (4.5 +1.5%)	After 4 Years (5.5 +1.5%)	After 5 Years (3.45 +1.5%)
Fixed Rate (6%)	$9200					
Variable Rate	$9200					

Name: ______________________ Curriculum Connection [illegible]

Choosing a Loan

1) Scenario	Jill is on a fixed income, meaning she earns the same each month - $3000. She needs a loan to pay for a condo. She is worried the loan could get too expensive. She will pay off the loan over the next 25 years. 

Fixed Rate – 3 Years	Fixed Rate – 5 Years	Fixed Rate – 10 Years	Variable Rate
3.1%	3.5%	3.9%	Prime + 0.5% (Prime = 2.5%)

Which loan should Jill choose? Explain why.

____

____

2) Scenario	Josh [illegible] pa[illegible] a large amount of savings. He doesn't mind tak[illegible] ave money. He needs a loan for a new house [illegible] y off [illegible] ext 20 years. 

Fixed Rate – 3 Year	Fixed [illegible] Y[illegible]	[illegible]ate – 10 Years	Variable Rate
2.6%	3.1%	[illegible]	Prime - 0.4% (Prime = 2.4%)

Which loan should Josh choose? Explain why.

____

____

3) Scenario	Julian signed a contract to work for a business for the next 5 ye[illegible] will have a fixed income until his contract is up. His job pays him well, but [illegible]s worried he won't find a job quickly after his contract is up. He needs a loan for a new car. He will pay the car off over the next 6 years. 

Fixed Rate – 2 Years	Fixed Rate – 4 Years	Fixed Rate – 6 Years	Variable Rate
4.6%	5.2%	5.7%	Prime + 2.5% (Prime = 2.6%)

Which loan should Julian choose? Explain why.

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Name: _____ 7A

Activity: Applying for a Loan

Objective What are we learning about?

To help students understand the process and considerations involved in borrowing money by simulating a loan application scenario.

Materials What you will need for the activity.

- Role-play Scenario Cards (provided below)
- Notepads
- Name tags (optional)

Instructions How you will complete the activity.

1. Pair up students. One student will play the role of the loan officer, and the other will be the applicant.
2. Provide each pair with a scenario card that outlines the situation where the applicant needs to apply for a loan.
3. Give students a few minutes to read their scenarios and think about their roles. The loan officer will prepare questions to ask the applicant, and the applicant will prepare to explain their need for the loan and their repayment plan.
4. The applicant approaches the loan officer and explains their situation, why they need the loan, and how they plan to repay it.
5. The loan officer asks questions to understand the applicant's situation better and to assess the risk and feasibility of granting the loan.
6. After each role-play, discuss as a class what went well, what challenges were faced, and what considerations are important when applying for, or granting, a loan.

Name: _____ '25

Scenario Cards | Cut out the topics below.

Scenario
• **Applicant**: You need a loan to buy a new bicycle to get to school. Explain why you need the bike and how you will repay the loan with your weekly allowance. • **Loan Officer**: Ask questions about the applicant's allowance, other expenses, and why the bike is necessary.
• **Applicant**: You need a loan to buy supplies for a school project. Explain the project and how you plan to repay the loan after the project is complete. • **Loan Officer**: Ask questions about the project details, the cost of supplies, and the repayment plan.
• **Applicant**: You need a loan to help your family with an unexpected car repair. Explain the situation and how you will contribute to repaying the loan. • **Loan Officer**: Ask questions about the car repair, the family's financial situation, and the repayment plan.
• **Applicant**: You want to start a small business selling homemade crafts. Explain your business plan, how you will use the loan, and save money to repay the loan. • **Loan Officer**: Ask questions about the business plan, potential earnings, and expenses.
• **Applicant**: You need a loan to buy new sports equipment for your team. Explain why the equipment is needed and how you plan to raise money to repay the loan. • **Loan Officer**: Ask questions about the sports team, the cost of the equipment, and the fundraising plan.
• **Applicant**: You need a loan to pay for a school trip. Explain why the trip is important and how you will raise money to repay the loan. • **Loan Officer**: Ask questions about the school trip, the cost, and the repayment plan.
• **Applicant**: You need a loan to buy a laptop for schoolwork. Explain why you need the laptop and how you will save money to repay the loan. • **Loan Officer**: Ask questions about the necessity of the laptop, the cost, and the repayment plan.
• **Applicant**: You need a loan to buy birthday presents for your family. Explain why the presents are important and how you plan to repay the loan with your allowance. • **Loan Officer**: Ask questions about the importance of the presents, the cost, and the repayment plan.

Name: _____ ID:

Memory Game: Understanding Loans

Objective — What are we learning about?

To help students learn and remember key concepts about loans through a fun and engaging memory game.

Materials — What you will need for the activity

- M… provided)
- … and definitions related to loa…
- A flat sur… or to lay out the cards

Instructions — How yo… ple… ity

1. Divide the class into groups of 3 o… Each … set of Memory Game cards (provided).
2. Optional: have students match the terms w… d… playing the memory game (with the cards facing up). This … e terms and definitions. Take these up as a class to ensure eve… the … matches.
3. Have each group lay all the cards face down in a grid on a tab…
4. The students take turns flipping over two cards at a time, trying to f… matching term and its definition.
5. If a student finds a match, they remove those cards from the grid and keep them.
6. If the cards do not match, they are turned back over, and the next student takes a turn.
7. The game continues until all the cards have been matched.
8. After the game, review the terms and definitions with the class.
9. Discuss why these terms are important to understand loans.

Cards | List of terms related to loans.

Terms	Definition
Loan	Money borrowed that must be repaid with interest.
[illegible]st	The extra money paid for borrowing money.
Principal	Th[illegible]igi[illegible]ount of money [illegible]
Collateral	An asset that a [illegible]ower offers to a lender to secure a loan.
Credit Score	A number that indicates a person's ability to repay a loan.

Name: _____ 82

Cards	List of terms related to loans.

Terms	Definition
Repayment	The act of paying back borrowed money.
	The length of time you have to repay a loan.
Lender	[illegible] institution that [illegible] loan.
Borrower	The person who receives and must repay the loan.
Default	Failure to repay a loan.

Name: ______________________ 83

Cards | List of terms related to loans.

Terms	Definition
Fixed Interest Rate	An interest rate that does not change over the life of the loan.
Varia[illegible]est	An interest rate that can change over time.
Installment	[illegible]ular [illegible]ents made to [illegible]an.
Grace Period	A set time after th[illegible]e date during which a payment can be made without penalty.
Loan Agreement	A contract between the borrower and lender outlining the terms of the loan.

Name: _____ 87

Activity: Loan Comparison Chart

Objective — What are we learning about?

Students will gain an understanding of different types of loans (student loans, business loans, mortgages) by analyzing their interest rates, repayment terms, and associated risks.

Materials — You will need for the activity.

- Blank loan comparison chart templates
- Short story about different loans
- Mock loan application

Instructions — How you will complete the activity.

1. Organize the class into small groups and distribute a loan comparison chart template to each group.
2. Provide each group with a short story about Sarah, Tom, and Lisa, each take out different types of loans (student loans, business loan, mortgage).
3. Allow each group time to read the story and discuss the details. They should focus on the interest rates, repayment terms, and associated risks with each type of loan.
4. Each group will use the information from the story to fill out their loan comparison chart. They should note the key features of each loan type.
5. Each student will fill out a mock loan application form for one of the loans discussed in the story. They should include details such as the loan's purpose, their repayment plan, and how they will manage the associated risks.

Name: _____ 88

Story Read the short story carefully. Next, fill out the loan comparison chart based on the details provided in the story.

Sarah wanted to go to college to become a teacher. She decided to apply for a student loan. She learned that student loans typically have lower interest rates because they are meant to help students afford education. Sarah found out that she wouldn't have to start repaying her loan until six months after she graduated, giving her time to find a job. How[illegible] knew her credit score might be affected if she couldn't repay the student[illegible]

Tom [illegible]ed of [illegible] bakery. To turn his dream into reality, he needed a business loan[illegible] [illegible]siness loans usually have higher interest rates compared to stu[illegible]ns. [illegible] they carry more risk for the lender. Tom's loan required monthly p[illegible]ght a[illegible]ed to present a detailed business plan to the bank to show how he [illegible]ak[illegible] [illegible]p had to use his house as collateral: if he couldn't repay the loan[illegible]d ris[illegible]e home.

Emma and her family wanted to buy a house. T[illegible]ect[illegible]. Mortgages have lower interest rates than business loans but are [illegible] loans. Emma learned that mortgages are typically long-term [illegible] years. Her monthly payments would be spread out over many years, m[illegible]g t[illegible] manageable. However, if Emma couldn't make repayments, the ba[illegible] house back, which is called foreclosure.

Summary of risks:

The friends discussed their loans over coffee, sharing what they had learned. Sarah's loan seemed manageable because of the lower interest and delayed repayments, but she knew she had to find a job quickly after graduation. Tom's loan was riskier with higher interest and immediate payments, but he was excited about his business plan. Emma felt confident about her mortgage because of the fixed monthly payments but was aware of the long-term commitment.

Name: _____ 89

Comparison Chart Fill out this comparison chart based on the story.

Loan Type	Interest Rate	Repayment Terms	Risks
What did you find out about stu...			
What did you find out about a business loan?			
What did you find out about a mortgage?			

Name: ______________________ 90

Loan Application Form

Applicant Information	
Full Name	
Age	
Address	
Parent/ G[illegible]ian Name	
Parent/ [illegible] Pho[illegible]	

Loan Details	
Purpose of Loan	
Amount Requested	$
Interest Rate	
Repayment Term	(Circle one) Affect credit score / Risk of losing [illegible] [illegible] your back

Income Information	
How do you earn money? (e.g., allowance, chores):	
Monthly Income	$

Expenses (what you spend on) and Debt (what you owe someone)	
Monthly Expenses:	$
Debts (if any):	

Name: _____ 91

Repayment Plan	
How do you plan to repay the loan?	

Risk Management	
How will you handle any problems repaying the loan?	

Additional Information	
Any other information or comments:	

Applicant Signature	
Signature	
Date	

Name: _____ /2

Financial Literacy – Unit Test

	US Dollar	Euro	Yen	Pounds	Australian Dollar
$1 CAD	$0.80	$0.70	$90.00	$0.60	$1.10

	1 USD	1 Eur	1 Yen	1 Pound	1 Australian Dollar
in CAD	$1.25	$1.45	$0.011	$1.70	$0.92

Part 1

the CAD to other currencies

			$
1)	$3		
2)	$75		
3)	$225	Jap	
4)	$575	Pound Ste	
5)	$745	Australian Dollar	

	CAD	Other Currency	$
6)	$1400	US Dollar	
7)	$1750	Euro	
8)	$2584	Japanese Yen	
9)	$4360	Pound Sterling	
10)		Australian Dollar	

Part 2

Use < > = to compare the currency

1)	$20.00CAD		$150.00JPY
2)	$22.00USD		$26.00CAD
3)	$15.00CAD		$15.00AUD
4)	$19.00GBP		$30.00CAD
5)	$70.00CAD		$55.00EUR

6)			$100.00AUD
7)	$10		JPY
8)	$75.50CAD		EUR
9)	$318.75USD		$255.00CAD
10)	$938.40GBP		$552.00CAD

Part 3

Answer the question below

You have been given 5 donations from around the world. Rank the donations from greatest to least.

$525AUD, $483USD, $402GBP, $41000JPY, $428EUR

1)	2)	3)	4)	5)

Part 4 Use the exchange rates on the other page to answer the questions

1) Simon is going on vacation to Las Vegas, USA. He takes $500 CAD to the bank to convert it to USD. How much USD will he receive?

2) Steph buys a new coat. It cost her 110 Pounds. How much will it cost her in CAD?

Part 5 [illegible]rce trustworthy – yes or no?

1) An ad[illegible]tisem[illegible]you will earn 1 million dollars by following the[illegible]	Yes	No
2) A government [illegible] on how to get out of debt	Yes	No
3) A Certified Financial [illegible]ares [illegible]day on their social media	Yes	No
4) A business wants you to s[illegible]s. You are paid more if you get your friends to s[illegible] th[illegible]	Yes	No
5) A social media account you trust is [illegible]ng a pr[illegible] how to earn more income	Yes	No

Part 6 A bank pays you a 5% interest rate for yo[illegible] acc[illegible]5 per $100

Savings	Savings + Interest
1) $200	
2) $550	
3) $725	

Savings	[illegible]st
5) $1365	
6) $1952	
7) $2382	

Part 7 You pay 19% interest on your credit card – for every $100 you spend, you owe $119

Debt	Debt + Interest
1) $200	
2) $455	
3) $742	

Debt	Debt + Interest
4) $1099	
5) $1575	
7) $2525	

Part 8 Find how much interest is earned on the investment after periods of time

#	Initial Investment	1-Year 10% Total	2-Year 10% Total	3-Year 10% Total	4-Year 10% Total	5-Year 10% Total
1	$300					
2	$5000					
3	$					

Part 9 How much do you end up owing after 5 years?

#	Initial Borrowed Amount	1-Year 19% Total	2-Year 19% Total	3-Year 19% Total	4-Year 19% Total	5-Year 19% Total
1	$300					
2	$1300					
3	$4500					

Part 10 Which loan should Warren choose?

Scenario	Warren is earning a high income from his job. He has a lot of [illegible] and investments. He likes taking risks, especially if it earns or saves him money. He needs to borrow money to buy a house. He will pay the loan off in the next 25 years.

Fixed Rate – 3 Years	Fixed Rate – 5 Years	Fixed Rate – 10 Years	Variable Rate
2.6%	3.1%	3.7%	Prime – 0.4% *(Prime = 2.4%)*

Which loan should Warren choose? Explain why