Grade 7

Number Elaborations

	Curriculum Expectations	Pages That Cover the Expectations
N.1	multiplication and division facts to 100 (extending computational fluency)	3 – 41
N		
N.3	operations with decimals (addition, subtraction, multiplication, division, and order of operations)	88 – 145
N.4	relationships between decimals, fractions, ratios, and percents	146 - 205

Name: _____ 9

Curriculum Connection
N.1

Mental Math - Multiplication - Doubling and Halving

Directions

1. Halve one of the numbers to make the equation simpler
2. Solve the equation
3. Double the product (answer)

Example

18 x 7

9 x 7 = 63

63 x 2 = 126

3	**16 x 10**
15 x 8	**18 x 8**
14 x 9	13 x
19 x 4	14 x 10
14 x 6	17 x 4

Name: _____ 10

Curriculum Connection
N.1

Mental Math - Challenge Questions

Directions
Use whichever strategy you think will work the best for the questions below (skip counting, breaking up numbers, doubling and halving).

Examples

214 x 5

Option 1: Breaking Up Numbers
200 x 5 = 1000
x 5 = 70
0 = 1070

Option 2: Doubling and Halving
214 x 5 = 107 x 10
107 x 10 = 1070

12	224 x 6
342 x 3	313 x 5
236 x 11	502 x 1
468 x 5	315 x 8

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Curriculum Connection
N.1

Mental Math - Division - Splitting Up The Dividend

Directions

1. Break up the larger number (dividend) into friendlier numbers
2. Find out how many times your smaller number (divisor) fits into the new dividends
3. Add up how many times your smaller number fits into your larger numbers

Example

numbers

= 144

144 ÷ 6 = 24
60 ÷ 6 = 10
60 ÷ 6 = 10
24 ÷ 6 = 4

	68 ÷ 4
150 ÷ 6	**÷ 5**
120 ÷ 4	189 ÷
208 ÷ 8	**198 ÷ 6**

Name: _____ 32

Curriculum Connection
N.1

Mental Math - Challenge Questions

Directions
Use whichever strategy you think will work the best for the questions below (skip counting, breaking up dividend)

336 ÷ 4

Splitting up the Dividend
320 ÷ 4 = 80
16 ÷ 4 = 4
336 ÷ 4 = 84

276 ÷ 6

399 ÷ 3

485 ÷ 5

264 ÷ 12

465 ÷ 1

635 ÷ 5

248 ÷ 8

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Curriculum Connection
N.2

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) Hank withdraws $50 from his bank account. W[illegible] status of his bank account as [illegible]er.

2) A submarine plunged 132m below sea level. Write this as an integer.

3) The average te[illegible]re in [illegible]. The average tempera[illegible]in D[illegible] -11. Write an integer that [illegible] temperature drop from July [illegible]ber.

4) The world's coldest temperature ever recorded was 89°C below zero. Write this [illegible]mber as an integer.

5) Mount Logan is the highest mountain in Canada with a peak of 5,959m above sea level.

6) [illegible]otbal[illegible]t 12 yards o[illegible]firs[illegible]me. Write this nu[illegible]integ[illegible]

7) Savana played a great round of golf, shooting 7 strokes below par. What is her golf score as an integer?

8) Ryker lost $850 with a b[illegible]vestment. Write his loss as an integer.

9) Bailey took 15 steps forwards and 27 steps backwards. Write how many steps she moved as an integer.

10) Nathan paid $15 the last 3 months for his Netflix account. Write how much he paid as an integer.

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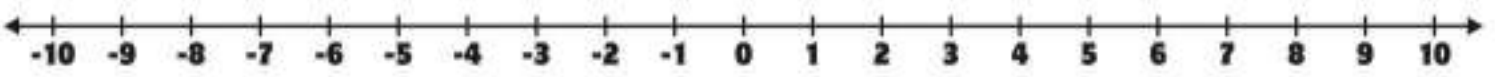
Curriculum Connection
N.2

Comparing Integers



Part 1

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

1) 9 ☐ -3

2) -7 ☐ 3

3) -10 ☐ 0

4) -2 ☐ 2

5) 1 ☐ -1

6) -10 ☐ 10

7) -3 ☐ 3

8) -5 ☐ -6

9) 8 ☐ -6

10) -6 ☐ -7

11) -7 ☐ -8

12) -1 ☐ 0

Part 2

Arrange the integers from least to greatest

1) 7, 2, -6, -7, 4

2) 0, -4, -8, 8

3) 0, 3, -4, 5, -6

4) -2, 0, -6, 2, -5

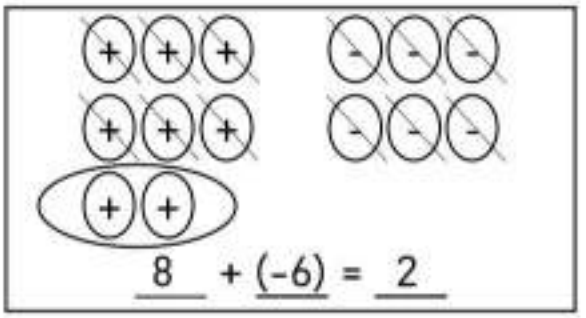
5) 10, -10, -9, 8, -8

6) -8, -7, 7, 0, 8

Name: _____ 50

Curriculum Connection
N.2

Adding Integers - Zero Pairs



Question: Cross out the zero pairs. What is left?

1) _____ + _____ = _____

2) _____ + _____ = _____

3) _____ + _____ = _____

4) _____ + _____ = _____

5) _____ + _____ = _____

6) _____ + _____ = _____

7) _____ + _____ = _____

8) _____ + _____ = _____

9) _____ + _____ = _____

10) _____ + _____ = _____

11) _____ + _____ = _____

12) _____ + _____ = _____

Name: _____ 52

Curriculum Connection
N.2

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	

Equation: _____ + _____ = _____

2) Theo played [illegible] rounds of golf. His final scores for all three rounds are on the scorecard. What [illegible] total score?

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

Equation: _____ + _____ + _____ = _____

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

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

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: _____ 55

Curriculum Connection
N.2

Adding Integers - Using Number Lines

Part 1 — Use the number lines to solve the questions

1) 10 + (-19) =

2) -19 + 1

3) -5 =

4) -7 + (-2) =

5) 10 + (-14) =

6) -1 + (-9) =

Part 2 — Answer the word problems below – Wri ons

1) A football team loses 9 yards on one play and then loses 8 yards on the next play. How many total yards did they lose?

_____ + _____ = _____

2) In golf, Roger played two rounds. He scored a +3 and a -12. What was his total score?

_____ + _____ = _____

Name: _____ 56

Curriculum Connection
N.2

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

Part 2 — Answer the word problems below. Write the e ion ion

1) You take 9 steps forwards, 7 steps backwards, another 5 steps b ds, and another 4 steps forwards. How many steps have you taken?

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: _____ 60

Curriculum Connection
N.2

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

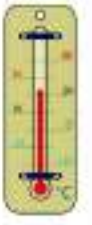
- **Keep** the first integer
- **Flip** the operation
- **Change** the sign of the next integer

Part 1 Use the rules above to solve the problems

1) 8 – (-9) =	6) (+37) – (+41) =
2) 24 – (-11) =	(+23) =
3) (-11) – 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?



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Curriculum Connection
N.2

Subtracting Integers - Riddle

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

E) 10 – (-4) =	N) (+17) – (+30) =
P) (-15) – [illegible] =	E) (+61) – (+38) =
L) (-18) – 7 =	O) (-36) – (-20) =
N) (-12) – 17 =	[illegible]
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

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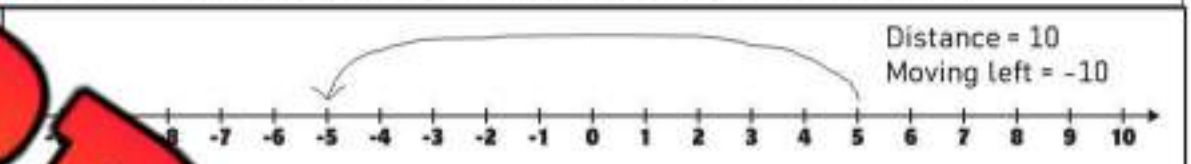
Curriculum Connection
N.2

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 (+)

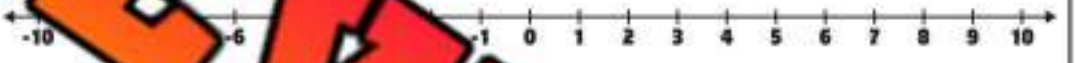
-5 – 5 =



Questions

Use the number lines to solve the questions

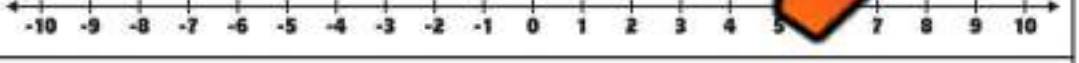
1) 9 – (-3) =



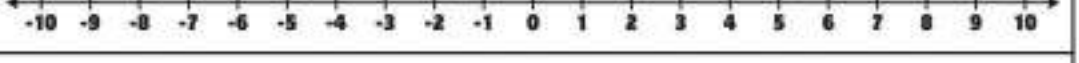
2) -4 – 8 =

3) 7 – (-4) =

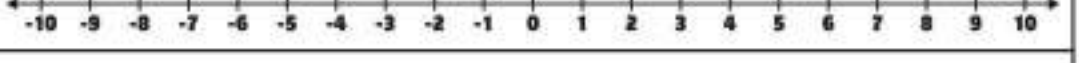
4) -6 + 6 =



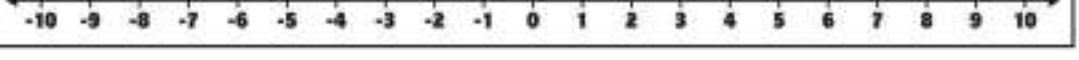
5) 9 + (-9) =



6) -7 – (-4) =



7) (-10) – (-1) =



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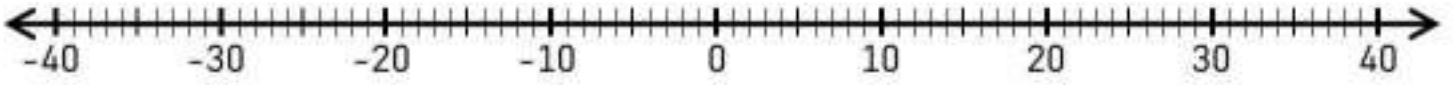
Curriculum Connection
N.2

Subtracting Integers - Number Line



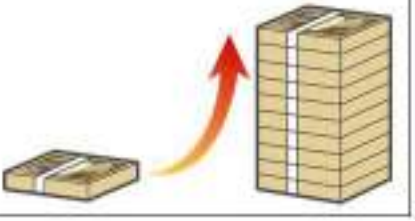
Part 1 Solve the questions below

1) 27 - (3) =	6) (-35) - 22 =
2) (26	7) 27 - (-16) =
3) (-23) - 31 =	8) (-38) - (-15) =
4) 36 - (-17) =	– (+13) =
5) (-39) - 18 =	12)

Part 2 Answer the word problems below. Write the tion stion

1) The winner of a golf tournament scored a -21 after four rou t place golfer scored a +47. What is the difference between these two s ?

2) Dan and Brianna both invested some of their money in the stock market. Dan lost -$386 and Brianna earned +$521. What is the difference between their earnings and loses?



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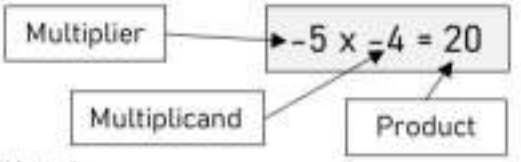
Curriculum Connection
N.2

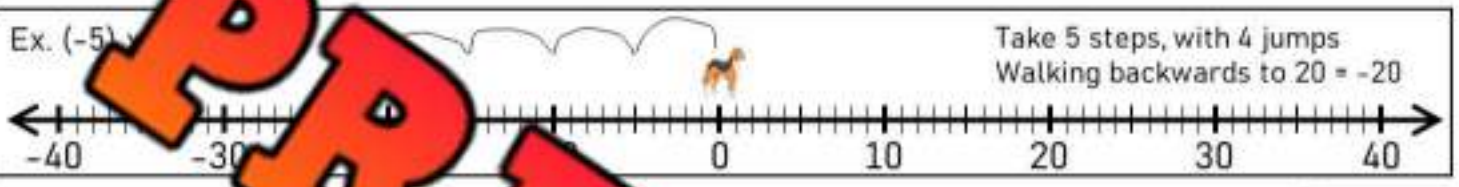
Multiplying Integers - Number Line

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



1) The dog always starts at 0
2) The multiplier tells us how many steps the dog will take.
3) The multiplicand tells us to walk <u>forwards</u> or <u>backwards</u>. For a positive number, walk forwards. For a negative number, walk backwards.
4) The multiplicand also tells us how many jumps to take.

Ex. (-5) x



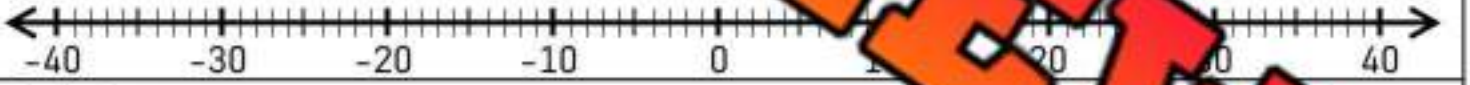
Take 5 steps, with 4 jumps
Walking backwards to 20 = -20

Questions

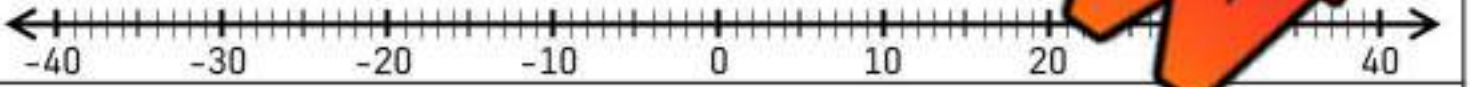
Use the number lines to solve the questions

1) (-5) x (-7) =

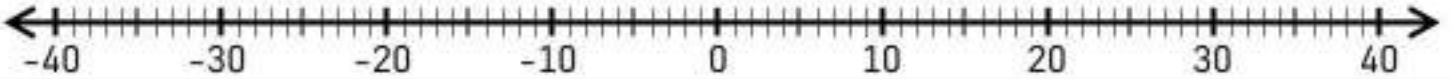
2) 8 x (-4) =



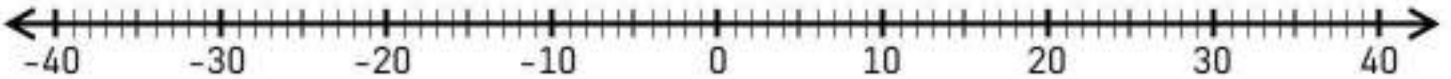
3) (-7) x 3 =



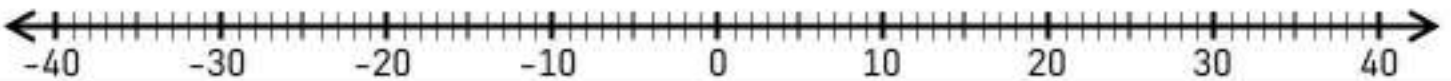
4) (-9) x (-4) =



5) 5 x (-8) =



6) (-20) x (-2) =



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Curriculum Connection
N.2

Multiplying Integers

Adding Integers Rules

(+) x (+) = (+) Multiplying 2 positive integers will give a positive answer

(-) x (-) = (-) Multiplying 2 negative integers will give a positive answer

(+) x (-) = (+) Multiplying integers with different signs will give a negative answer

(-) x (+) Multiplying integers with different signs will give a negative answer

Part Us above to answer the 1-step equations below

1)	5 x (-2) =	6)	(-5) =	11)	(-8) x (-12) =
2)	(-7) x 7 =		x (	12)	13 x (-9) =
3)	(-8) x (-3) =	8)	(-12	13)	(-16) x 8 =
4)	12 x 8 =	9)	(-13) x (-11)		(-13) x (-13) =
5)	(-11) x 12 =	10)	20 x 7 =		00 =

Part 2 Simplify the multi-step expressions and the

Ex) 2 x (-3) x (-8) = (-6) x (-8) = 48	3) 5 x 10 x (-10) x (-1
1) (7) x (-3) x 2	4) 6 x (-2) x (-4) x 2
2) (-4) x (-6) x (-3)	5) (-9) x 3 x (-2) x 10

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Curriculum Connection
N.2

Multiplication Squares

Part 1

Fill in the squares by multiplying the integers

1)

x	5	-8
-3		
-7		

2)

x	2	-9
-8		
-6		

3)

x	7	-1
-9		
-3		

4)

x	-3	
-8		
6		

5)

	-7	-10
-1		

6)

x	12	-6
-4		
9		

7)

x	-15	-13
-3		
-5		

8)

x	-6	
-4		
7		

	23	-56

Part 2

Fill in the squares by multiplying the integers

1)

x	6	-5	2
-4			
-7			
3			

2)

x	10	-11	12
-3			
-7			
-9			

3)

x	-5	15	-25
-2			
-4			
6			

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N.2

Dividing Integers - Number Line

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

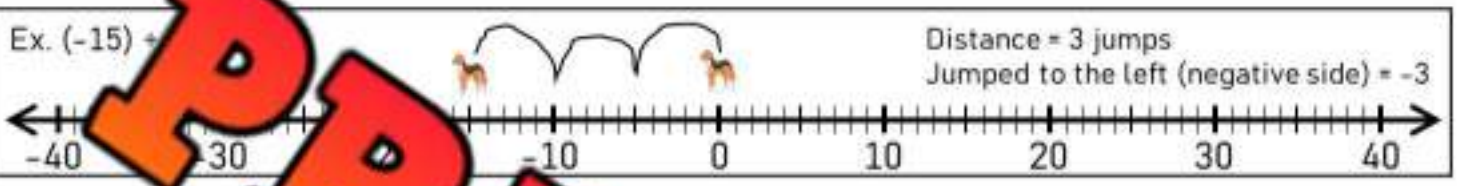
Dividend → (-15) ÷ 5 = 3

Divisor → 5

Quotient → 3

1) The dog always starts at 0
2) The dog jumps by the divisor until it reaches the dividend.
3) Your answer is how many jumps it takes
4) The answer is negative if the dog faces the negative side and positive if it faces the positive side.

Ex. (-15) ÷



Distance = 3 jumps
Jumped to the left (negative side) = -3

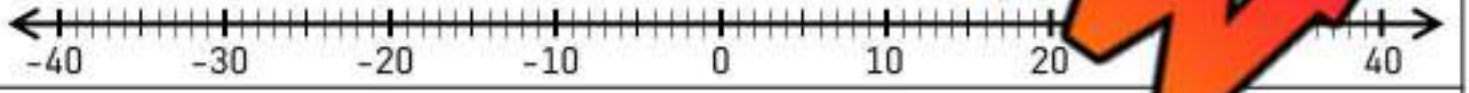
Questions

e the r lines to solve the questions

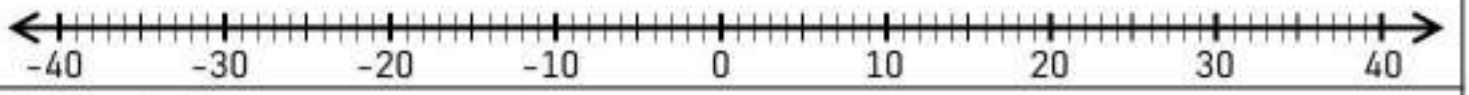
1) (-25) ÷ (-5) =

2) 12 ÷ (-4) =

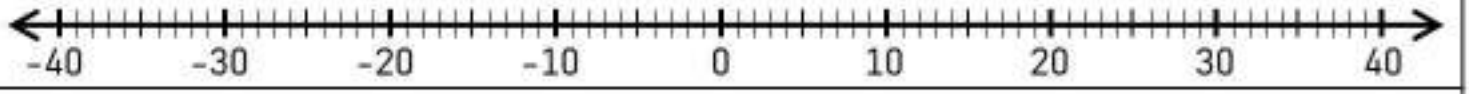
3) (-32) ÷ 4 =



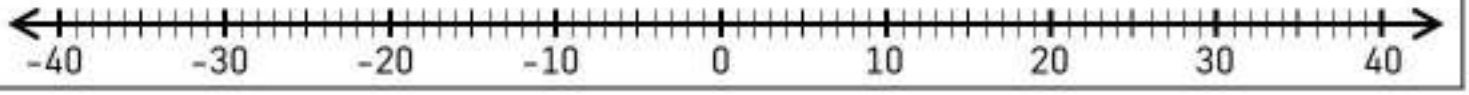
4) (-18) ÷ (-6) =



5) 24 ÷ (-8) =



6) (-36) ÷ (-3) =



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Curriculum Connection
N.2

Dividing Integers

Dividing Integers Rules – Same as Multiplication!

(+) ÷ (+) = (+) Dividing 2 positive integers will give a positive answer

(-) ÷ (-) = (-) Dividing 2 negative integers will give a positive answer

(+) ÷ (-) = (+) Dividing integers with different signs will give a negative answer

(-) ÷ (+) Dividing integers with different signs will give a negative answer

Part …les above to answer the 1-step equations below

1)	15 ÷ (-3) =	6)	(-60) ÷ (-12) =
2)	(-49) ÷ 7 =		72 ÷ (-8) =
3)	(-66) ÷ (-6) =		÷ 11 =
4)	32 ÷ 4 =	9)	(20) … 5) =
5)	(-81) ÷ 9 =	10)	

Part 2 Simplify the multi-step expressions and use the r…

Ex) 28 ÷ (-7) ÷ (-2) = (-4) ÷ (-2) = 2	3) 50 ÷ 5 ÷ (-2)
1) (36) ÷ (-3) ÷ 6	4) 48 ÷ (-4) ÷ (-3) ÷ 2
2) (-72) ÷ (-8) ÷ (-3)	5) (-112) ÷ 2 ÷ (-2) ÷ 4

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Curriculum Connection
N.2

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 1

x 6) = ?

Example 2

9 – 3 ÷ (3 x 1) = ?

9 – 3 ÷ 3 =

9 – 1 = 8

Questions

Calculate the answers to the equations using BEDMAS

1) 3 + (4 x 5) =	2) 21 –	3) (8 x 4) + (4 ÷ 2) =
4) (12 ÷ 6) x 3 =	5) 12 + (2 + 10)	(1 + 3) =
7) 24 ÷ 6 + (4 + 10) =	8) 17 – 2 x 5 =	9) 25 + (5 x 5) =
10) 25 – 15 ÷ 5 =	11) 22 – 6 + 5 =	12) 18 – 5 + (6 x 8) =

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Curriculum Connection
N.2

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	34	-34
2	10 – 2 x (-3)	-16	16
3	9 (2 + 1)	18	-18
4	(-5)	-11	19
5	12 ÷ (-3) x (5 + 5)	40	40
6	20 + (8 – 3) x (-2)		
7	-10 x 3 – (2 x 5) – 2	-42	18
8	25 ÷ (-5) + 6 x 3	23	13
9	-48 ÷ (-6) – (2 + 3)	3	-3
10	(-3) + 6 x 7 + (-11) – 6 ÷ 2	14	25

Name: _____ 83

Curriculum Connection
N.2

Order of Operations - Word Problems

Questions Write an expression that represents the situation and solve

1) An elevator stars at the ground floor. It travels up 8 floors before going down halfway to the ground. Next, it travels back up 12 more floors before going down 13 floors. What floor is the elevator on now?

2) A deep-se[illegible]from his world record diving adventure. He travelled 320m[illegible]e Re[illegible]came up at a rate of 10 metres a minute for 32 minutes. How m[illegible]met[illegible]er the sea at the end of the 10 minutes?

3) Chase is the running back for his football t[illegible]. In t[illegible]e rushed 5 times for an average of +8 yards per rush. He had [illegible]in the [illegible]d quarter and -15 yards in the third. In the last quarter, he had [illegible]s. [illegible]tal yards did he rush for?

4) Vincent golfed 10 times last month. He had 6 rounds of -3 golf and 3 rounds of +2. His last round he scored a -8. What was his total score for the month?

Name: _____ 84

Integers Quiz

Part 1 Solve the questions below

1) 9 + (-5) =	2) 11 + (-9) =	3) (-15) + 6 =
4) (-13)	5) (-31) + 19 =	6) (-43) + 15 =

Part 2 e th s elow

1) 11 + (-4) + 4		3 + (-17)	
3) 25 + (-18) + 13		4) (-1	

Part 3 Answer the word problems below. Write the tio tion

1) You take 17 steps forwards, 15 steps backwards, another 25 step wards, and another 19 steps forwards. How many steps have you taken?

2) A submarine starts at sea level and dives 17m down before coming up 11m. It makes another plunge down 43m and then rises 27m. How many meters is it below sea level?

Name: _____ 93

Curriculum Connection
N.3

Adding Decimals - Regrouping

Questions Use the standard algorithm to solve the addition problems below

1) 63.722 + 25.543	2) 65.458 + 23.323	3) 38.345 + 26.537	4) 35.256 + 41.632
5) 20.45[illegible] + 17.335	6) 5[illegible].528 + [illegible]	7) 28.265 + 17.632	8) 66.574 + 29.213
9) 192.673 + 325.235	10) 374.214 + 53.523	11) [illegible].3[illegible] + [illegible]	12) 652.514 95.337

Part 2 Answer the word problems below

1) Neill just ran a 200m race. He ran the first 100m in 12.326 seconds and the second 100m in 13.63 seconds. How long did it take him to finish the race?

2) Erica's pet snake was 17.425cm long when she got it. The snake grew 4.39cm in the last year. How long is the snake now?

Name: _____ 99

Curriculum Connection
N.3

Subtracting Decimals - Borrowing

Questions Use the standard algorithm to solve the subtraction problems below

1) 63.743 - 25.561	2) 75.475 - 53.743	3) 34.463 - 22.632	4) 82.542 - 43.535
5) 80.273 - 37.331	6) 76.546 - 5[illegible]	7) 38.254 - 27.631	8) 76.548 - 59.284
9) 652.644 - 345.373	10) 557.236 - 353.534	11) [illegible].3 - [illegible]3	12) 572.589 - 265.323

Part 2 Answer the word problems below

1) Wyatt weighed a Blue Jay feather, and it was 2.035 grams. He also weighed a feather from an owl, and it weighed 4.39 grams. How much more did the owl's feather weigh?

2) A 5-dollar bill weighs 1.0243 grams. A Toonie weighs 6.929 grams. How much more does a Toonie weigh?

Name: _____ 105

Curriculum Connection
N.3

Front-End Estimation - Multiplication Using Decimals

Questions Use front-end estimation to round to the nearest whole number

1) Question	5.31 x 5 = ?
Front-End Estimation Version	5 x 5 = 25

2) Question	8.82 x 7 = ?
Front-End Estimation Version	_____ x _____ = _____

3) Question	6.31 x 4 = ?
Front-End Estimation Version	_____ x _____ = _____

4) Question	9.87 x 8 = ?
Front-End Estimation Version	_____ = _____

5) Question	
Front-End Estimation Version	

6) Question	19.48 x 4 =
Front-End Estimation Version	_____ x _____ = _____

7) Question	22.13 x 9 = ?
Front-End Estimation Version	_____ x _____ = _____

8) Question	29.94 x 6 = ?
Front-End Estimation Version	_____ x _____ = _____

Name: _____ 107

Curriculum Connection
N.3

Front End Estimation - Becky's Shop

Becky runs a bakery where she sells bread, muffins, and cookies. She always uses front-end estimation when charging her customers. They appreciate it because the final price is always underestimated.

Menu	Cost
Bread	$3.19
Muffins	$2.25
Cookies	$1.49

Questions Use front-end estimation to calculate how much customers owe Becky

1) One cu urchased 3 loaves of bread and 2 muffins. How much did Becky charge

2) A customer orde es of bread. How much do they owe Becky?

3) A customer ordered 5 of each item on the Ho hey owe Becky?

4) A customer used a $20 bill to buy 4 loaves of bread and 3 cookies w much change does Becky owe them?

5) A customer ordered 4 muffins and 4 cookies. The customer right after said they wanted the same thing. How much did Becky earn on the 2 sales?

Name: _____ 111

Curriculum Connection
N.3

Multiplication - 2-Digit Multipliers - Earnings

Questions | Solve the word problems below

Kevin is a high-school student who just started a new job. He is excited to start earning money, so he is calculating how much he will make. A schedule of his 6 weeks of work is listed below.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Hours		13	15	21	22	12

1) For his first week of work, Kevin will earn only $9.25 per hour because he is just being trained. How much will he earn in week 1?

2) For his second week of work, Kevin begins earning $14.75 per hour. How much will he earn in week 2?

3) How much will Kevin earn in week 3 if he continues earning $14.75 per hour?

4) If Kevin continues earning $14.75 for weeks 2-6, how much money will he make in his first 6 weeks?

Name: _____ 122

Curriculum Connection
N.3

Front-End Estimation - Multiple Choice

Questions Which estimate is the best? Use front-end estimate to make your choice

1) 28.25 ÷ 7	2) 35.12 ÷ 5
a) 4	a) 5
b) 3	b) 4
c) 6	c) 6
d) 5	d) 7
3) 56	4) 36.42 ÷ 3
a) 7	a) 12
b) 9	b) 11
c) 8	c) 9
d) 6	d)
5) 77.51 ÷ 7	6) 72.
a) 10	a) 1
b) 11	b)
c) 12	c) 10
d) 13	d) 7
7) 36.38 ÷ 4	8) 50.92 ÷ 5
a) 10	a) 10
b) 11	b) 9
c) 12	c) 11
d) 9	d) 12
9) 34.72 ÷ 2	10) 48.86 ÷ 3
a) 13	a) 12
b) 14	b) 15
c) 16	c) 11
d) 17	d) 16

Name: _____ 123

Curriculum Connection
N.3

Front-End Estimation - Dividing Using Decimals

Questions | Use front-end estimate to estimate the answers

1) A group of 5 friends earned $95.84. Approximately how much will each friend get if they split the money equally?

2) A T[illegible] weighs 63.8lbs. It grew the same amount each year for the 7 [illegible] Appr[illegible] how much did it grow each year?

3) Steven ran 49.62 km last we[illegible] Ap[illegible] much did Steven run per day?

4) Cam is a seven-year-old who has saved $88.53 over the last [illegible] age, approximately how much did Cam save per year?

5) It took Savanna 6 hours to fill her pool with water. The pool holds 78.3kL of water. Approximately how much water was poured into the pool each hour?

Name: _____ 124

Curriculum Connection
N.3

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 your final answer

Question 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	7.68 ÷ 2 = ?
Step 1 and 2	
Step 3	
Answer	

3) Question	1.32 ÷ 2 = ?
Step 1 and 2	
Step 3	
Answer	

4) Question	3.45 ÷ 3 = ?
Step 1 and 2	
Step 3	
Answer	

Name: _____ 128

Curriculum Connection
N.3

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 (multiply by 10), so that the question is 705 ÷ 5 = 141, therefore, 70.5 ÷ 0.5 = 141

***When we scale numbers in a number sentence, we have to scale them by the same num for the sentences to be equivalent.

Questi Scale the division sentence by 10 and then solve

1) Original Q	10.5 ÷ 0.5 =
Scaled by 1	

2) Original Question	0.3 =
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: _____ 139

Curriculum Connection
N.3

Order of Operations - Decimals

Questions Find out the value of the variables using BEDMAS

1) 2 x (2.5 + 5) =	2) 4 x (10 – 7.5) =	3) 5 x 4 + (10.5 + 4) =
4) (15.7 [illegible]) x 2 =	5) 8.5 – 4.2 + (3 x 5) =	6) 5 x (3.5 + 3.5) =
7) 48 ÷ (9.5 – 3.[illegible]	[illegible]10 ÷ 2.5 =	9) 32.3 + (9 ÷ 3) =
10) 4 x (22 ÷ 5.5) =	11) 45 ÷ 15 x [illegible]	[illegible] 2.5 x (2 + 1.5) =

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 $0.20 each and 3 chocolate bars for $0.70 each. How much did he spend? Write the equation.

Name: _____ 140

Curriculum Connection
N.3

Order of Operations - Decimals - Who's Right?

Questions Walker and Hugh both answered the questions below. Circle who's right

	Question	Walker's Answer	Hugh's Answer
1	1.5 + 3.5 x 4	15.5	20
2	4.8 + 2.3 x 3	19.5	11.1
3	– 4 x	5.8	19.6
4	2.2 x 3 + 12.5	.1	18.1
5	15 ÷ 2.5 x (1.5 + 2.5)	24	
6	81 ÷ 9 + (6.5 – 2.3)	12.2	13.2
7	10(15 – 2.5)	147.5	125
8	(25 – 20) ÷ 2.5 + 12	14	12

Name: _____ 141

Curriculum Connection
N.3

Order of Operations - Decimals - Word Problems

Questions | Write the equation that represents the word problem

1) Steven ordered 3 hamburgers for $2.25 each and 3 drinks for $1.50 each. How much did he spend on his order?

2) Patricia br... th... and bought 2 pillows for $12.50 each and 2 pillowcases fo... ach. H... change will Patricia leave the store with?

3) Howard has $219.25 in his bank account. He ... at his job. He worked 4 hours yesterday and 2 hours today. How ... money d... have now?

4) Kennedy made 4 trays of cookies. Each tray had 12 cookies on it. When all of the cookies cooled, she cut them all in half. How many cookies does she have now?

Name: _____ 148

Curriculum Connection
N.4

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 s[illegible]ed to determine which sport was the m[illegible]pular. [illegible]ns were hockey, basketbal[illegible], socc[illegible], o[illegible]mnastics. What percent[illegible]e[illegible]nasti[illegible]

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

3) Scott's website is used by di[illegible]rent [illegible]g[illegible]t[illegible]. Of 2300 people that access his websi[illegible]kly, th[illegible] data shows how many were using their phone, c[illegible]uter or tablet. What percentage of people use their tablet to access Scott's website?

Phone	3/4
[illegible]puter	17%
Table	

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 percentage of workouts does she choose rowing?

R[illegible]	34%
Bike	5/20
Weights	31%
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: _____ 154

Curriculum Connection
N.4

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 N	Mark	Decimal	Percent	Grade
Madison	3/4			
Stella				
Matthew	/10			
Eli	7/			
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	75			

Name: _____ 155

Curriculum Connection
N.4

Sport Statistics - Fractions, Decimals, and Percents

Questions | 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
Total[illegible]tion	56/200	42/200	18/200
Dec[illegible]s			
Perc[illegible]			

a) If Trout had 100 at bat[illegible] many h[illegible]s would he have? _____

2) Mookie Betts had 300 at bats in 2020. He had 99/300 hits, 57/3[illegible]00 home runs. This means for every 300 at bats, he would have 97 [illegible]nd 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: _____ 157

Curriculum Connection
N.4

Fractions, Decimals, and Whole Numbers - Word Problems

Questions 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.

Sam	Colton	Hudson	Joel
$	$115.75	$319.75	$239/1000

Order t… f… who made the most money to who made the least.

2) The girl's basketbal… kept sta… ir games. Their shooting stats are listed below.

Alex	Hanna	Rebec…	Couri…	Brianna
0.325	30/90	0.367	…	…5

Rank the girls in order from the best shooter to t… …hooter

3) Brian is shopping for tomato soup. Which can of soup shou… he…

Option	A	B	C	D
Size	0.5L	$1\frac{2}{4}$L	3L	$\frac{18}{4}$L
Price	$4	$8	$20	$22

a) Rank the options in order from smallest to largest?

b) Explain which can of soup Brian should buy? Make sure to look at the prices.

Name: _____ 167

Curriculum Connection
N.4

Converting Mixed Numbers to Improper Fractions

Questions

Convert the mixed numbers to improper fractions

1) $6\frac{3}{4}$ =	2) $5\frac{1}{5}$ =	3) $7\frac{4}{6}$ =
4) $4\frac{4}{7}$ =	5) $2\frac{4}{8}$ =	6) $6\frac{2}{5}$ =
7) $7\frac{2}{6}$ =	8) $\frac{3}{}$ =	9) $4\frac{3}{5}$ =
10) $6\frac{2}{4}$ =	11) $4\frac{}{}$ =	12) $9\frac{2}{5}$ =

Ordering

Put the fractions in order [illegible]

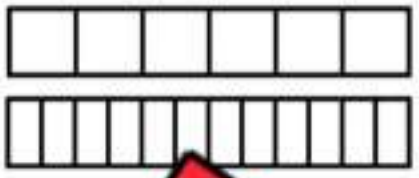
1)	$6\frac{3}{4}$	$\frac{20}{4}$	$5\frac{1}{5}$	$\frac{}{3}$	$\frac{}{}$
2)	$3\frac{2}{3}$	$\frac{23}{5}$	$2\frac{3}{6}$	$\frac{31}{4}$	$7\frac{3}{9}$
3)	$9\frac{5}{5}$	$\frac{17}{3}$	$4\frac{4}{7}$	$\frac{19}{5}$	$4\frac{6}{12}$

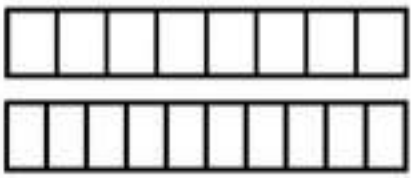
Name: _____ 171

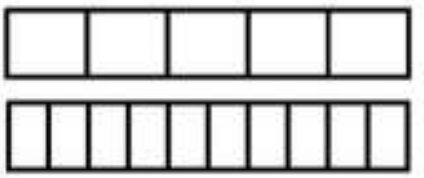
Curriculum Connection
N.4

Equivalent Fractions

Questions Compare the fractions using < > =

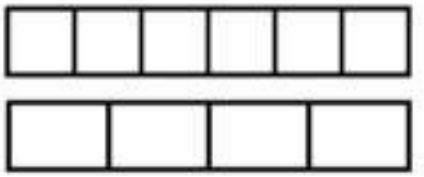
1. 
$\frac{2}{6}$ ☐ $\frac{4}{6}$

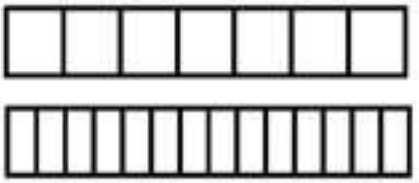
2. 
$\frac{4}{8}$ ☐ $\frac{6}{10}$

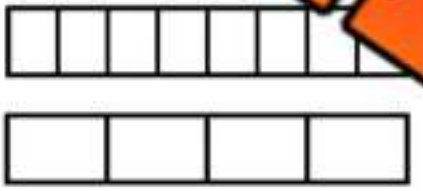
3. 
$\frac{1}{5}$ ☐ $\frac{2}{10}$

4. 
$\frac{2}{3}$ ☐ $\frac{3}{4}$

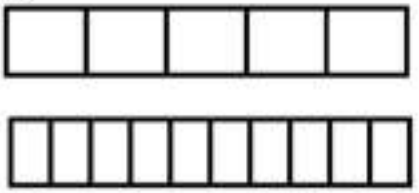
5. 
$\frac{3}{12}$ ☐ $\frac{1}{4}$

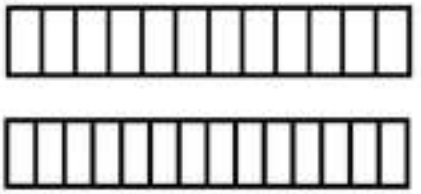
6. 
$\frac{4}{6}$ ☐ $\frac{2}{4}$

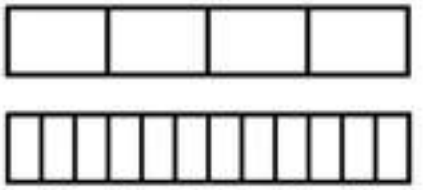
7. 
$\frac{5}{7}$ ☐ $\frac{8}{14}$

8. 
$\frac{7}{8}$ ☐ $\frac{3}{4}$


$\frac{6}{8}$ ☐ $\frac{4}{6}$

10. 
$\frac{3}{5}$ ☐ $\frac{6}{10}$

11. 
$\frac{6}{12}$ ☐ $\frac{7}{14}$

12. 
$\frac{3}{4}$ ☐ $\frac{8}{12}$

Name: _____ 178

Curriculum Connection
N.4

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 by the GCF

Example:

$\frac{25}{100}$ - Factors: 1, [illegible], 20, [illegible]50, 100

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

Questions

Simplify

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

Name: _____ 179

Curriculum Connection
N.4

Simplifying Fractions - Matching

Questions Draw a line from the fraction to its simplest form

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

Name: _____ 182

Curriculum Connection
N.4

Simplifying Fractions - Word Problems

Questions Answer the question using a fraction in its simplest terms

Question	Answer
1) Sam has 45 blocks. He gives away 15 of his blocks to a friend. What fraction of blocks did he give away? 	
2) Huds[illegible] just [illegible] half marathon. He ran 18km of the 21km [illegible] 3k [illegible]hat fraction of the half mar[illegible] did [illegible] 	
3) Carter threw 56 pitches in a b[illegible]ll gam[illegible] He threw 42 fastballs and 14 curveballs. What fraction of fastballs to total pitche[illegible] he throw? 	
4) Nova had 10 minutes to do 100 pull-ups in an intense workout. She was able to finish 60 pull-ups in the 10 minutes. What fraction of the pull-ups did she finish? 	
5) Chloe baked 54 baked goods. She made 21 brownies and 33 cookies. What fraction of the baked good are brownies? 	

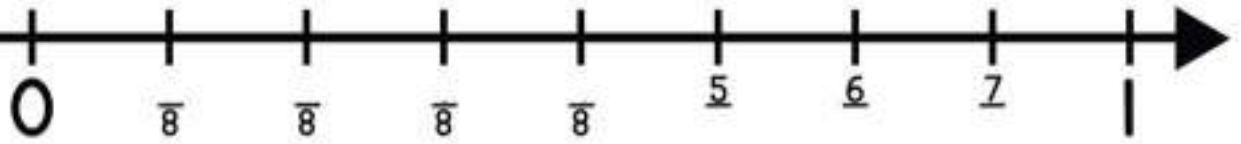
Name: _____ 183

Curriculum Connection
N.4

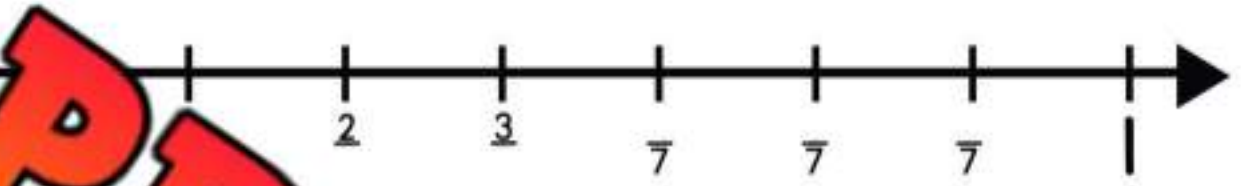
Fractions on a Number Line - Intro

Questions Fill in the number lines below

1)



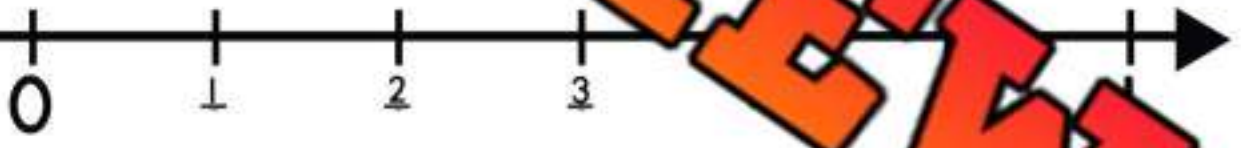
2)



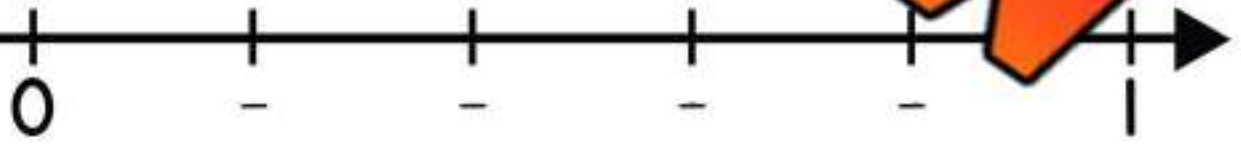
3)

4)

5)

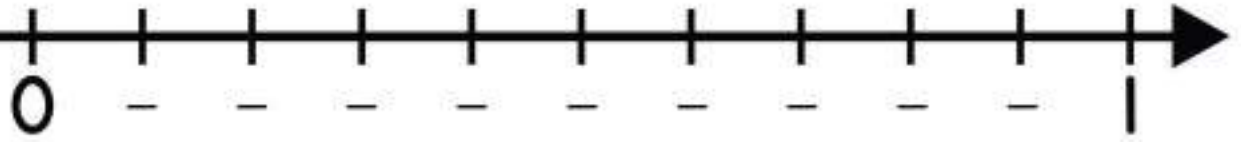


6)



7)

8)



Name: _____ 186

Curriculum Connection
N.4

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.

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

Name: _____ 193

Curriculum Connection
N.4

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 1

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: _____ 200

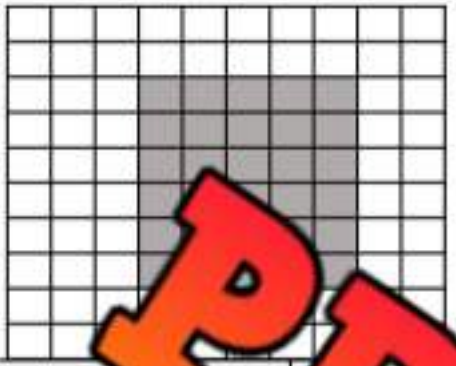
Curriculum Connection
N.4

Fraction, Ratio, and Percent

Questions

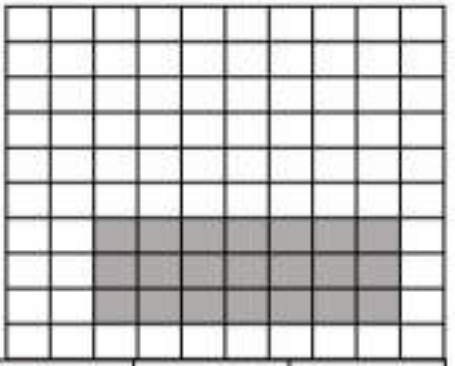
1) What fraction and percent of the array is shaded?
2) What is the ratio of shaded in blocks to total blocks?

1)



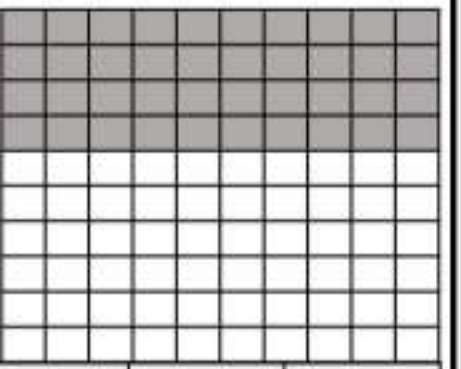
Fraction	Ratio	Percent
30/100	30:10	

2)



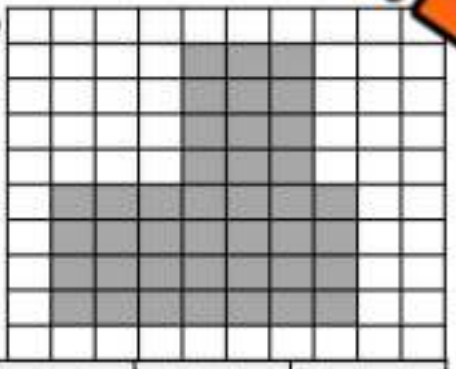
Fraction	Ratio	Percent

3)

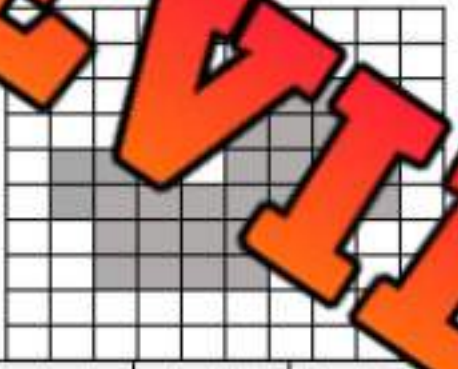


Fraction	Ratio	Percent

4)

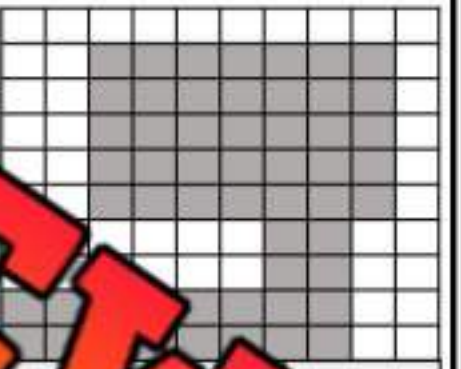


Fraction	Ratio	Percent



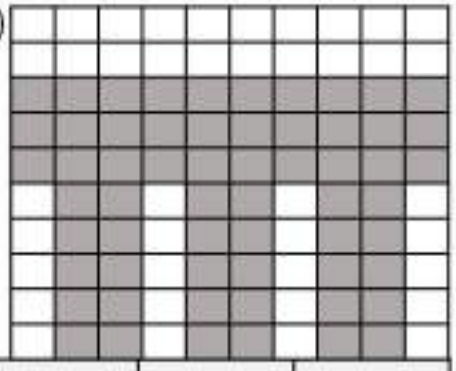
Fraction	Ratio	Percent

6)



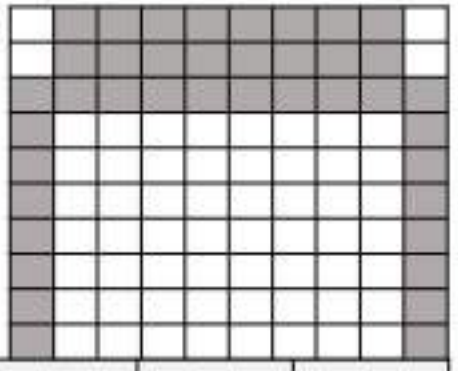
Fraction	Ratio	Percent

7)



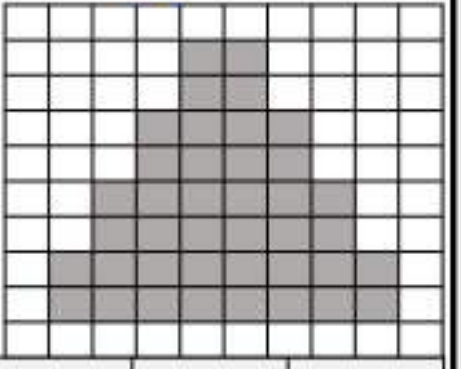
Fraction	Ratio	Percent

8)



Fraction	Ratio	Percent

9)



Fraction	Ratio	Percent

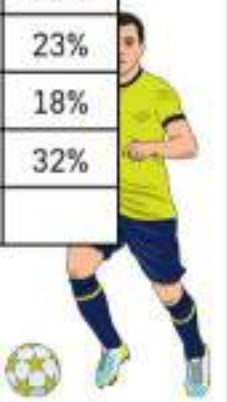
Name: _____ 202

Unit Test - Percent, Decimals, and Fractions

Part 1 — Answer the word problem below

The grade 7's voted on their favourite gym class game. The results are presented in the table below.

Basketball	11%
Badminton	23%
Volleyball	18%
Dodgeball	32%
Soccer	



a) What percentage of students chose soccer?

b) If [illegible] students chosen for the survey, how many chose dodgeball as their favourite?

Part 2 — Is the dec[illegible]neating decimal?

1) 0.5		4)	
2) 0.2		5) $0.\overline{72}$	
3) $0.\overline{12}$		6) [illegible]	

Part 3 — Write the decimals below – use a line to show re[illegible]

1) $\frac{1}{4}$ =	2) $\frac{7}{10}$ =	3) $\frac{2}{7}$ =
4) $\frac{2}{3}$ =	5) $\frac{4}{11}$ =	6) $\frac{3}{9}$ =
7) $\frac{1}{4}$ =	8) $\frac{11}{12}$ =	9) $\frac{4}{12}$ =

Grade 7

Patterns

	Curriculum Expectations	Pages That Cover the Expectations
PE.1	discrete linear relations, using expressions,	3 – 55

Name: _____ 4

Curriculum Connection
PE.1

Increasing Pattern Rules - Adding

Part 1 Continue the increasing patterns below

1) 66, 75, 84, _____, _____, _____

Pattern Rule: Start at 66, add _____ each time

2) 174, 181, 188, _____, _____, _____

Pattern Rule: Start at _____ add _____ each time

3) 221, _____, _____, _____

Pattern Rule: Start at _____ add _____ each time

4) 376, 389, 402, _____, _____, _____

Pattern Rule: Start at _____ add _____ each time

5) 462, 478, 494, _____, _____, _____

Pattern Rule: Start at _____ add _____ each time

BONUS

Lily gets paid based on how fast she works. She is getting faster each day! Check out her paycheque for the last 5 weeks.

Week	Pay
1	80
2	100
3	140
4	200
5	280

Question

How much will she make in week 10 if the pattern continues?

Part 2 Write your own patterns using the

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

Pattern Rule: Start at 218, add 8 each time

2) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 395, add 15 each time

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 498, add 13 each time

4) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 605, add 16 each time

Name: _____ 14

Curriculum Connection
PE.1

Pattern Rule - Input/Output Tables

Questions Fill in the input/output tables below

Rule: add 7

In	Out
185	
	206
	23
23	

Rule: add 3

In	Out
	406
	435
458	
483	

Rule: add 9

In	Out
625	
	647
673	
	698

Rule: subtra

In	Out
146	
	166
188	
	203

Rule: subtract 12

In	Out
34	
	34
	38

Rule: subtract 7

In	Out
547	
	563
592	
	605

Rule: multiply by 2

In	Out
5	
	22
15	
	74

Rule: multip 4

In	Out
3	
6	
	36
	48

multiply by 7

In	Out
	63
11	
13	

Rule: divide by 4

In	Out
20	
	8
36	
	11

Rule: divide by 8

In	Out
24	
40	
	8
	12

Rule: divide by 10

In	Out
10	
50	
	8
	10

Name: _____ 15

Curriculum Connection
PE.1

Recursive vs Functional Relationships

A **recursive relationship** describes the pattern between successive numbers in one of the rows/columns of a table of values. A **functional relationship** is a general rule to describe the relationship between two columns/rows of numbers in a table of values. We look across the table instead of beside.

Part 1

Is Jeffrey describing the recursive or functional relationship?

	Pattern				Jeffrey's Description	Recursive or Functional
1)	x			4	The pattern goes up by 3 each time.	
	y	5				
2)	x	10		30	term number is multiplied by 10	
	y	100	200			
3)	x	1	2	3	is multiplied	
	y	5	9	13	17	y 4 an dded
4)	x	1	2	3	4	The pat goe	
	y	8	12	16	20		
5)	x	1	2	3	4	7x + 11 = y	
	y	18	25	32	39		

Part 2

Provide a recursive and functional description of the patterns

	Pattern				
1)	x	1	2	3	4
	y	3	9	15	21

Recursive	
Functional	

	Pattern				
2)	x	1	2	3	4
	y	12	20	28	36

Recursive	
Functional	

Name: _____ 16

Curriculum Connection
PE.1

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 <u>across</u> the table from the term number to the term value.

Practice Find the pattern rule when you look <u>across</u> the table of values

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

<u>n x 5</u>

Term Number	Term Value
1	1
2	4
3	7
4	
5	
9	

<u>n x 3 - 2</u>

Term Number	Term Value
1	6
2	12
3	18
4	24
5	30
11	

_____

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: _____ 18

Curriculum Connection
PE.1

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	5
2	
3	13
4	
5	
8	

$4x + 1$

Term Number	Term Value
1	
2	
3	
4	
5	
10	
20	

$20 \div x + 5$

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	
3	
4	
5	
11	

$8x - 6$

Part 2 Write 4 algebraic expressions using:
variable = n constant term = 6 numerical coefficient = 3

1	
2	

3	
4	

Name: _____ 19

Curriculum Connection
PE.1

Pattern Rule - Input/Output Tables

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

In n	Out $2n$
1	
2	
3	
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 x	Out
4	
6	
8	
10	

In x	Out $20 + x$
1	
3	

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: _____ 21

Curriculum Connection
PE.1

Growing Patterns

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

1)

1) Describe the pattern rule in your own words

2) Represent the pattern using an algebraic expression:

3) How many blocks will the 1st term have?

4) How many blocks will the 20th term have?

2)

1) Describe the pattern rule in your own words

2) Represent the pattern using an algebraic expression:

3) How many blocks will the 12th term have?

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

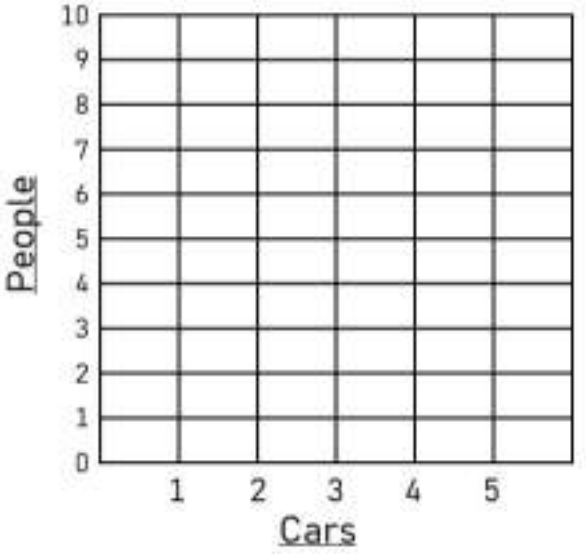
Name: _____ 22

Curriculum Connection
PE.1

Graphing Growing Patterns

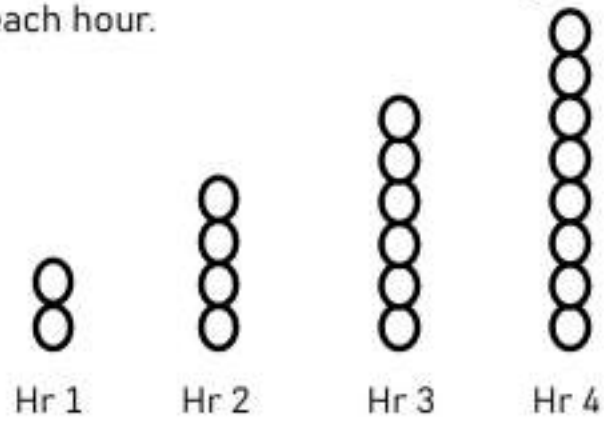
Questions Translate the growing patterns into a table of values and a line graph

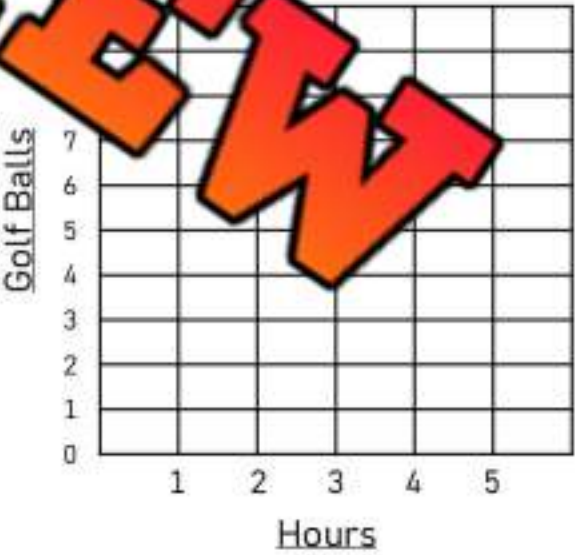
1) A train has the following people in each train car.



Term Number (Cars)	1	2	4	5	15
Term Value (People)					

2) Steven is looking for golf balls in the woods. He finds the following balls each hour.





Term Number (Hour)	1	2	3	4	5	20
Term Value (Golf Balls)						

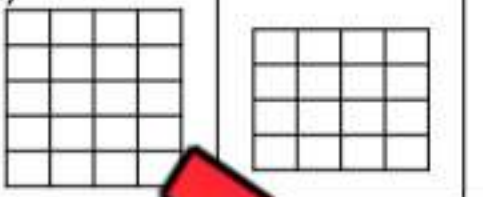
Name: _____ 25

Curriculum Connection
PE.1

Shrinking Patterns

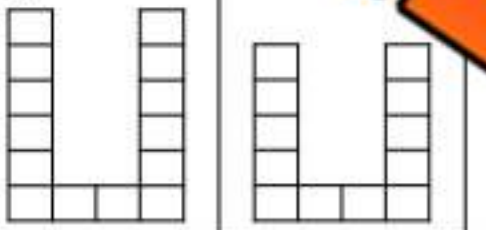
Questions How many blocks are in each term. Sketch the next 3 terms

1)



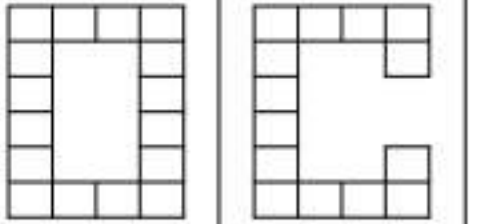
Describe the pattern rule

2)



Describe the pattern rule

3)



Describe the pattern rule

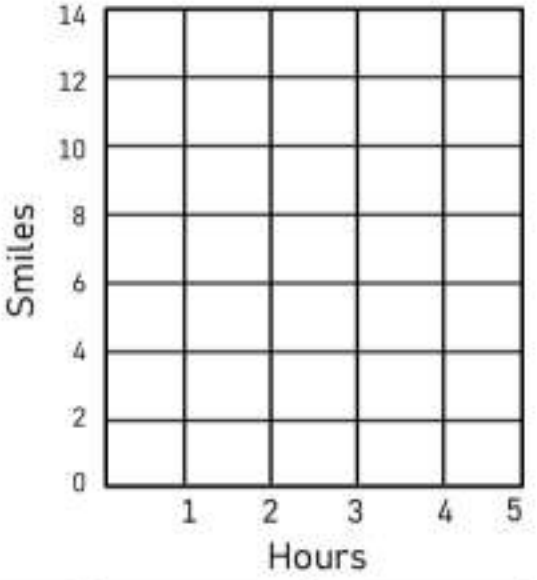
Name: _____ 27

Curriculum Connection
PE.1

Graphing Shrinking Patterns

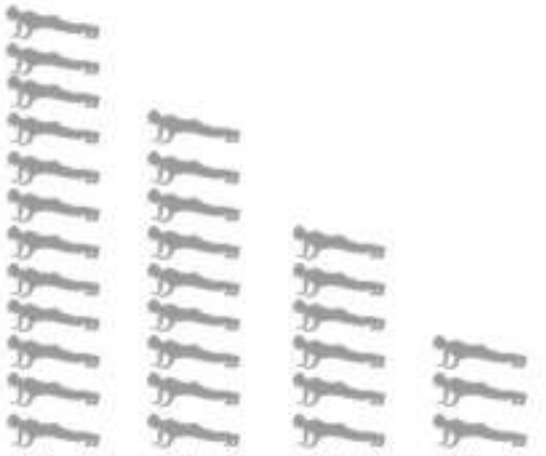
Questions Translate each shrinking pattern into a table of values and a line graph

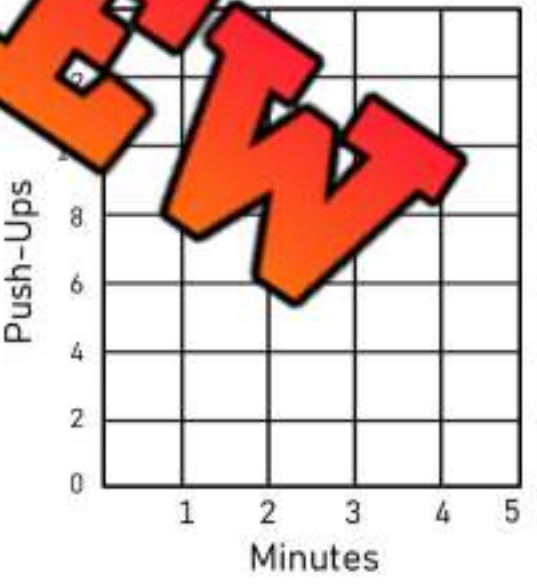
1) Jane kept track of how many times she smiled in an hour



Term Number					
Term Value					

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





Term Number					
Term Value					

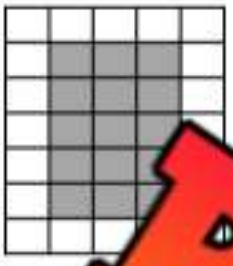
Name: _____ 28

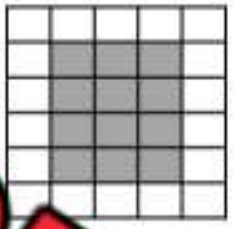
Curriculum Connection
PE.1

Shrinking Patterns

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

1)





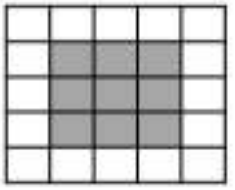
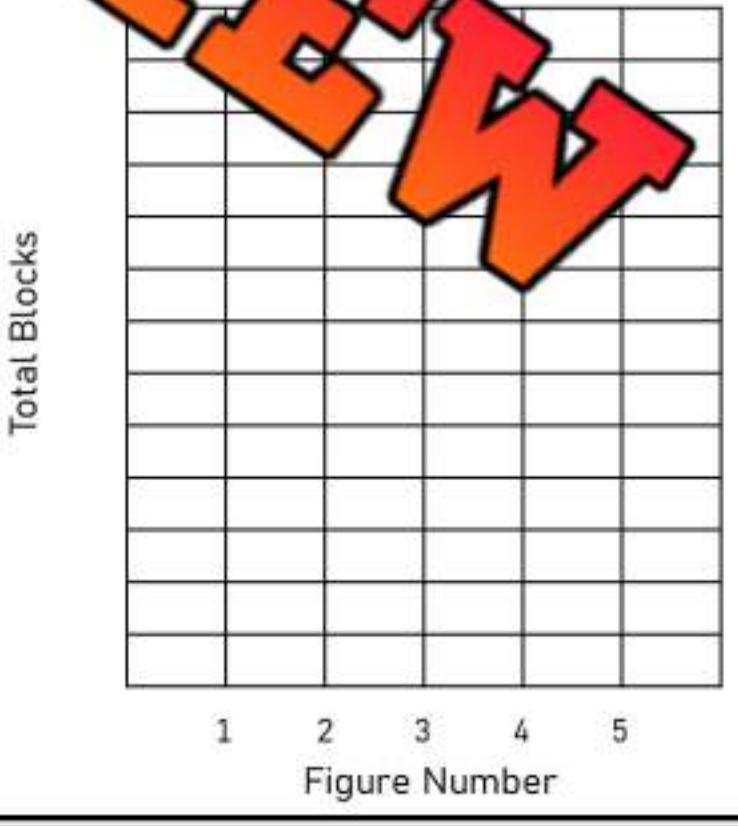


Figure Number			3	4	5	6
Number of grey blocks						
Number of white blocks						
Number of total blocks						

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: _____ 30

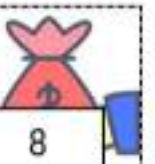
Curriculum Connection
PE.1

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.

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

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



Hour[illegible]	1	2	3	4	5	6	7	8
Mo[illegible] ($)		42	63					

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

2) Laura sells cars. She [illegible] comm[illegible]hen she sells a car. Her earnings for last week are repres[illegible] th[illegible]w. There were some days she did not earn commission.

Days Worked	1	2	3	4	[illegible]	6	7
Money Earned ($)	105	210	3[illegible]	4[illegible]	[illegible]	715	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 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: _____

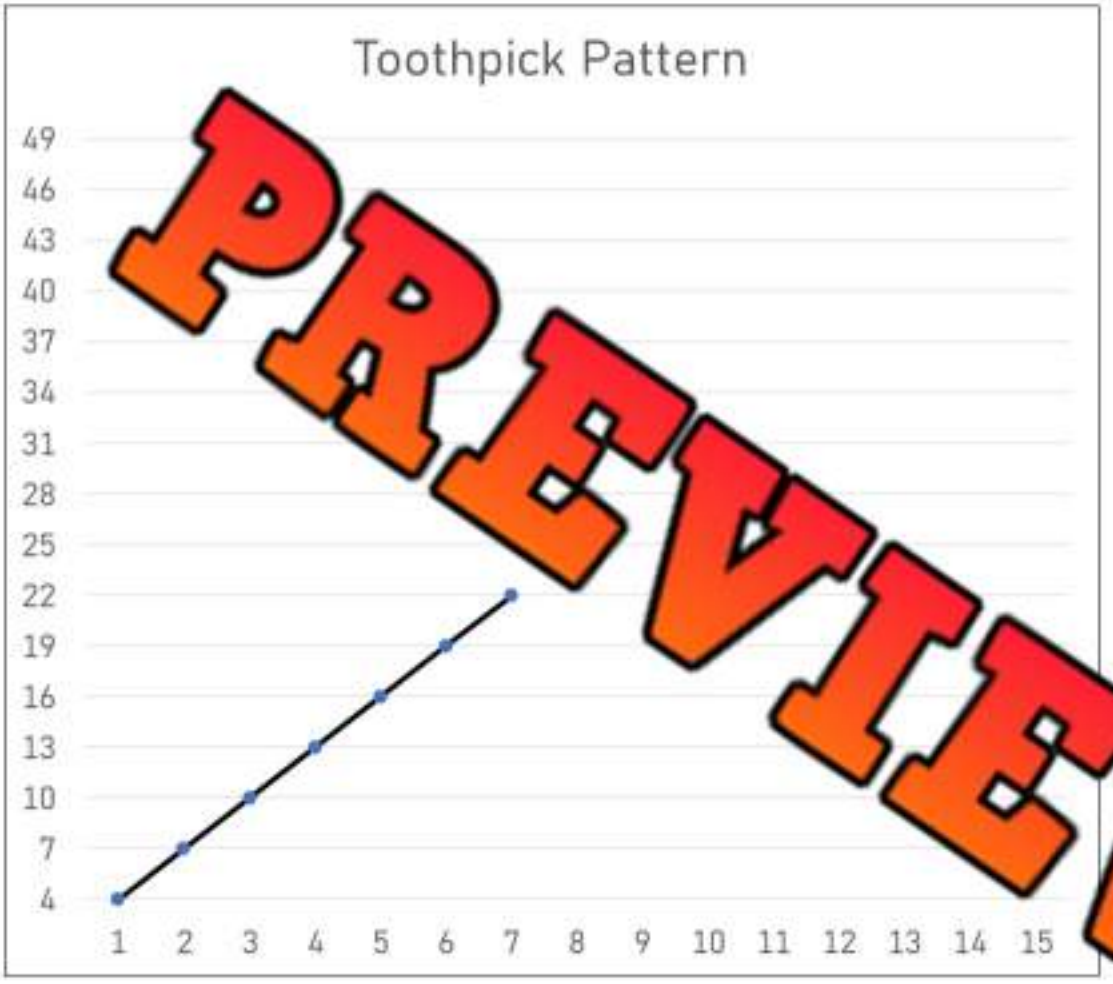
Name: _____ 31

Curriculum Connection
PE.1

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.

Questions 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

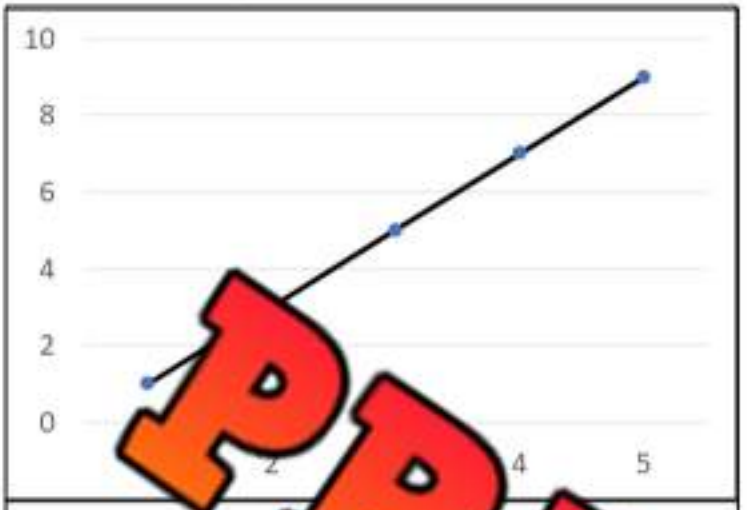
2) What is the constant rate of change?

Name: _____ 32

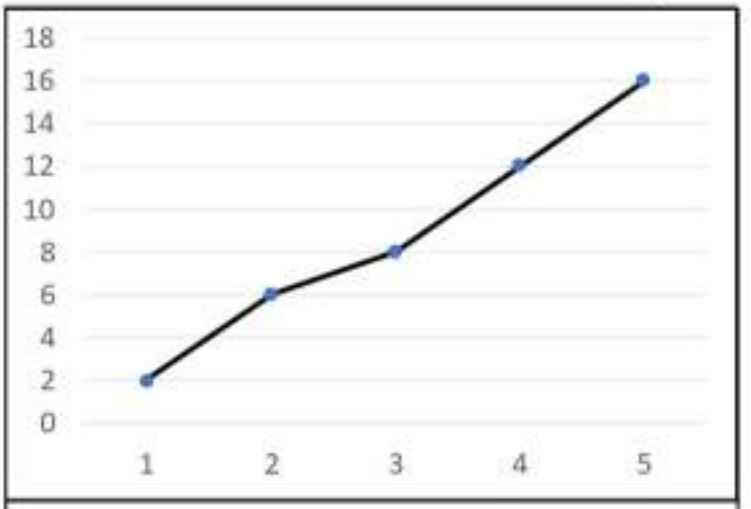
Curriculum Connection
PE.1

Increasing Linear Patterns - Yes or No?

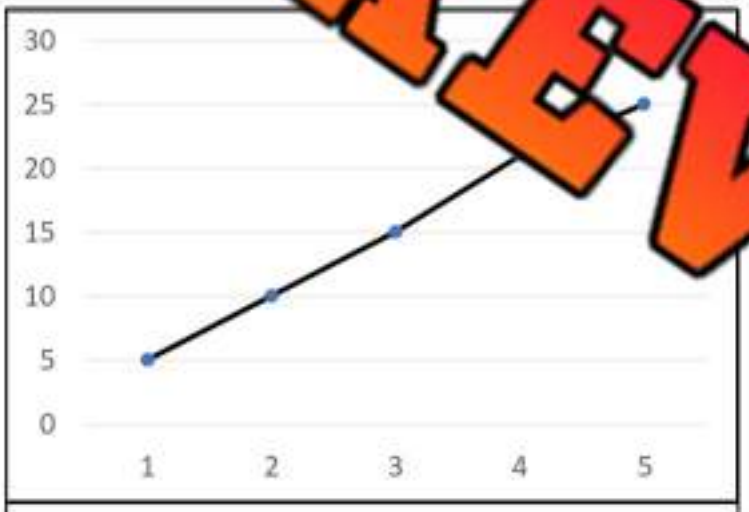
Questions Circle if the pattern displayed on the graph is linear or non-linear



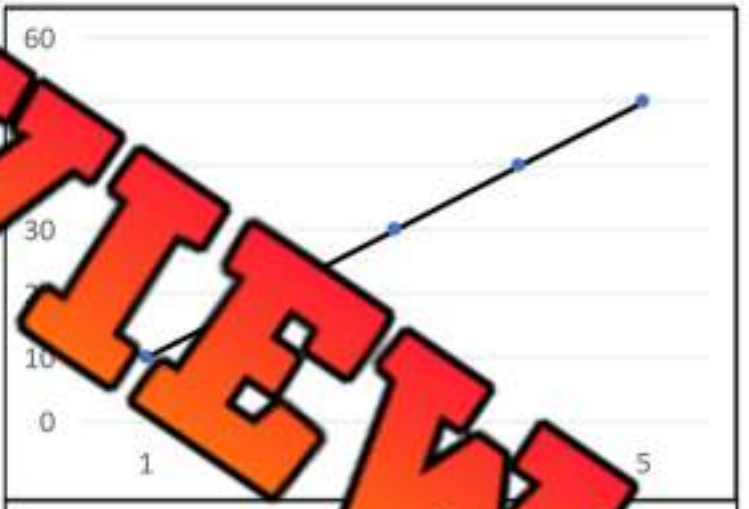
1) Lin -Lin



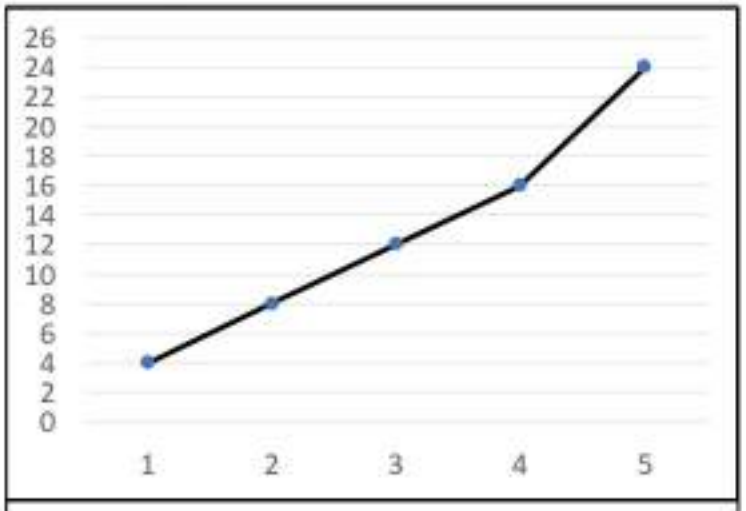
2) Linear Non-Linear



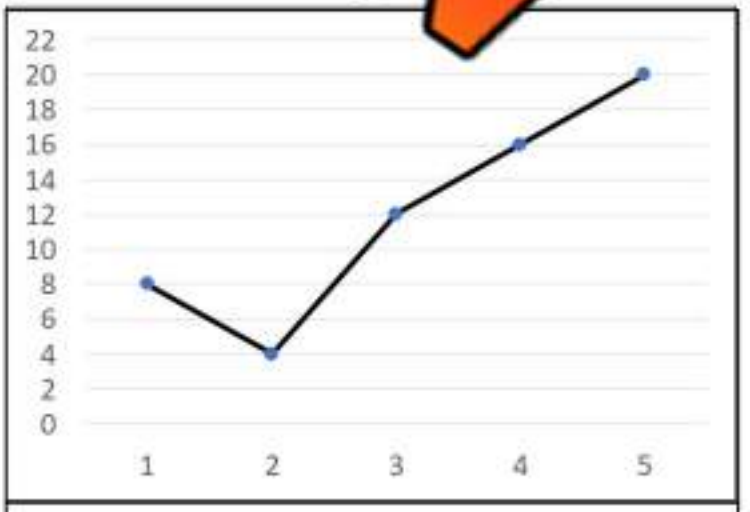
3) Linear Non-Linear



4) Linear



5) Linear Non-Linear



6) Linear Non-Linear

Name: _____ 33

Curriculum Connection
PE.1

Increasing Linear Patterns - Yes or No?

Questions Circle if the pattern is linear or not based on the table of values

1)

Term Number	Term Value
1	2
2	6
3	10
4	
Linear	

2)

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

3)

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

4)

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

5)

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

6)

Term Number	Term Value
1	25
2	75
	125
	175
	225
	Linear

7)

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

8)

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

9)

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

Name: _____ 35

Curriculum Connection
PE.1

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) Ter	1	2	3	4	5
	35	70	105	140	175
	60	80	110	140	170
		or *y*			

3) Term Number			3	4	5
x	22		340	400	460
y	125			275	325
		x or			

4) Term Number	1	2			5
x	612	635			704
y	548	575	602		
		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: _____ 36

Curriculum Connection
PE.1

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?

Weeks	0	1	2	3	4	5	6	7
Colton's Earnings ($)	750	1000	1250	1500	1750			
Spen...	0	400	800	1200	1600			

a) Who will ea... er 7 weeks? _____

b) How much ... 's ea... week? _____

c) How much is Spe... ...gs p... ek? _____

d) Whose earnings increa... gr... nt rate? _____

Weeks	0	1	2	3	4	5	6	7
Jacob's Earnings ($)	1550	2000	2450	...0				
Jeremy's Earnings ($)	0	650	130...	...950				

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? _____

Name: _____ 37

Curriculum Connection
PE.1

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 [illegible] term?	
d) How many **rectangles** will be in the 1[illegible]th 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: _____ 39

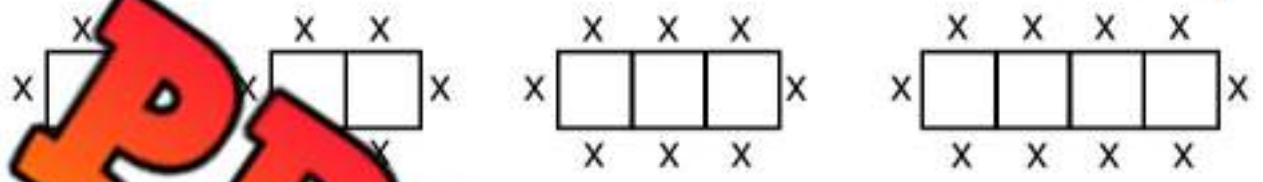
Curriculum Connection
PE.1

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 t[illegible]rn [illegible]bout the pattern of how many people can attend the banquet.

Tables	1	[illegible]	3	5	10	20	50
# of Seats							

b) Write the algebraic expression you used to f[illegible] the t[illegible]

_____

c) What if you didn't put the tables together? Would 8 tab[illegible] tog[illegible] less than 8 tables apart? Draw a diagram to help and fill in the [illegible].

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

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

_____

Name: _____ 42

Curriculum Connection
PE.1

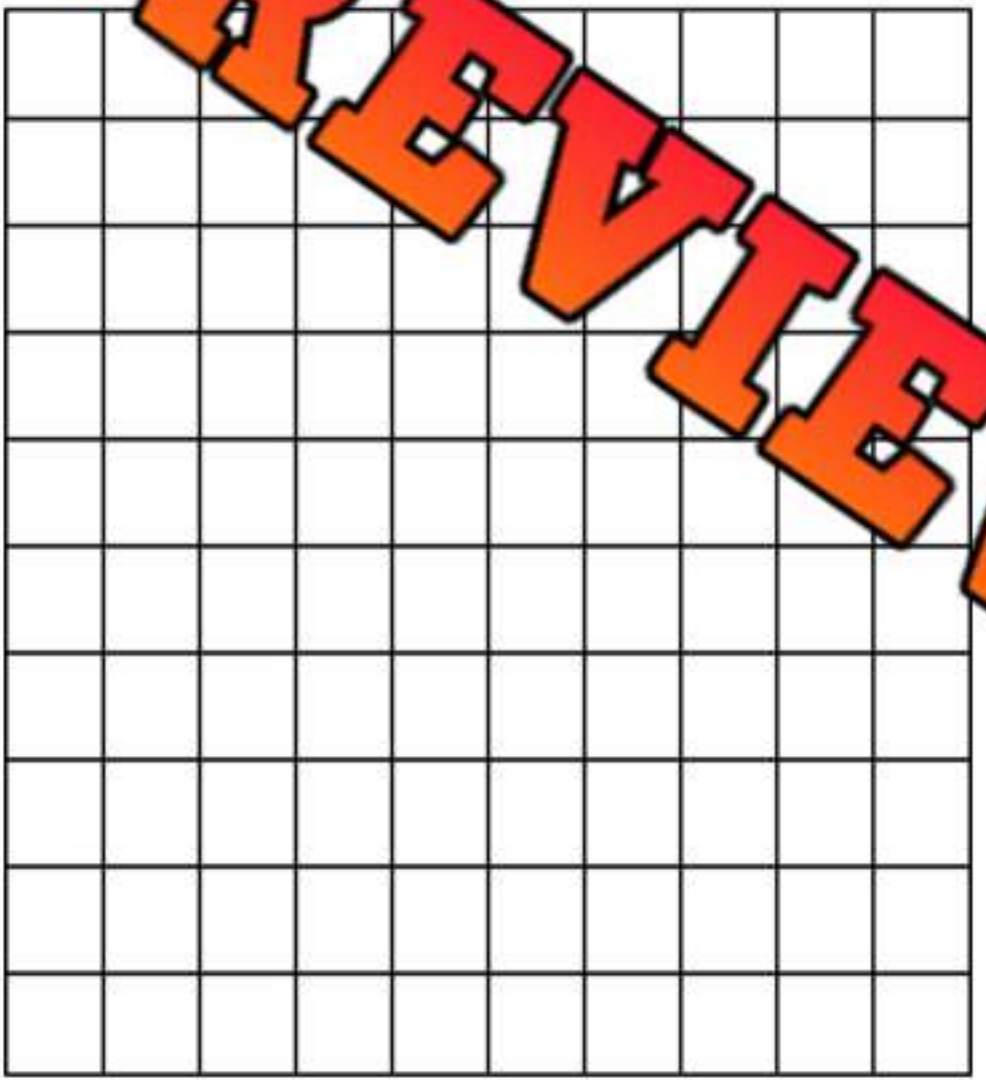
Saving Money

Questions | Complete the table of values and graph the results

Rob is saving money to buy a new bicycle for $2000. He has $400 already and gets a new job that pays him $200 a week. Fill in the table to learn more about Rob's savings.

Term Number	**0**									
Term Valu	**400**									

Algebr[illegible] _____



Questions

1. Which week can Rob buy his bike?

_____

2. How much did he save in 10 weeks?

_____

[illegible] many w[illegible]ould he ne[illegible]to save $3000.

_____

4. How much money would he have after 20 weeks?

_____

_____

Name: _____ 45

Curriculum Connection
PE.1

Pattern Rule - Input/Output Tables - Integers

Questions Fill in the input/output tables below

In n	Out $n + (-3)$
1	
2	
3	
5	

In n	Out $2n + (-5)$
1	
2	
3	
4	
5	

In n	Out $n + 6$
-1	
-2	
-3	
-4	
-5	

In x	Out $x + (-2)$
-2	
-4	
-6	
-8	
-10	

In x	Out $x + (-5)$
4	
6	
8	
10	

In x	Out $x + 11$
-1	
-3	

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

In p	Out $p + (-12)$
-3	
-6	
-9	
-12	
-15	

In p	Out $p + (-8)$
-3	
-1	
2	
4	
6	

Name: _____ 47

Curriculum Connection
PE.1

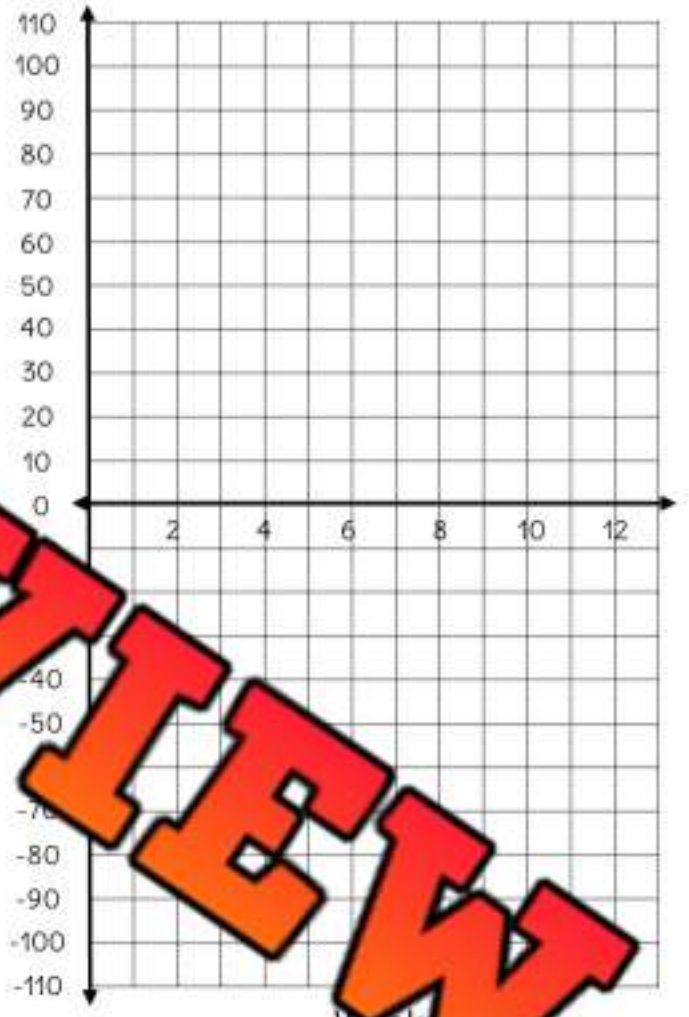
Pattern Using Negative Integers - Olivia's Money

Questions | 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 Nu (W	Term Value (ia's 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: _____ 50

Curriculum Connection
PE.1

Pattern Rule - Input/Output Tables - Integers

Questions Fill in the input/output tables below

In n	Out $n - (-2)$
1	
2	
3	
5	

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

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

In x	Out $x - (-5)$
-2	
-4	
-6	
-8	
-10	

In x	Out $x - 3$
4	
6	
8	
10	

In x	Out $x - 9$
-1	
-3	

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

In p	Out $p - (-15)$
-3	
-6	
-9	
-12	
-15	

In p	Out $p - (-12)$
-3	
-1	
2	
4	
6	

Name: _____ 52

Algebra Quiz - Patterning

Part 1 Is Anna describing the recursive or functional relationship?

	Pattern					Anna's Description	Recursive or Functional
1)	x	1	2	3	4	The term number is multiplied by 3 and then 4 is added.	
	y	7	10	13	16		
2)	x		1	2	3	The y variable has 15 added each time	
	y		5	20	35		

Part y blocks are in each term. Sketch the next 3 terms

1)

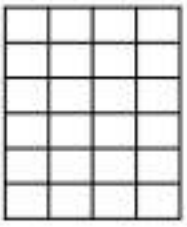
1) Describe the recursive relationship betwe num

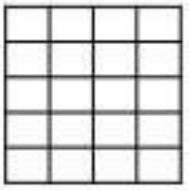
2) Represent the pattern using an algebraic expression.

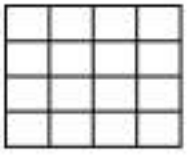
3) How many blocks will the 15th term have?

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

2)







Describe the recursive relationship between the number of blocks.

Grade 7

Equations

	Curriculum Expectations	Pages That Cover the Expectations
PE.2	two-s[illegible]ations [illegible]le-number coefficien[illegible]ons [illegible]tions	57 - 113

Name: _____ 58

Curriculum Connection
PE.2

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 patt… has the following rule: $n \times 3 - 1$	Equation	Expression
3) Mari… nts to … this week. She has already run 22km. $22 + r$	Equation	Expression
4) The cost to enter an … part… per ticket. $20 \times$	Equation	Expression
5) Jeff works at a garden centre and e… $15 … ur. He can figure out his pay by using the follow… $h \times 15$	…tion	Expression
6) Bailey made $200 last week working with her mom. She worked 10 hours. $10 \times w = 200$	Eq…	…sion
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: $b \times 30$	Equation	Expression

Name: _____ 61

Curriculum Connection
PE.2

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) $41 + x$	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) $3 + y$	3) $8 + y + (n)$	4) $y + 12 + (n)$
5) $43 + y + (n)$	6) $(n) + y + 20$	7) $(n) + 5$	8) $53 + (n) + y$

Part 3 Evaluate the following expressions for $x = -5$ and p

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: _____ 63

Curriculum Connection
PE.2

Evaluating Algebraic Expressions - Café

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

Sol[illegible] braic expression and then evaluate using the menu prices

Customer Ord[illegible]	Expression	Answer
1) 2 coffees, 1 muffin	2 x *c* + m 2.50 + 2.25	
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: _____ 67

Curriculum Connection
PE.2

Writing Equations

An equation is a statement that two expressions are equal. An expression has no equal sign, whereas an equation has an equal sign. When we can solve the answer to an expression, it becomes an equation because we add an equal sign.

Expression	Equation
Eight more than a number $8 + n$ $n = ?$	Eight more than a number is 14 $8 + n = 14$ $n = 6$

Part 1 Write equations for each sentence

	Equation	Answer
1) Nine less than a number		
2) Fifteen more than a number		
3) Eight times a number is 24		
4) Twelve divided by a number is three		
5) A number plus eight divided by two is 10		
6) Seven times a number plus four is 39		

Part 2 Write a sentence in words for each equation

Equation	Sentence	Value of n
1) $4n = 24$		
2) $8 + n - 3 = 10$		
3) $5 + \frac{12}{n} = 7$		
4) $3n - 3 = 12$		

Name: _____ 68

Curriculum Connection
PE.2

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 = 50

Part 1

Put a slash through the equal sign (≠) if it is not balanced

1) 6 [illegible] 70	2) 51 + 15 = 67	3) 47 + 13 = 50
4) 65 + [illegible]	5) 74 + 13 = 87	6) 92 + 11 = 103
7) 95 + 25 = 110	8) 12[illegible] = 138	9) 144 + 17 = 171
10) 155 + 26 = 181	11) 1[illegible] 144 = [illegible]	12) 212 + 12 = 224

Part 2

Fill in the missing number to balanc[illegible]ation

1) ☐ + 12 = 95	2) ☐ + 25 = 50	3) ☐ [illegible] = 66
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: _____ 71

Curriculum Connection
PE.2

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.

Directions Fill in the leaderboard

Player	Round 1	Round 2	Final Score
Rich	-2	-5	
	-5		-5
Dominic		-2	-6
Kayden		-1	
Silas			-1
Lillian	3		
Brooklyn	-2		-5
Natalie			-1
Andrew	-4	6	
Santiago		5	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: _____ 76

Curriculum Connection
PE.2

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.

Question Find out the value of the variable

1) [illegible]	2) n - 21 = 35 n =	3) 52 - n = 41 n =
4) 73 - [illegible] p =	5) 64 - p = 53 [illegible]	6) p - 32 = 50 p =
7) 87 - y = 61 y =	8) [illegible]	9) 102 - 13 = y y =
10) 109 - t = 94 t =	11) 124 - t[illegible] t =	12) 143 - t = 129 t =
13) 158 - a = 127 a =	14) 174 - a = 142 a =	15) [illegible] 175

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) subtract 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 =

Name: _____ 78

Curriculum Connection
PE.2

Writing Subtraction Equations

Questions Write the equation using the variable and then solve the equation

1) Iris started the weekend with $531 in her bank account. She went shopping (*s*) at the mall and now has $126. How much did she spend at the mall?

2) Mel[illegible] 000m race. She has run 3463m already. How many metres does [illegible] race?

3) Declan is driving to an amus[illegible]ent [illegible] park is 651km away. He will need to stop for gas at the 350km ma[illegible] man[illegible] ill he have left (*l*) after he stops?

4) Piper is climbing Mount Everest to Base Camp. It is 5,464m hi[illegible] a break with 2,850m left. How many metres has she climbed (*c*) a[illegible]d

5) Clara is driving to her cottage in northern Alberta. The total distance is 950km. She has driven 537km already. How much more distance (*d*) does she need to drive?

Name: _____ 79

Curriculum Connection
PE.2

Integer Patterns - Average Temperatures

Questions 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)
Ca AB)	6	-7	
T U)	10	-3	
oria (B	12	6	
Yellowkn	1	-21	
Winnipeg	5	-14	
Ottawa (ON)	8	-8	
Eureka (NU)	-2	-38	
Quebec City (QC)	7		

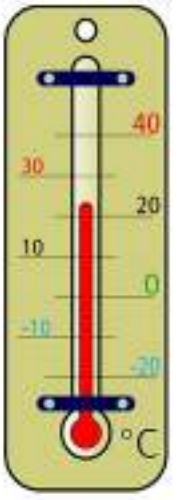
a) Fill in the table with the temperature diff fro ber to February.

b) Write an equation using the variables: *f*, *o*, a ds h rence between the temperatures in each city from Oct Febr

c) Which city had the largest difference between their Octobe nd 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?



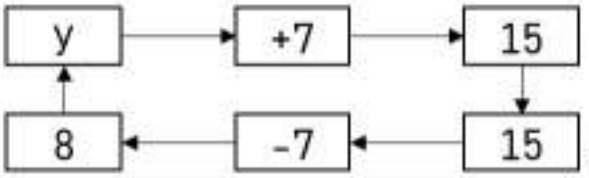
Name: _____ 80

Curriculum Connection
PE.2

Adding and Subtracting Equations - Flow Chart

We can use a reverse flow chart to calculate the value of a variable in an equation.

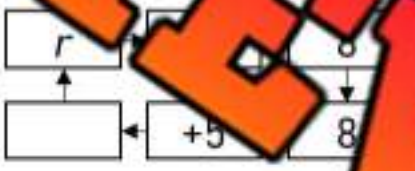
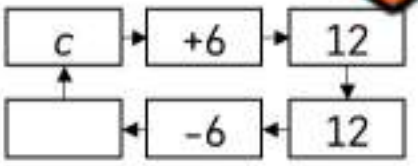
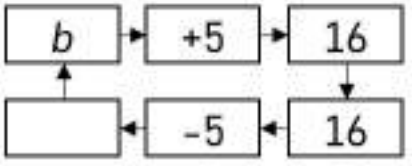
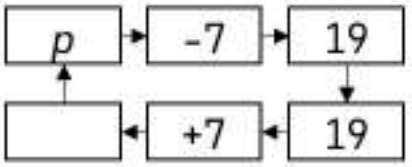
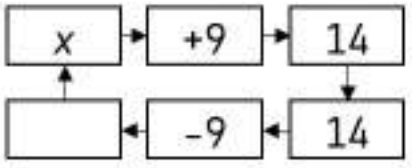
Example: $y + 7 = 15$

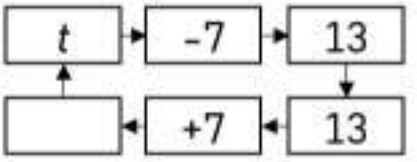
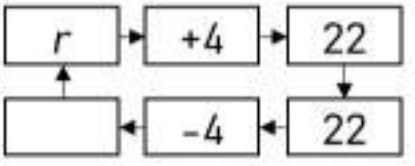
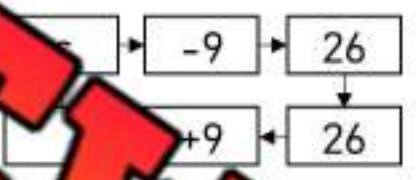
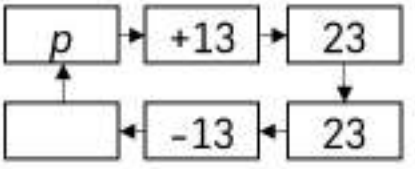
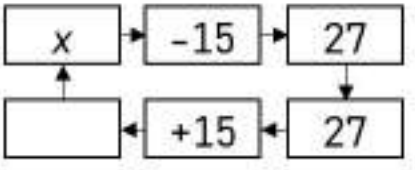


- Equation represented the same

- Use the opposite operation in the middle and solve for the last box

Directions Use the flow chart to find the value of the variable

1) $t - 3$	
2) $r - 5 = 8$	
3) $c + 6 = 12$	
4) $b + 5 = 16$	
5) $p - 7 = 19$	
6) $x + 9 = 14$	

71) $t - 7 = 13$	
$r + 4 = 22$	
$- 9 = 26$	
10) $b + 11 = 31$	
11) $p + 13 = 23$	
12) $x - 15 = 27$	

Name: _____ 83

Curriculum Connection
PE.2

Multiplication - Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal

6 x 3 ≠ 16 3 x 8 = 24 7 x 6 ≠ 49

Part 1

Put a slash through the equal sign ≠ if it is not balanced

1) [illegible]	21) 8 x 4 = 31	3) 8 x 3 = 21
4) 8 x [illegible]	5) 9 x 2 = 18	6) 4 x 9 = 36
7) 7 x 7 = 49	8) [illegible]	9) 6 x 6 = 42
10) 3 x 10 = 30	11) [illegible] x 7 = [illegible]	12) 8 x 4 = 32

Part 2

Fill in the missing number to [illegible] the [illegible]tion

1) 6 x 6 = ☐	2) 14 x 4 = ☐	3) 4 x 5 = ☐
4) 20 x 3 = ☐	5) 6 x ☐ = 18	6) 11 x ☐ = 110
7) 4 x ☐ = 44	8) ☐ x 6 = 30	9) 8 x ☐ = 48
10) 10 x 9 = ☐	11) 7 x ☐ = 56	12) 12 x ☐ = 48

Name: _____ 84

Curriculum Connection
PE.2

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 x 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) 5 n =	2) 4n = 16 n =	3) 8(s) = 48 s =
4) 9 x 4 p =	= 35	6) 7k = 21 k =
7) 3n = 21 n =	6n n =	9) n x 7 = 77 n =
10) 5n = 45 n =	11) 8 x 7 = t t =	9 x 4 = p
13) 8n = 96 n =	14) 10n = 100 n =	7
16) 9(s) = 27 s =	17) 8 x 8 = s s =	18) 6 x t =

Part 2

Calculate the area using the variables for Length and Width

The formula for calculating area is: A = L x 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: _____ 86

Curriculum Connection
PE.2

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
			

Questions Complete the table below. The first one is done for you

#	Order				Equation	Answer
	[illegible]			D		
1	1			0	t = 1b + 2m	T = 5 + 6 T = 11
2	1	0				
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		

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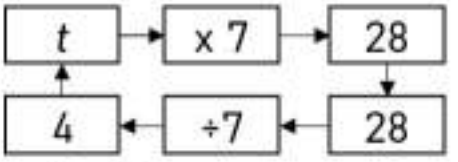
Curriculum Connection
PE.2

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 [illegible]st box to find the value of the variable, which it points to

Example: $7t = 28$



Directi[illegible]ll in the blank in the flow chart

1) $4t = 12$		6) $11t = 77$	
2) $8r = 48$		7) [illegible]	
3) $5c = 35$		8) $7c = 56$	
4) $6b = 42$		9) $12b = 144$	
5) $9p = 72$		10) $9n = 63$	

Name: _____ 90

Curriculum Connection
PE.2

Division - Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal

$8 \div 2 \neq 5$ $9 \div 3 = 3$ $15 \div 3 \neq 3$

Part 1

Put a slash through the equal sign if it is not balanced

1)	2) $45 \div 5 = 9$	3) $36 \div 4 = 8$
4) $48 \div$	5) $27 \div 3 = 9$	6) $35 \div 7 = 5$
7) $55 \div 5 = 11$	8)	9) $42 \div 7 = 6$
10) $110 \div 11 = 10$	11) $18 \div 2$	12) $24 \div 6 = 4$

Part 2

Fill in the missing number to balanc atio

1) $42 \div 6 =$ ☐	2) $49 \div 7 =$ ☐	3) 24 ÷ ☐
4) $28 \div$ ☐ $= 4$	5) $18 \div$ ☐ $= 3$	6) $32 \div$ ☐ $= 4$
7) ☐ $\div 5 = 8$	8) ☐ $\div 8 = 7$	9) ☐ $\div 4 = 4$
10) $63 \div 7 =$ ☐	11) $48 \div$ ☐ $= 4$	12) ☐ $\div 8 = 9$

Name: _____ 92

Curriculum Connection
PE.2

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.

Questions Use a formula to find out how many treats (t) each person gets

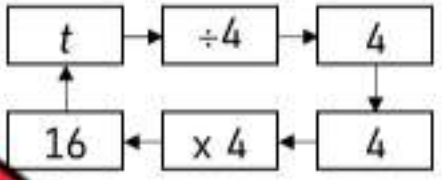
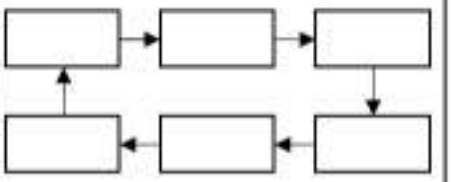
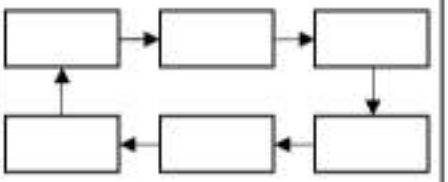
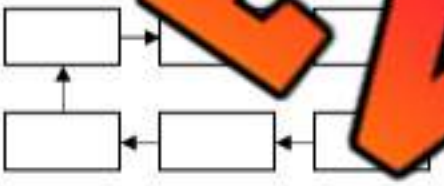
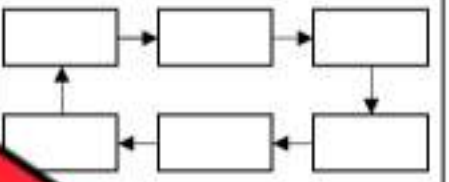
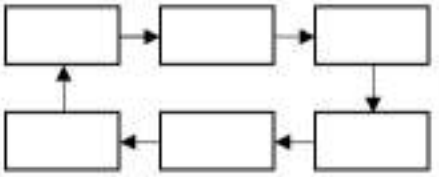
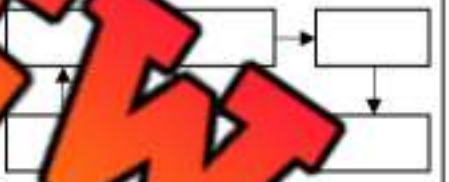
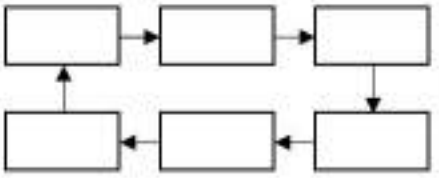
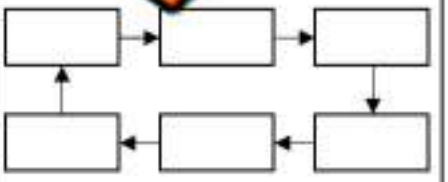
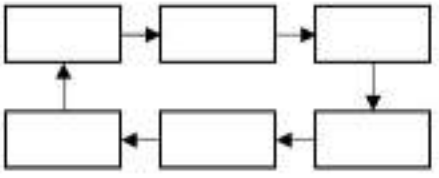
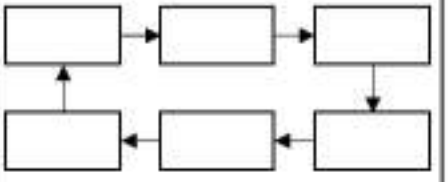
#	Treat	# of Staff (s)	Formula	Answer
1	[illegible] (d)	8	$\frac{d}{s} = t$	$\frac{16}{8} = 2$
2	[illegible] cooki[illegible]	6	$\frac{c}{s} = t$	$\frac{12}{6} = 2$
3	24 muffi[illegible]			
4	60 slices of pizza (p)	[illegible]0		
5	42 bagels (b)	7		
6	36 donuts (d)	12		
7	40 cookies (c)	10		
8	56 muffins (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: _____ 93

Curriculum Connection
PE.2

Division Equations - Flow Chart

Directions 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) $\frac{c}{3} = 9$		$\frac{}{7}$	
4) $\frac{b}{8} = 7$		10) $\frac{b}{12} = 4$	
5) $\frac{p}{4} = 9$		11) $\frac{p}{6} = 8$	
6) $\frac{n}{7} = 3$		12) $\frac{n}{9} = 5$	

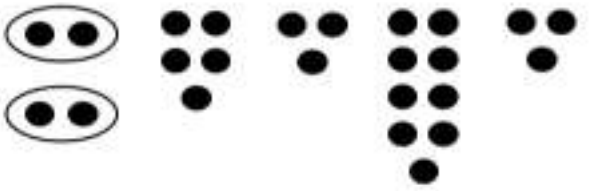
Name: _____ 95

Curriculum Connection
PE.2

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. Investigate this theory below.

Questions Draw circles to represent the equations

#	Original Equation	Change	New Equation
1	2n + 5 = 9 	Add 3	2n + 5 + 3 = 9 + 3 
2	7 + [illegible]	[illegible]	
3	13 − n = 6	Add 3	
4	2n + 6 = 14	Subtract 5	
5	5 + 3n = 17	Add 7	

Name: _____ 97

Curriculum Connection
PE.2

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!

Questions | Fill in the table below

#	Original Equation	Change	New Equation
1	5n = 20 n = 4	Add 8 to each side	5n + 8 = 20 + 8 n = 4
2		Add 6 to each side	
3	15 + n =	ct 11 from each ide	
4	6n = 18 n =	Mu ch si	
5	4n = 24 n =	Divide each si	
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	

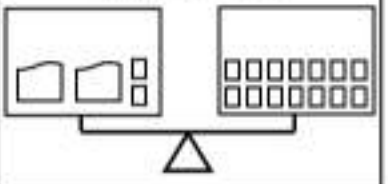
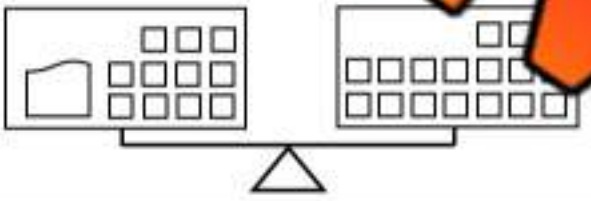
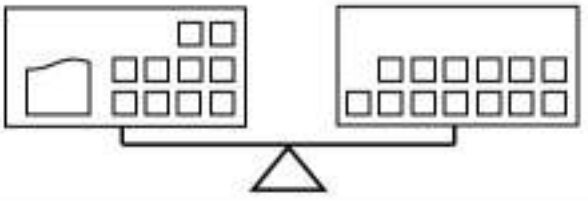
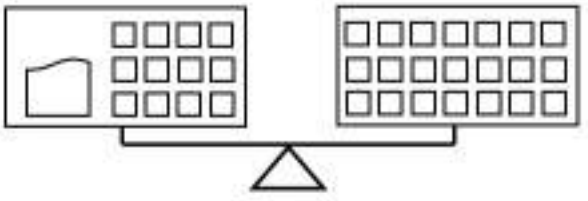
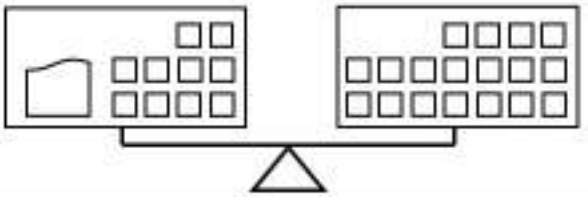
Name: _____ 98

Curriculum Connection
PE.2

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.

Questions Write 2 different equations for each pictorial representation

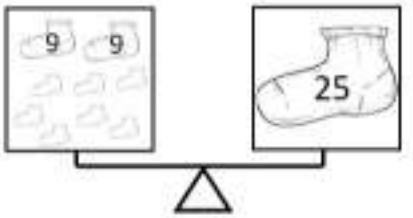
#	Pictorial Representation	Equation # 1	Equation # 2
Ex)		b + 8 = 14	2b + 2 = 14 
1)			
2)			
3)			
4)			
5)			

Name: _____ 100

Curriculum Connection
PE.2

Using Linear Equations and Pictorial Representations

Questions Write a pictorial representation and linear equation of the example

#	Real-World Example	Linear Equation	Pictorial Representation
Ex)	Kennedy has 25 socks. She has an equal number of black and white socks that she keeps in 2 piles. She has 7 [illegible]domly coloured socks. How [illegible]cks are in each pile?	2p + 7 = 25 p = 9	
1)	[illegible]kies to school [illegible]ve the[illegible] She gave 8 to her tea[illegible] e[illegible]of her frien[illegible]y fri[illegible] she give coo[illegible]		
2)	Harley earned $42 fro[illegible] today after she worked fo[illegible]ours She received a $10 tip as part of the $42. What does Harley earn p[illegible] hour at her job?		
3)	You paid $15 for admission to the movies. Snacks were $4 each. If you spent $27 in total, how many snacks did you buy?		
4)	In a basketball game, Henry scored 23 points. This was 5 more than double the points he scored last game. How many points did he score last game?		
5)	Katie and Sam went on an Easter egg hunt. Katie found 24 eggs. Katie found 3 times more eggs than Sam. How many eggs did Sam find?		

Name: _____ 103

Curriculum Connection
PE.2

Representing Linear Equations ($ax + b = c$)

Questions Write a pictorial representation of the linear equations provided

#	Linear Equation	Pictorial Representation
Ex)	$3x + 6 = 30$ $x = 8$	 3 groups of 8 + 6 = 30
1)		
2)	$8x +$ $x =$	
3)	$5x + 4 = 29$ $x =$	
4)	$7x + 6 = 34$ $x =$	
5)	$2x + 9 = 23$ $x =$	
6)	$4x + 9 = 25$ $x =$	
7)	$8x + 5 = 29$ $x =$	

Name: _____ 107

Curriculum Connection
PE.2

Representing Problems with Linear Equations (ax + b = c)

Questions Represent the problems with linear equations (ax + b = c) and solve for *x*

1) Hunter's cousin is 24 years old. He is 2 years older than twice Hunter's age. How old is Hunter?

Linear equation: *x* =

2) Jes…ht 32 treats to work and gave them all away. She gave 8 to her b… …h of her friends. How many friends did she give treats to?

…equ… *x* =

3) Cindy has $8. …s much as her brother. The three of them have $44. How m… do… …ther have?

Linear equation: *x* =

4) Dylan went to an amusement park. He … pa… …de he went on. He decided to go on 8 rides. He also had to pa… $… …ter th… …k. In total, it cost him $52 at the amusement park. How mu… …h rid…

Linear equation: *x* =

5) Carson earned $63 from work today. He worked for 4 hours a… …eceived a bonus of $15. How much does he earn per hour?

Linear equation: *x* =

6) Shelly collected 66 treats on Halloween. She went to 15 houses and started with 6 candies at the beginning. How many candies on average did she collect at each house?

Linear equation: *x* =

Name: _____ 110

Algebra Quiz - Equations

Part 1 Is the example an expression or equation? Circle your answer

	Sentence	Answer
1)	8n	Expression Equation
2)	[illegible]	Expression Equation
3)	[illegible] + n – 3	Expression [illegible]ation

	Sentence	Answer
4)	$11x + 12 = 26$	Expression Equation
5)	$\frac{28}{x} + 12 = 16$	Expression Equation
6)	$\frac{35}{x} + x$	Expression Equation

Part 2 E[illegible]te th[illegible] expressions for $x = 5$

1) $x - 10$	2) 9[illegible]	[illegible] – x	4) $x - 14$
5) $44 + x$	6) $67 + x$	7) [illegible]	[illegible]9 + 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) $\frac{y}{y} \times y$

Grade 7

Measurement and Geometry

	Curriculum Expectations	Pages That Cover the Expectations
MG.1	circumference and area of circles	3 – 25
M		
MG.3	Cartesian coordinates and graphing	42 – 49
MG.4	combinations of transformations	50 – 80

Name: _____ 4

Curriculum Connection
MG 1

Relationship Between Radius and Diameter

The distance from any point on the outside of a circle to its centre is always the same. This distance is a circle's radius (*r*).

Part 1 Use a ruler to measure the line segments. Is the radius related to the diameter?

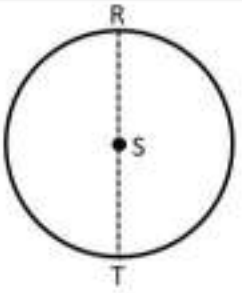
1)

a) SR = _____

b) ST = _____

c) RT = _____ (diameter)

2)

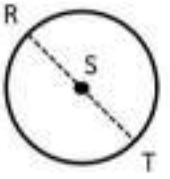


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

3)

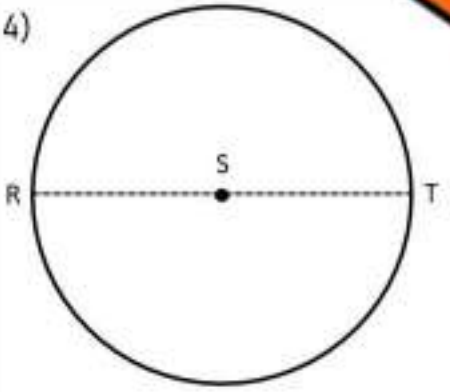


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

4)

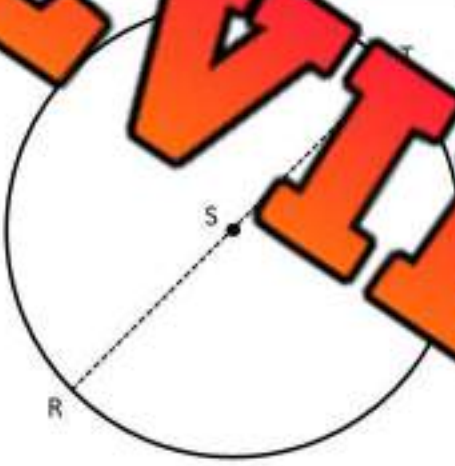


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

5)

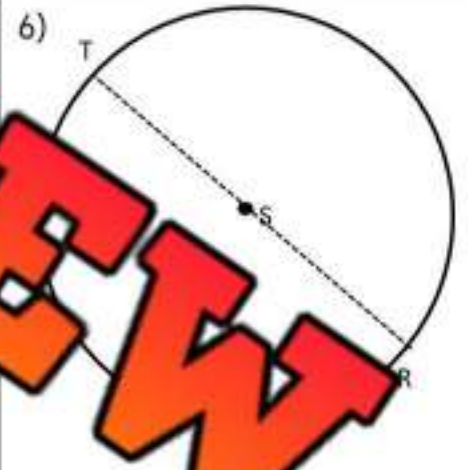


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

6)



a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

Part 2 Answer the questions below

Question	Formula
1) If you know the length of the radius, how could you use it to determine the length of the diameter? Write a formula for calculating diameter.	
2) Write a formula for calculating the radius of a circle if you have the diameter.	

Name: _____ 5

Curriculum Connection
MG.1

Calculating Radius and Diameter

Calculating Radius Formula

$r = \frac{d}{2}$ or $r = d \div 2$

Calculating Diameter Formula

$d = 2r$ or $d = r \times 2$

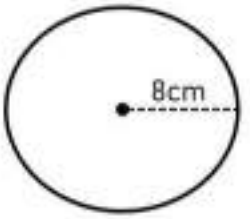
Questions Find the radius and diameter of each circle below

1)

Radius = _____

Diameter = _____

2)



Radius = _____

Diameter = _____

3)

Radius = _____

Diameter = _____

4)

Radius = _____

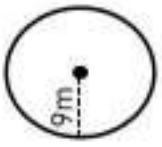
Diameter = _____

Radius = _____

Diameter = _____

6)

7)



Radius = _____

Diameter = _____

8)

Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

10)

Radius = _____

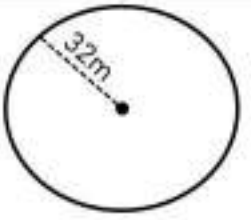
Diameter = _____

11)

Radius = _____

Diameter = _____

12)



Radius = _____

Diameter = _____

Name: _____ 6

Curriculum Connection
MG.1

Calculating Radius and Diameter

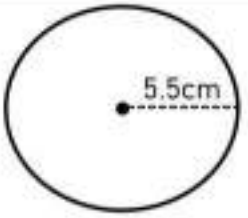
Part 1 — Find the radius and diameter of each circle below

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)		
7)	13.5m	
8)		77cm
9)		85mm
10)	62.2cm	

Part 3 — Answer the word problems below

1)	A pizza has 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: _____ 7

Curriculum Connection
MG.1

Estimating Circumference

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

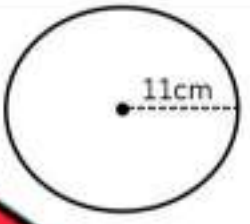
1)

Radius = _____

Diameter = _____

Circumference = _____

2)



Radius = _____

Diameter = _____

Circumference = _____

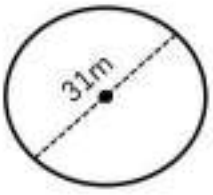
3)

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: _____ 8

Curriculum Connection
MG.1

Calculating Circumference

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)

$c = \pi d$ or $c = \pi \times d$

Calculating Circumference (Radius)

$c = 2\pi r$ or $c = 2 \times \pi \times r$

Practic Calculate the circumference of the circles below

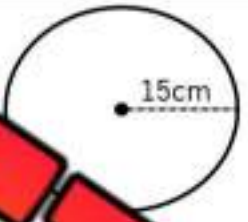
1)

Radius = _____

Diameter = _____

Circumference = _____

2)



Radius = _____

Diameter = _____

Circumference = _____

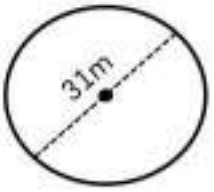
3)

Radius = _____

Diameter = _____

Circumference = _____

4)



Radius = _____

Diameter = _____

Circumference = _____

5)

Radius = _____

Diameter = _____

Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

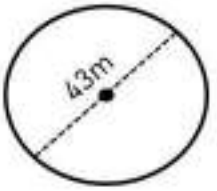
7)

Radius = _____

Diameter = _____

Circumference = _____

8)



Radius = _____

Diameter = _____

Circumference = _____

9)

Radius = _____

Diameter = _____

Circumference = _____

Name: _____ 9

Curriculum Connection
MG.1

Calculating Circumference

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)	6cm		
2)			
3)		22m	
4)		46cm	
5)			
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 106cm 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: _____ 10

Curriculum Connection
MG.1

Circumference 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]ding a fence around his circular yard. His house is in the centre [illegible]tance from his house to the edge of the yard is 15.5 metres.

a) [illegible]hat is [illegible]eter of his yard?

b) If 1 metre [illegible] how much will his fence cost him?

3) Mark can run 100m in 14 secon[illegible] is at [illegible]ular track and is trying to figure out how long it will take him to run [illegible]s. T[illegible]k 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: _____ 11

Curriculum Connection
MG.1

Circumference, Radius, and Diameter

We can calculate the diameter and radius of a circle by using the circumference. Use the formulas below to find the missing information.

Calculating Diameter (Circumference)

$d = \frac{c}{\pi}$ or $d = c \div \pi$

Calculating Radius (Circumference)

$r = \frac{c}{\pi} \div 2$

Practice

Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Diameter	Radius
1)	28	8.9 mm	4.5 mm
2)			
3)			
4)	47 cm		
5)	55 m		
6)	32 mm		
7)	59 km		
8)	64 m		
9)	71 cm		
10)	68 mm		

Part 2

Answer the word problems below

	Questions	Answer
1)	The circumference of a bicycle wheel is 44cm. What is the diameter?	
2)	A donut has a circumference of 12cm. What is the radius?	
3)	A 20cm wire is bent into a circle. What is the diameter of the circle?	
4)	A pizza has a circumference of 1m. What is the radius of the pizza in centimeters?	

Name: _____ 12

Curriculum Connection
MG.1

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 circles below

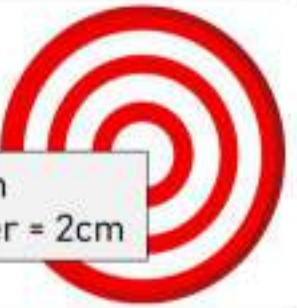
1) Radius = 2cm Diameter = _____	2) Radius = _____ Diameter = 3cm
3) Radius = _____ Diameter = 6cm	4) Radius = 2.5cm Diameter = _____
5) Radius = _____ Diameter = 40mm	6) Radius = 1cm Diameter = _____

Name: _____ 13

Curriculum Connection
MG 1

Drawing Circles Using Radius and Diameter

Draw Draw a target using the measurements below



1) Outside circle – radius = 9cm
2) Next circle – diameter = 14cm
3) Next circle – radius = 5cm

5) Next circle – radius = 3cm
6) Smallest circle – diameter = 2cm

Name: _____ 15

Curriculum Connection
MG.1

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

$a = \pi r^2$

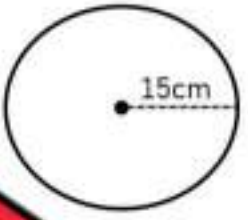
$a = \pi \times 8 \times 8$

$a = 200.96m^2$

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 = _____

9)

Radius = _____ Area = _____

10)

Radius = _____ Area = _____

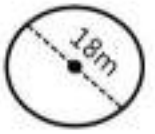
Name: _____ 16

Curriculum Connection
MG.1

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
$a = \pi \times 9 \times 9$
$a = 254.34m^2$

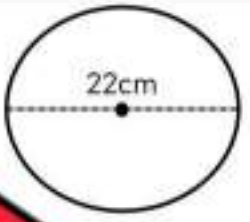
Practice

Calculate the area of the circles using the radius

1)

Diameter = _____
Radius = _____
Area = _____

2)

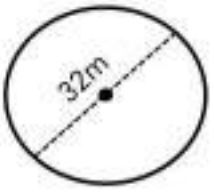


Diameter = _____
Radius = _____
Area = _____

3)

Diameter = _____
Radius = _____
Area = _____

4)



Diameter = _____
Radius = _____
Area = _____

5)

Diameter = _____
Radius = _____
Area = _____

Diam_____
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: _____ 17

Curriculum Connection
MG.1

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 diameter and radius. Round to the nearest tenth

	Circumference	Radius	Area
1)	12	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: _____ 19

Curriculum Connection
MG.1

Circles - Word Problems

Questions Answer the word problems below

1)	A dinner plate has a diameter of 18cm. What is the area of the dinner plate?
2)	A circular golf green has an area of $15m^2$. What is the diameter of the green? 
3)	A dog is put on a leash in the middle of its yard. It goes to the end of its leash and around in a circle. What is the area the dog can play in?
4)	The largest living tree in the world has a circumference of 36m. What is the diameter of the tree? 
5)	A hula hoop has a diameter of 1.2m. What is the diameter of the hula hoop in centimetres?
6)	A steel rod is bent into a circle. The circle now has a circumference of 19cm. What is the area inside the circle?
7)	A storm is expected to hit 8km in every direction from the center of a town. What is the area that the storm will affect? 

Name: _____ 20

Curriculum Connection
MG.1

Circles - Basketball Word Problem

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]. [illegible] WNBA basketballs fit through the hoop at the same time?

Name: _____ 21

Curriculum Connection
MG.1

Circles - Putting Word Problem

Questions Answer the word problems below

A golf hole has a diameter of 11cm.

a) Draw a golf hole below using a compass and the proper measurements.

b) A golf ball has a circumference of 13.4cm. Draw a golf ball below using the proper measurements.

c) Will 2 or 3 golf balls fit in a line across the middle of a golf hole? Explain.

Name: _____ 24

Quiz - Circles

Part 1 Fill in the blanks below

	Radius	Diameter
1)	12 cm	
2)		17 mm
3)		45 m

	Radius	Diameter
4)	7.5 km	
5)	22.5 m	
6)		88 cm

Part e blanks

1)

Radius = _____

Diameter = _____

Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

3)

= _____

= _____

= _____

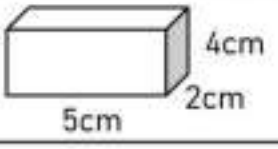
Part 3 Calculate the diameter and radius. Round to t enth

	Radius	Diameter	Circumference
1)	5 mm		
2)		16 m	
3)			22 cm
4)	32 mm		
5)			55 m

Name: _____ 26

Curriculum Connection
MG.2

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

Questions Label the rectangular prisms and then calculate the volume

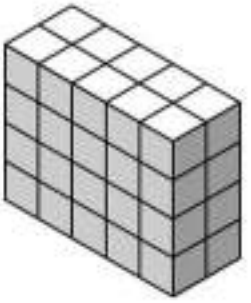
1) 

l = _____

w = _____

h = _____

v = _____

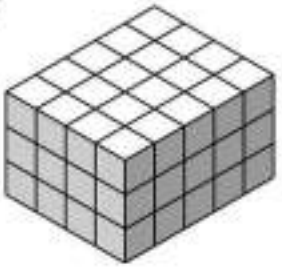
2) 

l = _____

w = _____

h = _____

v = _____

3) 

l = _____

w = _____

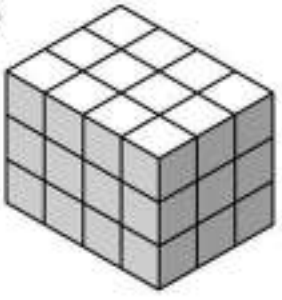
h = _____

v = _____

l = _____

w = _____

h = _____

5) 

l = _____

w = _____

h = _____

v = _____

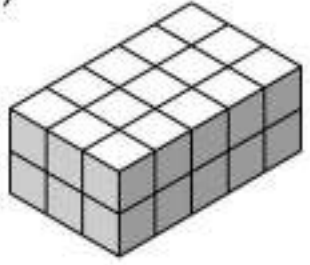
6) 

l = _____

w = _____

h = _____

v = _____

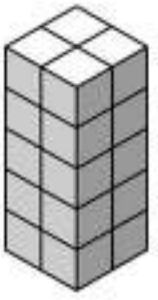
7) 

l = _____

w = _____

h = _____

v = _____

8) 

l = _____

w = _____

h = _____

v = _____

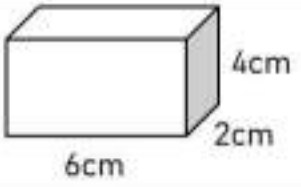
Name: _____ 28

Curriculum Connection
MG.2

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.

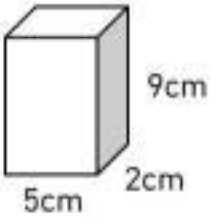


$v = l \times w \times h$
$v = 6cm \times 2cm \times 4cm$
$v = 48cm^3$

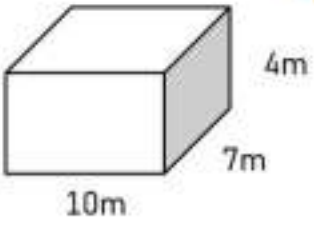
Question Calculate the volume of the rectangular prisms

1)

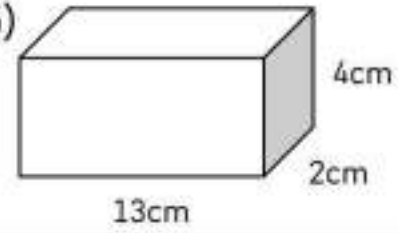
2)



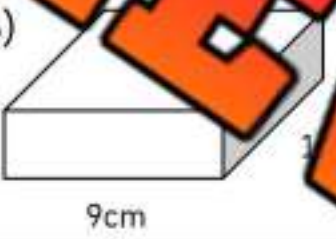
3)



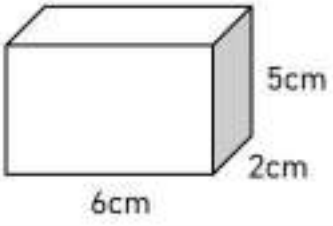
5)



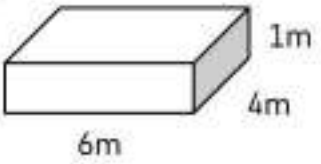
6)



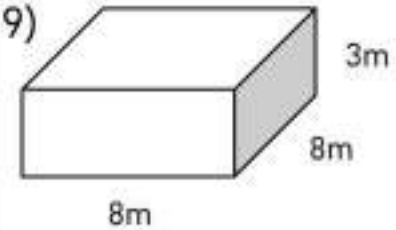
7)



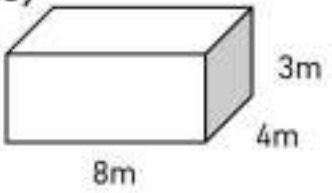
8)



9)



10)



Name: _____ 29

Curriculum Connection
MG.2

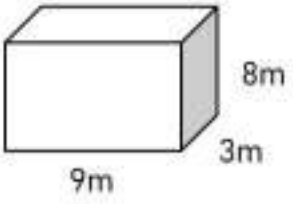
Calculating Volume of Rectangular Prisms

Part 1 A variety of small boxes are used for packaging. Find the volume of each box

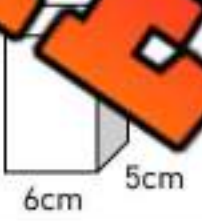
Box Type	Length	Width	Height	Volume
Box 1	9cm	6cm	2cm	
Box 2	7cm	5cm	10cm	
Box 3	5cm	8cm	3cm	
Box 4		9cm	3cm	
Box 5		8cm	6cm	
Box 6			8cm	
Box 7	7cm		4cm	

Part 2 Calculate the volume of the rectangular prisms

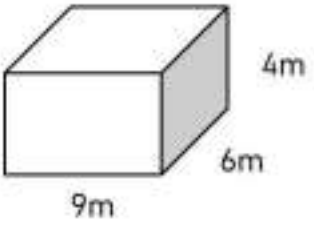
1)



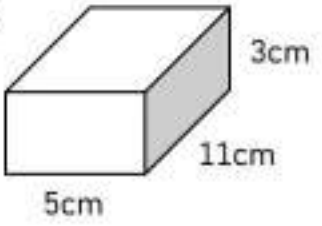
2)



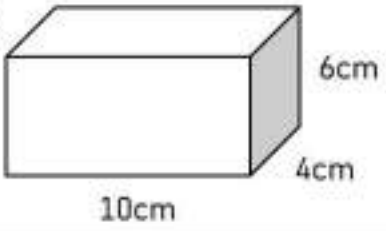
3)



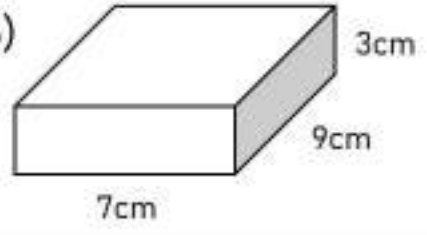
4)



5)



6)



Name: _____ 31

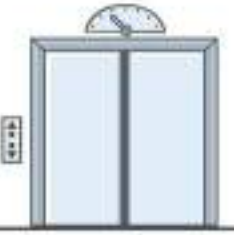
Curriculum Connection
MG.2

Calculating Volume of Rectangular Prisms

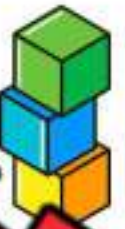
Questions Solve the word problems below

1) A classroom has a width of 13m, height of 200cm, and a length of 1000cm. What is the volume of the classroom in metres cubed?

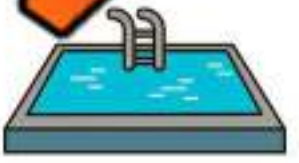
2) A[illegible]s [illegible] tall, 243cm deep, and 415cm long. What is the volum[illegible] the e[illegible] centimetres cubed?



3) A block has a height of 7.[illegible]m, [illegible] and a length of 95mm. What is the volume of the block i[illegible]metr[illegible]e?



4) A pool is 950cm long, 650cm wide, and 310cm deep. W[illegible]ne of the pool in metres?



5) A lunchbox is 120mm wide, 7.2cm tall, and 100mm deep. What is the volume of the lunchbox?

Name: _____ 32

Curriculum Connection
MG.2

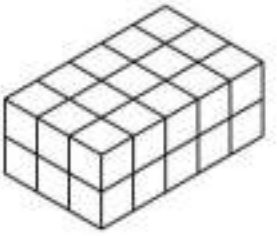
Calculating Volume Using the Base

Questions Fill in the blanks to investigate the area of the base and the height

1)

Area of	Height	Volume
		18

2)

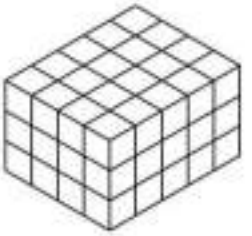


Area of Base	Height	Volume

3)

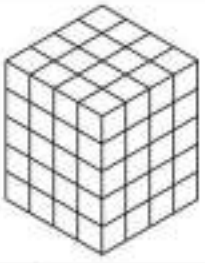
Area of Base	Height	Volum

4)



Ar	Height	Volume

5)

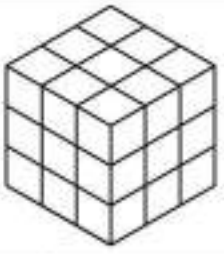


Area of Base	Height	Volume

6)

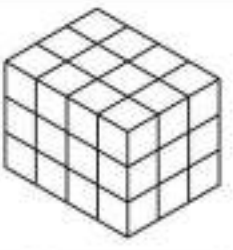
Area of Base	Height	Volume

7)



Area of Base	Height	Volume

8)



Area of Base	Height	Volume

Name: _____ 33

Curriculum Connection
MG.2

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 b

1)	A box of cereal has a base with a length of [illegible] a w[illegible] of 9cm. The height of the box is 22cm. What is the [illegible]ne 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: _____ 34

Curriculum Connection
MG.2

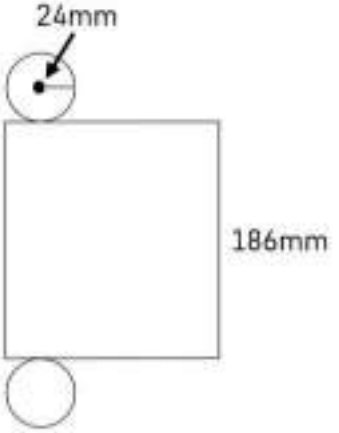
Volume - Cylinders

Part 1 — Solve the questions below

1)

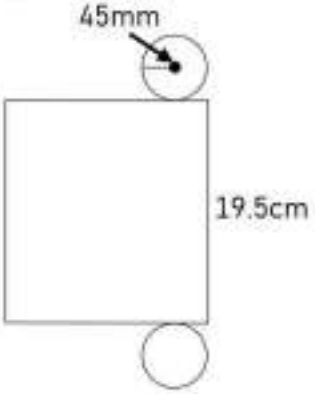
Area of the Base: _____ Volume: _____

2)



Area of the Base: _____ Volume: _____

3)



Area of the Base: _____ Volume: _____

Area of the Base: _____ Volume: _____

Part 2 — Solve the question below

A paint can is 54cm tall and has a diameter of 18cm. What is the volume of the paint can?

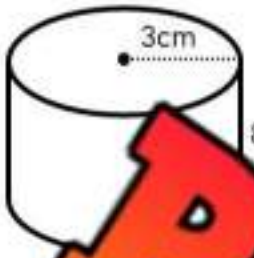
Name: _____ 35

Curriculum Connection
MG.2

Volume - Cylinders

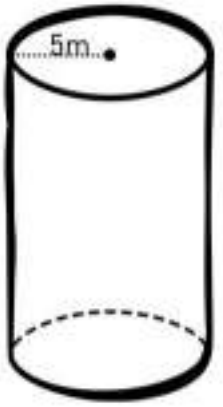
Questions Solve the questions below

1)



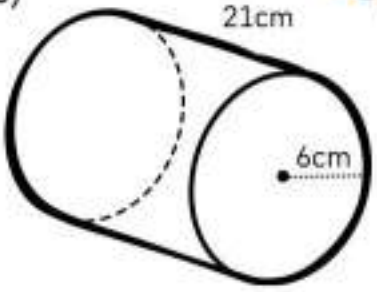
Area of the Base: _____ Volume: _____

2)



Area of the Base: _____ Volume: _____

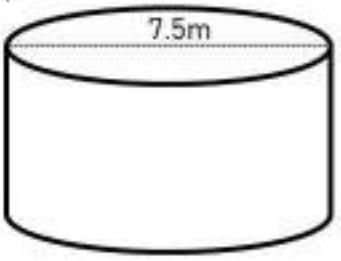
3)



Area of the Base: _____ Volume: _____

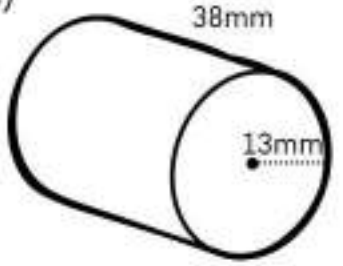
Area of the Base: _____ Volume: _____

5)



Area of the Base: _____ Volume: _____

6)



Area of the Base: _____ Volume: _____

Name: _____ 36

Curriculum Connection
MG.2

Volume of Cylinders

Part 1 Fill in the blanks to investigate the area of the base and the height

	Radius	Area of Base	Height	Volume
1)	8 mm		12 mm	
2)	5 mm		18 mm	
3)			9 cm	
4)			7 km	
5)	9 cm		7 cm	
6)	12 cm		8 cm	
7)	4 m		13 m	
8)	7 m		11 m	

Part 2 Answer the questions below

1) The radius of a swimming pool is 3.6 metres. The height 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?

Name: _____ 38

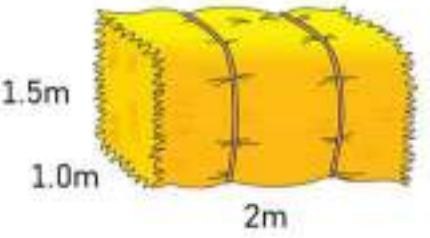
Curriculum Connection
MG.2

Volume of Cylinders

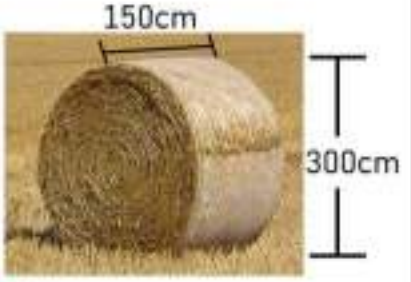
Questions Answer the questions below

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) Which type of hay bale contains more hay?



b) Joel thinks that could fit a cylinder-shaped hay bale out of 3 rectangular-shaped bales. Is he right? Explain.



2) You are planning to make candles to sell. What would the dimensions of the 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: _____ 39

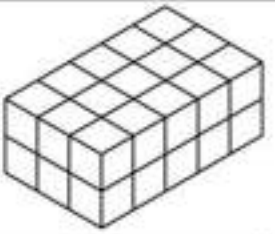
Unit Test - Calculating Volume

Part 1 — Fill in the blanks to investigate the area of the base and the volume

1)

Area of Base	Height	Volume

2)



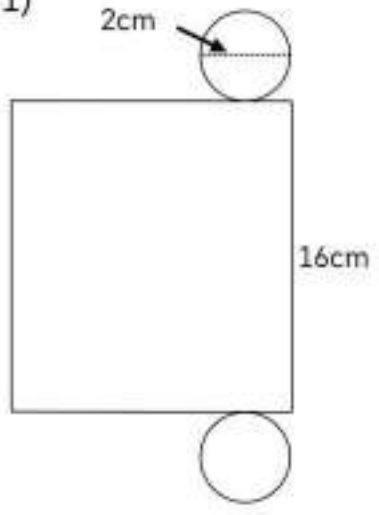
Area of Base	Height	Volume

Part 2 — Fill in the blanks to investigate the area of the base and the volume

	Area of Base	Height	Volume
1)	11 cm		110 cm^3
2)	15 mm^2		
3)		8 cm	96 cm^3
4)		11	132 mm^3

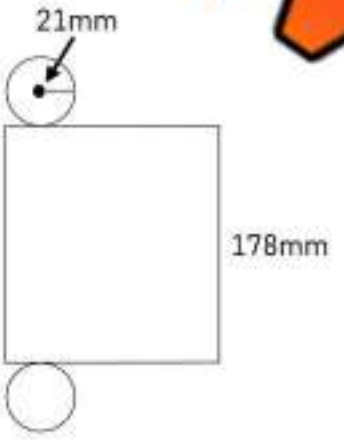
Part 3 — Find the area of the base and the volume of the cylinders

1)



Area of the Base: _____ Volume: _____

2)



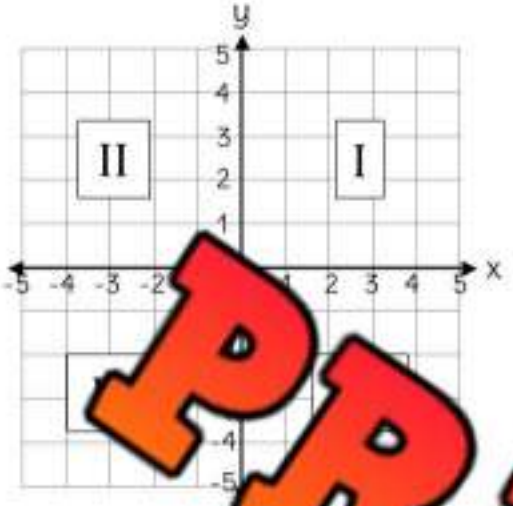
Area of the Base: _____ Volume: _____

Name: _____ 42

Curriculum Connection
MG.3

Four Quadrants - Cartesian Plane

Part 1 Write which quadrant the points would be found



Coordinates (x, y)	**Quadrant**
(2, -4)	
(5, 4)	
(-4, -5)	
(-2, 3)	
(5, 2)	

Part 2 Write [illegible] for a point that could be found in the quadrant

Quadrant	**Coordinates** (x, y)
Quadrant I	
Quadrant II	
Quadrant III	
Quadrant IV	
Quadrant III	
Quadrant II	
Quadrant IV	
Quadrant I	

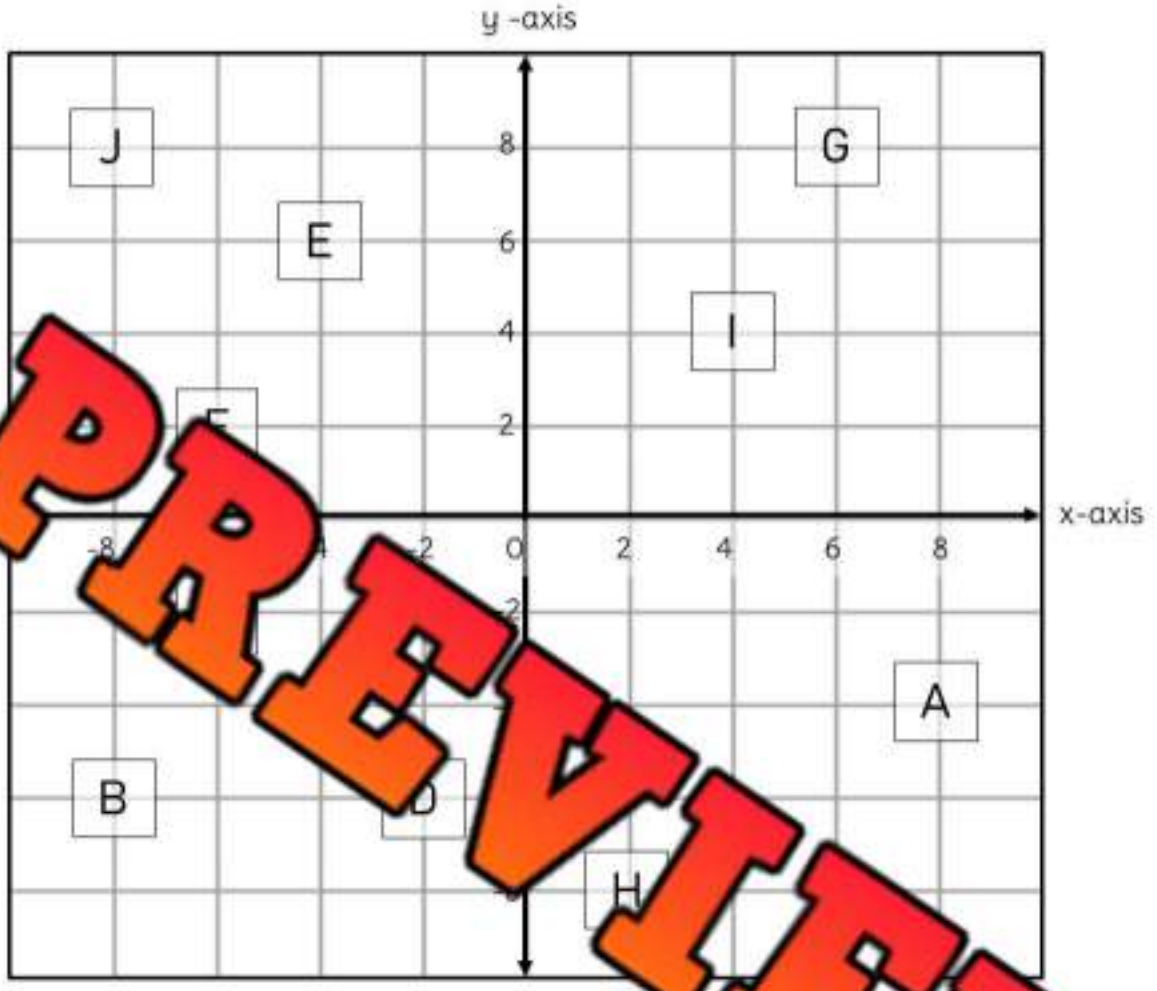
Part 3 Which quadrant number is associated with the descriptions below

	Description	**Quadrant**
1)	Both positive values	
2)	Both negative values	
3)	An x positive value and y negative value	
4)	An x negative value and y positive value	

Name: _____ 43

Curriculum Connection
MG.3

Using 4 Quadrants on a Cartesian Plane



Questions Write the coordinates for each obje[illegible] c[illegible]

Symbol	Coordinates (x, y)
A	(8, -4)
B	(_____, _____)
C	(_____, _____)
D	(_____, _____)
E	(_____, _____)

Symbol	Coo[illegible]s (x, y)
F	(_____, _____)
G	(_____, _____)
H	(_____, _____)
I	(_____, _____)
J	(_____, _____)

Name: _____ 45

Curriculum Connection
MG.3

Plotting Ordered Pairs on Cartesian Plane

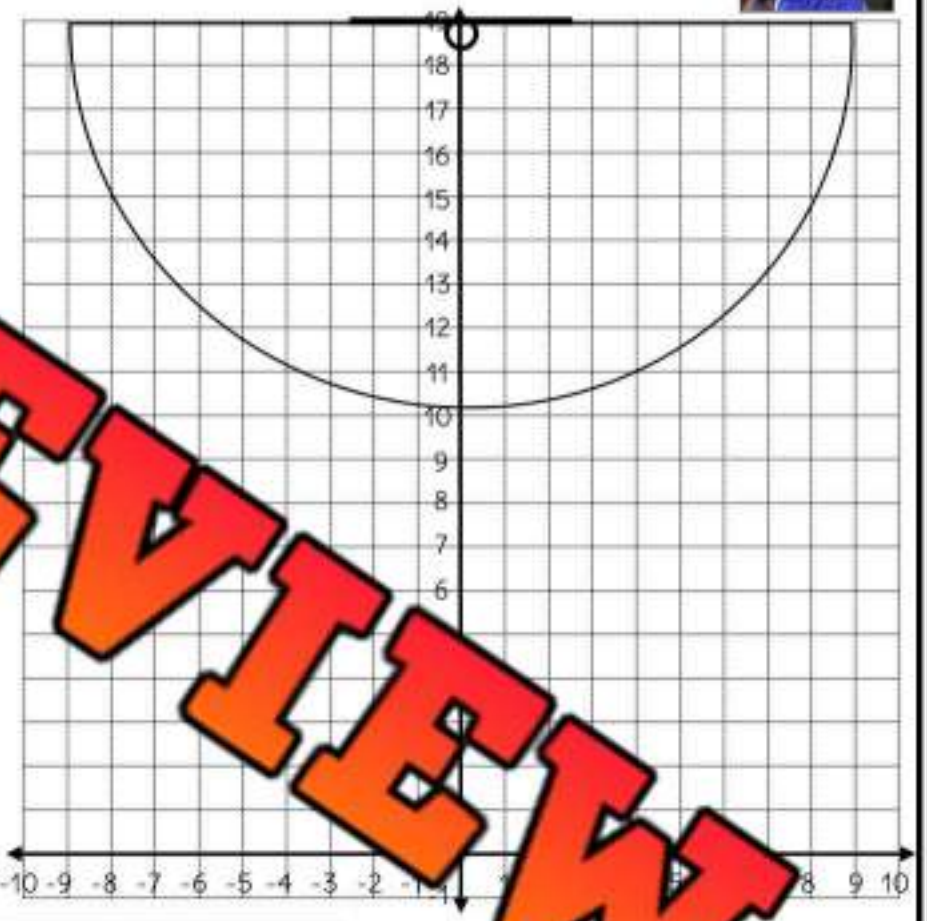
Directions Plot the ordered pairs on the cartesian plane

Steph Curry is a tremendous shooter. His shot attempts and shot makes from his last game have been displayed in the table below. The coordinates for each shot show where Curry made or missed from.

If the shot is made, plot a green dot using the coordinates.

If the shot i plot a red dot using the

Sho	
(3, 9)	
(-5, 10)	13)
(1, 8)	
(-10, 18)	(-8, 17)
(-1,18)	(6, 10)
(4,1)	(-8, 12)
(2, 15)	(9, 15)
(-6, 11)	(6, 14)
(-2, 15)	
(1, 18)	



Questions Answer the questions below

Questions	Answers
1) What was Curry's field goal percentage? (#Makes/#Total Shots)	
2) What was Curry's 3-point percentage? (#3-Point Makes/#Total 3-Point Shots)	
3) How many points did Curry have?	
4) Curry has asked you where he should shoot from. Use the coordinates you plotted to give him at least 2 tips.	

Name: _____ 46

Curriculum Connection
MG.3

Plotting Ordered Pairs on Cartesian Plane

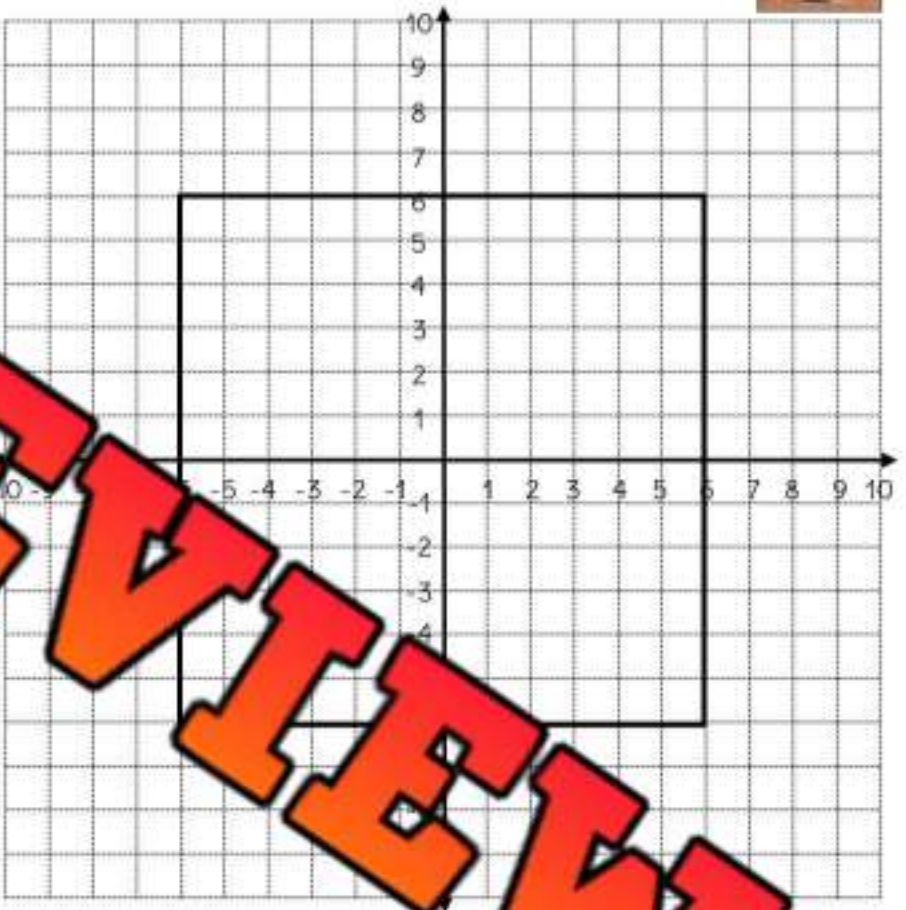
Directions Plot the ordered pairs on the cartesian plane

Robbie Ray pitches for the Blue Jays. He only pitched 3 innings last game. His strikes and pitches that resulted in a hit are recorded in the table. Where he threw each pitch has been displayed using coordinates.

If the pitch is a strike, plot a green dot using the coordinates

If the pitch is [illegible], plot a red dot using the coordinates.

Strikes	Hits
[illegible]	[illegible]
(-6, -6)	[illegible]
(5, -5)	[illegible] -1)
(3, 6)	[illegible]
(-7, 6)	(2, -1)
(6, 6)	(-3, -2)
(-5, -4)	(3, -2)
(-8, -4)	(-2, -3)
(5, 5)	(2, -2)
(-3, 5)	



Questions Answer the questions below

Questions	Answers
1) How many strikes did Ray throw?	
2) How many hits did he give up?	
3) How many pitches did he make in the upper part of the strike zone?	
4) How many strikes did Ray throw out of the strike zone?	
5) Ray has asked you where he should throw his pitches. Use the coordinates you plotted to give him at least 2 tips.	

Name: _____ 47

Curriculum Connection
MG.3

Linear Equations - Table of Values

A **linear equation** is an equation that is written for two different variables. The variables have a relationship where they increase or decrease at the same rate. This means when the variables are plotted on a graph, the line will be straight.

It is helpful to use a table of values to represent the values of both variables. This allows us to see the relationship between the variables. We can find any missing value by using an equation that represents the relationship between the variables. A related pair of *x* and *y* values is called an ordered pair.

Practic Fill in the tables using the equation below

x	y
1	
2	12
3	17
4	
5	
6	

1) $y = 5x + 2$

x	y
	-3
	-1
3	
5	
9	

2) $y = 2x - 5$

x	y
1	1
2	-2
3	-5
4	
5	

$= -3x + 4$

x	y
1	
2	
3	
4	
5	
9	

4) $y = 5x - 6$

x	y
1	
2	
3	
4	
5	
10	

5) $y = -2x - 3$

x	y
1	
2	
3	
4	
5	
11	

6) $y = 5x + 4$

Name: _____ 48

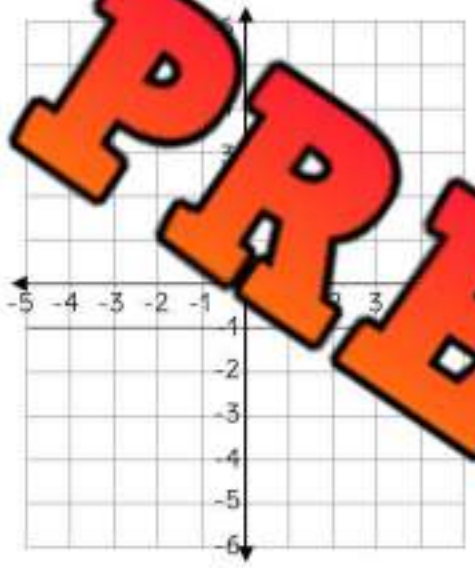
Curriculum Connection
MG.3

Graphing Linear Equations

Questions Fill in the table of values and then graph the results using ordered pairs

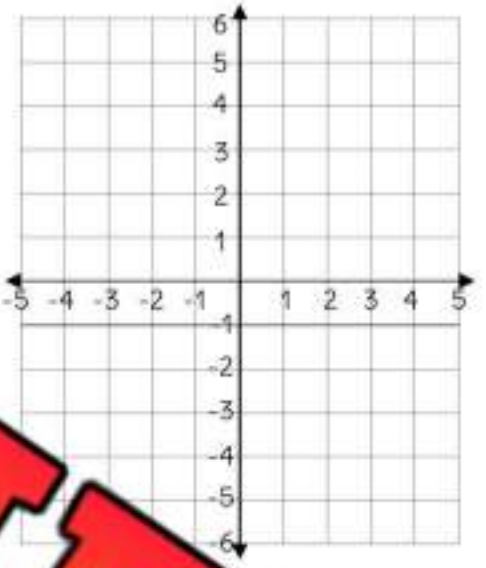
1) $y = 2x - 3$

x	0	1	2	3	4
y					



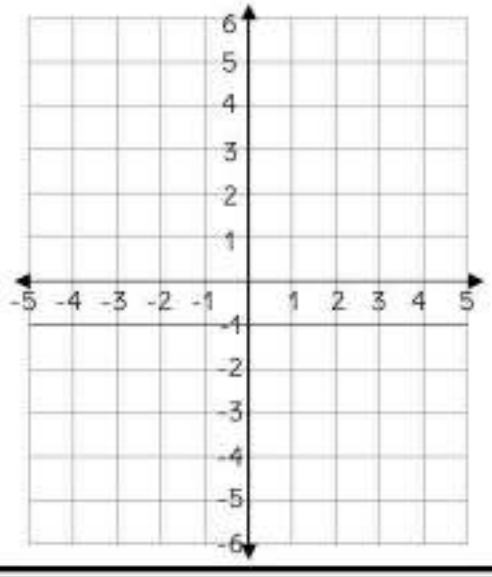
2) $y = 3x - 5$

x	0	1	2	3
y				



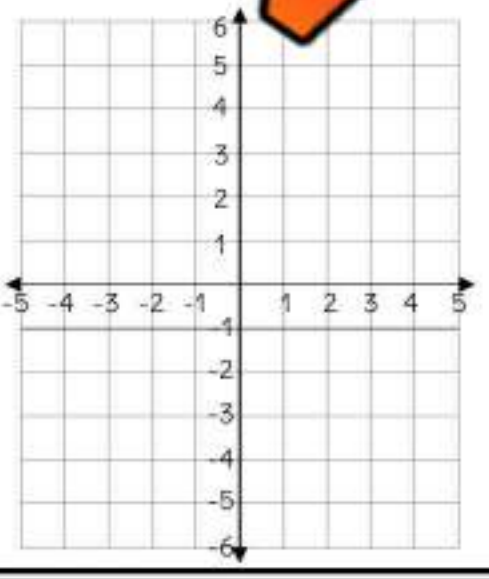
3) $y = -x + 3$

x	0	1	2	3	4
y					



y [illegible] + 2

x	[illegible]				
y					



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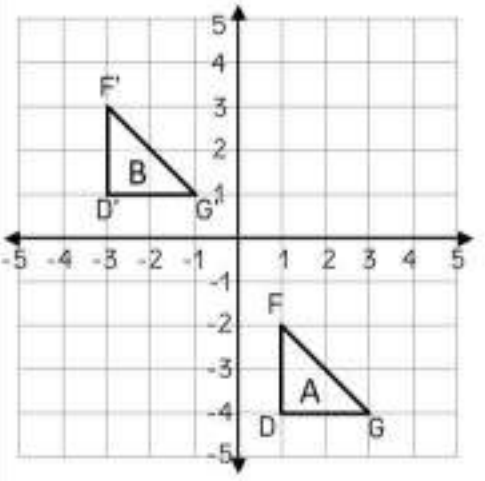
Curriculum Connection
MG.4

Translations - Mapping Rules

Mapping Rules for Translations

Each point on a shape slides according to the mapping rule.
The rule is (x, y) → (x + a, y + b)

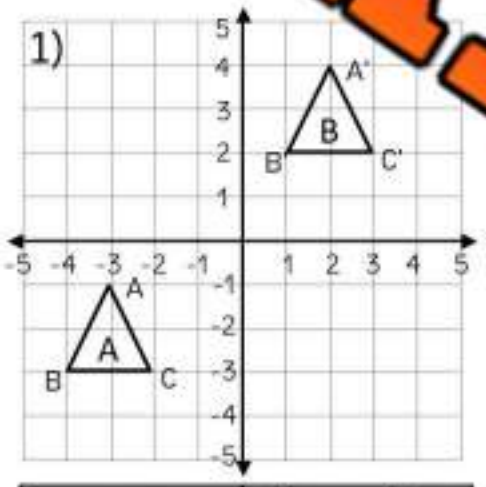
1) Choose 1 coordinate from the shape to translate
2) We need to move the x coordinate -4 spaces to the left. This means we subtract 4.
3) We need to move the y coordinate +5 spaces up. This means we add 5.
4) The **mapping rule** is: (x, y) → (x – 4, y + 5)
5) Remember if we move to the left or down, we are adding a negative number (subtracting) and if we move right or up we are adding a positive number.



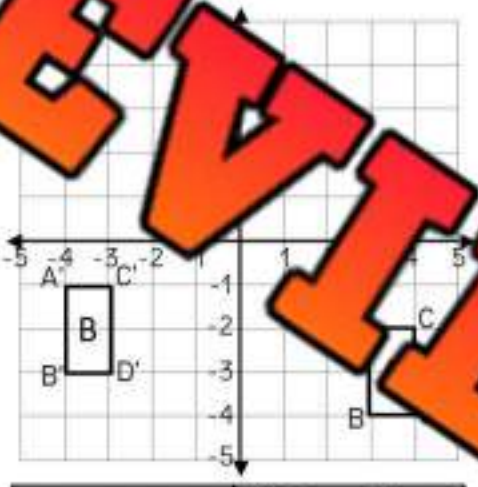
Questions

Write the mapping rule that translates figure A to figure B

1)

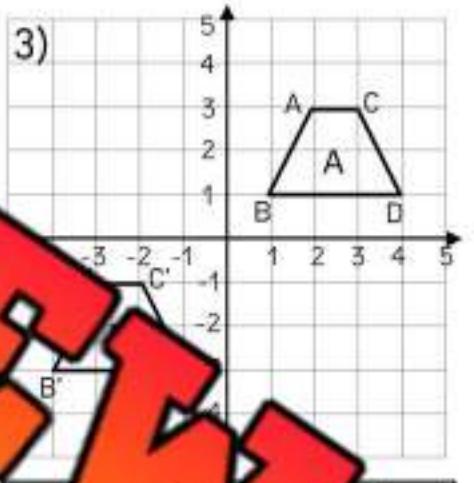


Mapping Rule	(x☐__, y☐__)



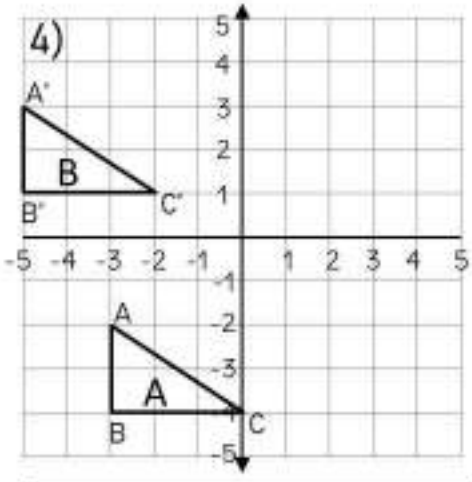
Mapping Rule	(x☐__, y☐__)

3)



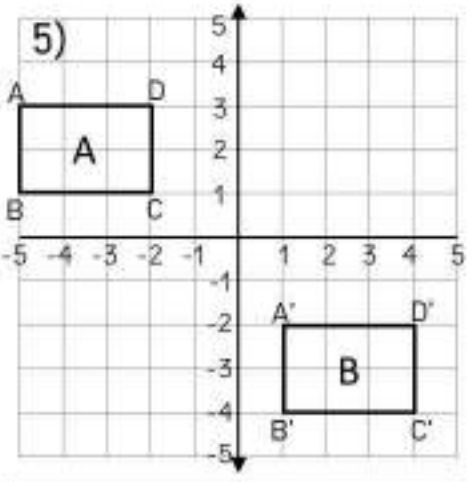
Mapping Rule	(x☐__, y☐__)

4)



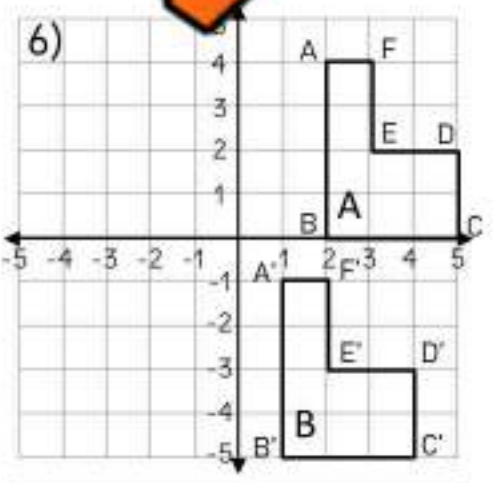
Mapping Rule	(x☐__, y☐__)

5)



Mapping Rule	(x☐__, y☐__)

6)



Mapping Rule	(x☐__, y☐__)

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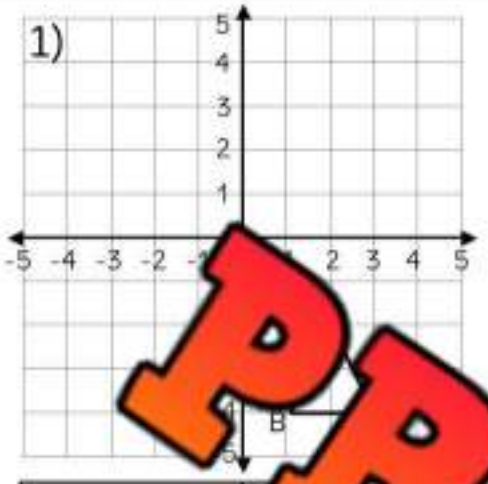
Curriculum Connection
MG.4

Translations - Mapping Rules

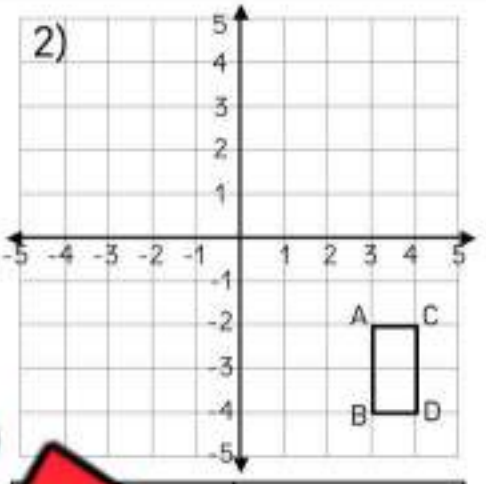
Questions | Translate the shape using the mapping rule

1)



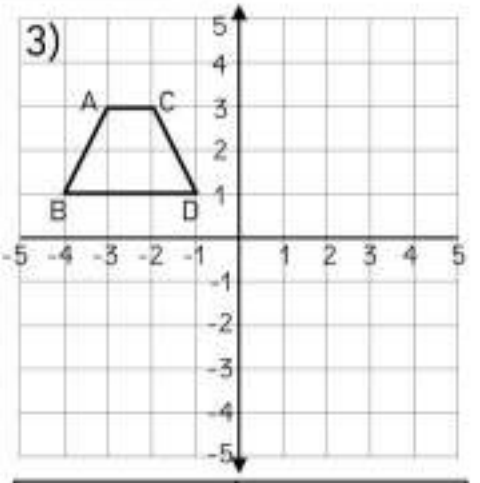
Mapping Rule	

2)



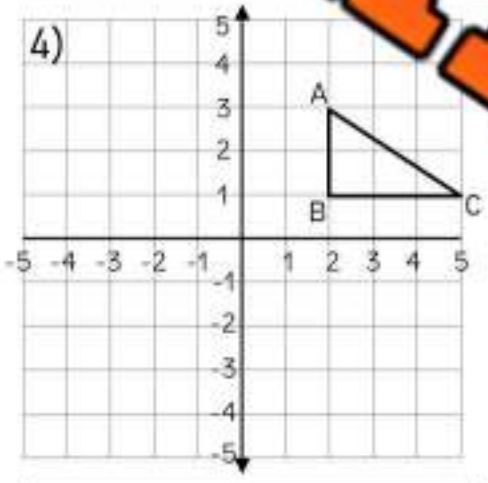
Mapping Rule	(x – 7, y + 6)

3)

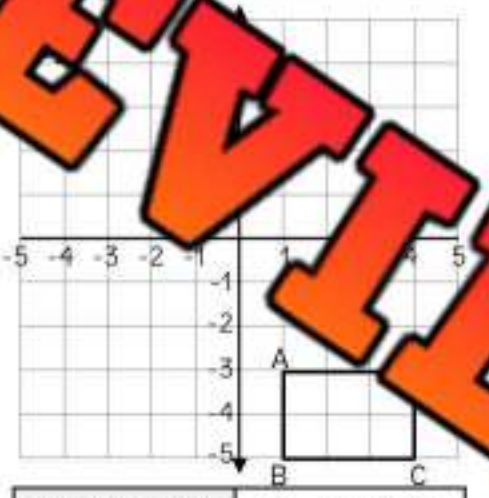


Mapping Rule	(x + 5, y – 4)

4)

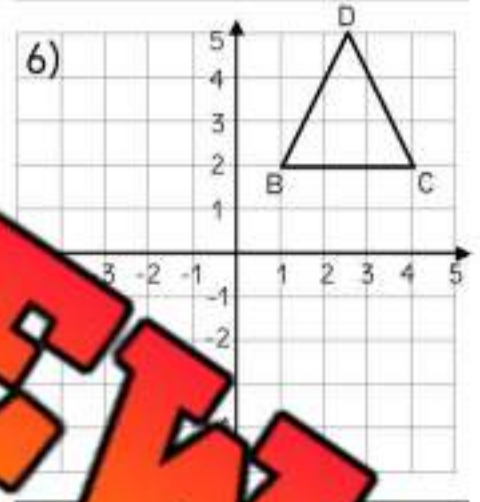


Mapping Rule	(x – 5, y + 2)



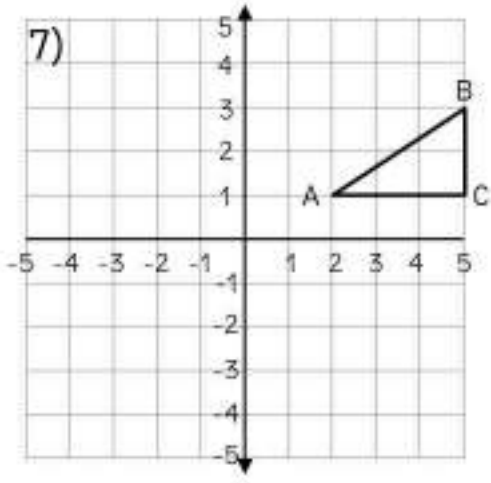
Mapping Rule	(x – 5, y + 8)

6)



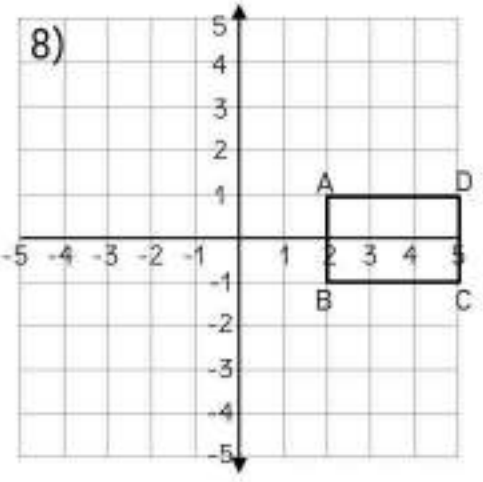
Mapping Rule	(x – 3, y – 6)

7)



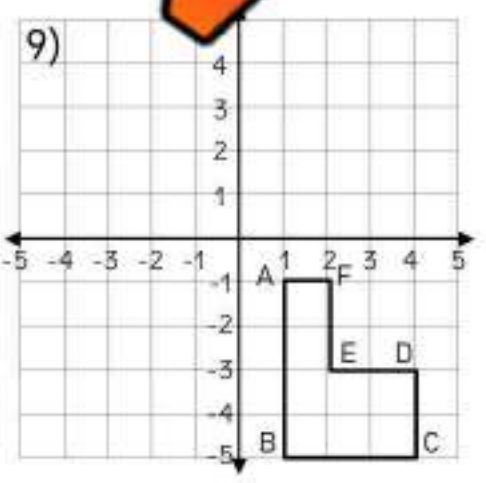
Mapping Rule	(x – 4, y – 5)

8)



Mapping Rule	(x – 5, y + 3)

9)



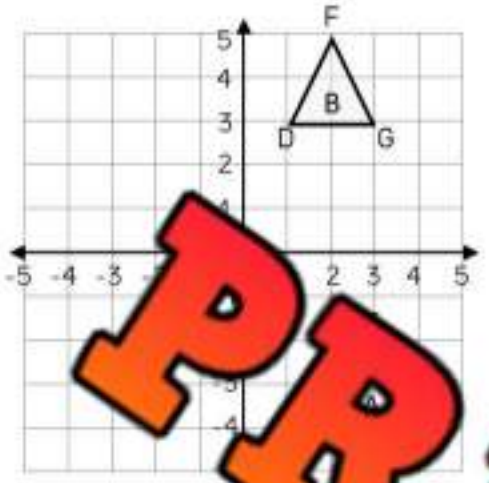
Mapping Rule	(x – 6, y + 5)

Name: _____ 55

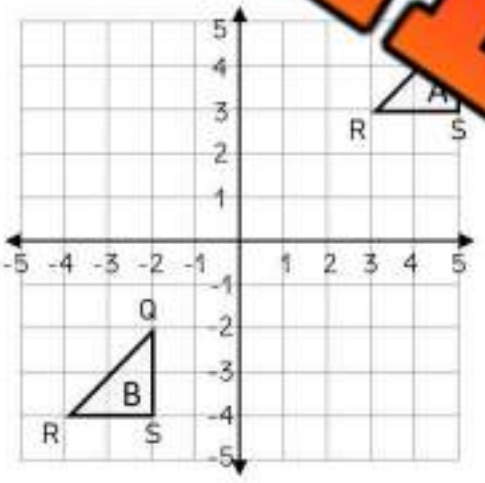
Curriculum Connection
MG.4

Transformations - Translations

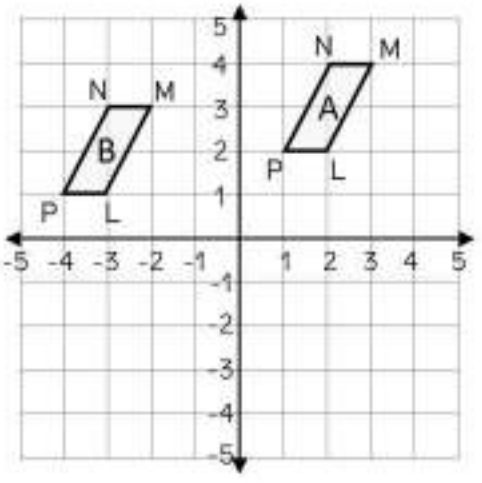
Questions 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



Coordinates A	Coordinates B
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x – 4, y – 5)	**Coordinates C**



Coordinates A	Coordinates B
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x, y + 6)	**Coordinates C**



Coordinates A	Coordinates B
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x + 4, y – 5)	**Coordinates C**

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Curriculum Connection
MG.4

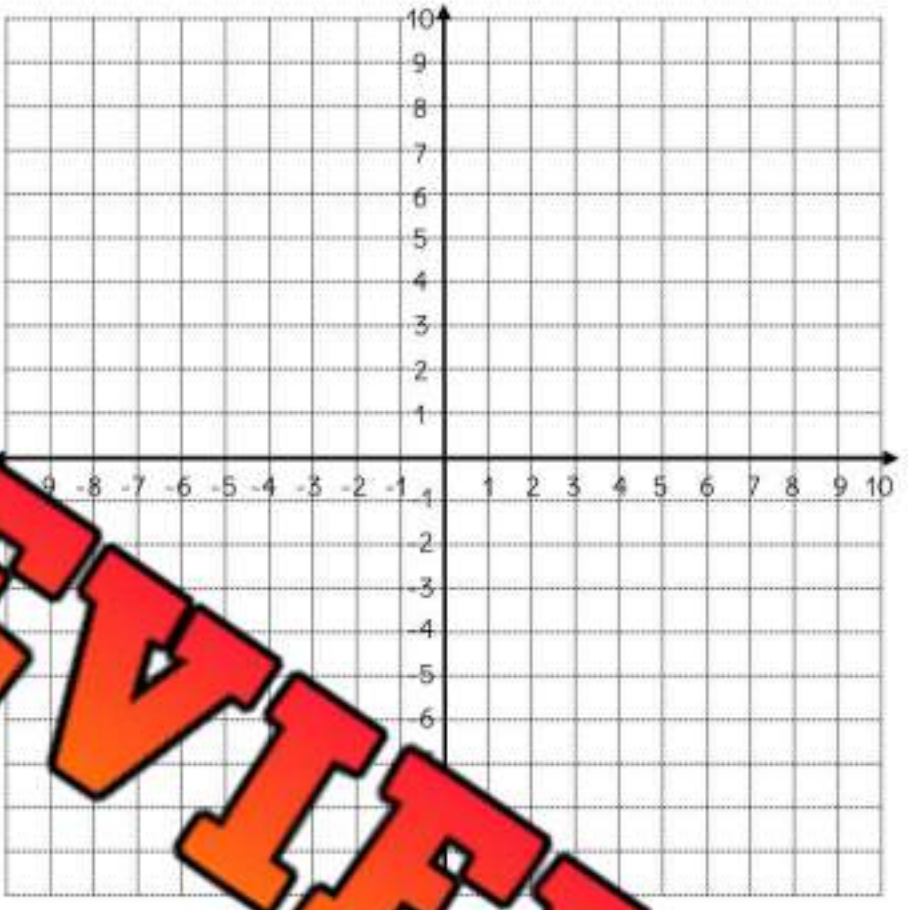
Translations - New Coordinates

Part 1 Draw the shapes using the coordinates provided. Then translate the shape

Shape A
P(2,5), Q(2,1), R(8,3), S(9,5)
Translate the shape A
(x – , y – 5)

F(G(-6,
Translate th B
(x + 4, y –

Shape C
J(-7,-8), K(-4,-8), L(-3,-5)
Translate the shape C
(x + 6, y - 2)



Part 2 Give the coordinates of each point after sla

	Original Coordinate	Translation – Mapping Rule	es
1)	P(3, -4)	(x – 6, y + 4)	P( )
2)	S(-5, 8)	(x + 3, y – 5)	
3)	Q(-9, -5)	(x + 2, y – 7)	
4)	L(10, 5) P(-3, -8)	(x – 5, y + 8)	
5)	T(-8, 7) Y(-9, -5)	(x + 8, y + 5)	
6)	S(-14, -16) R(15, 12)	(x – 11, y – 6)	
7)	N(-21, 11) K(20, -14)	(x – 9, y + 13)	
8)	P(28, -21) E(-25, 20)	(x + 17, y + 22)	

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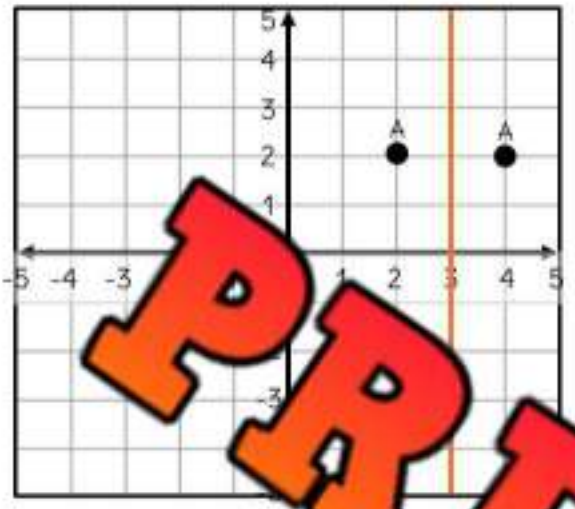
Curriculum Connection
MG.4

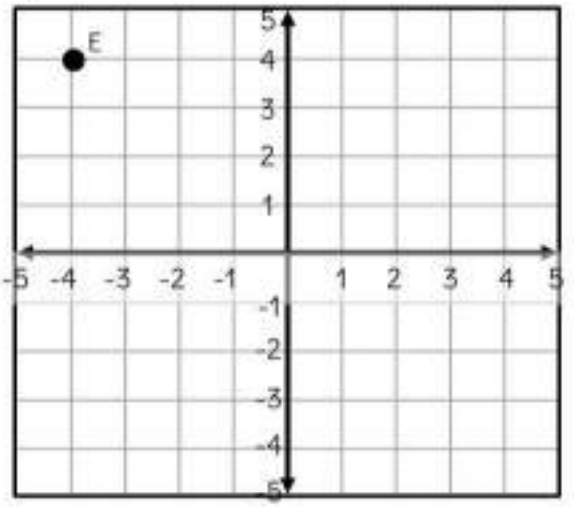
Reflecting a Point Using a Mirror Line

Questions Graph the new position of each point. The first one is done for you

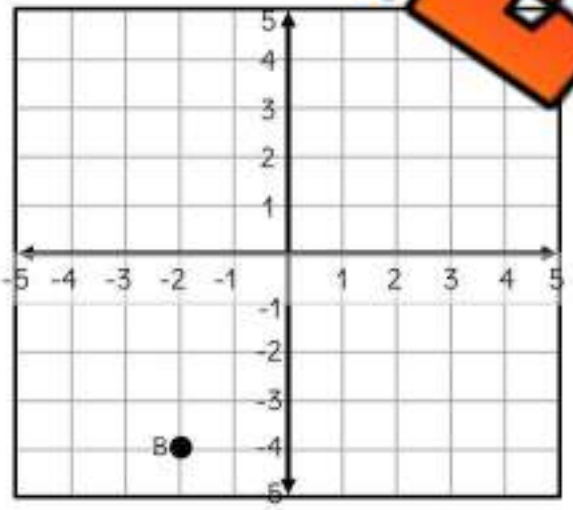
1) Reflection across the line x = 3



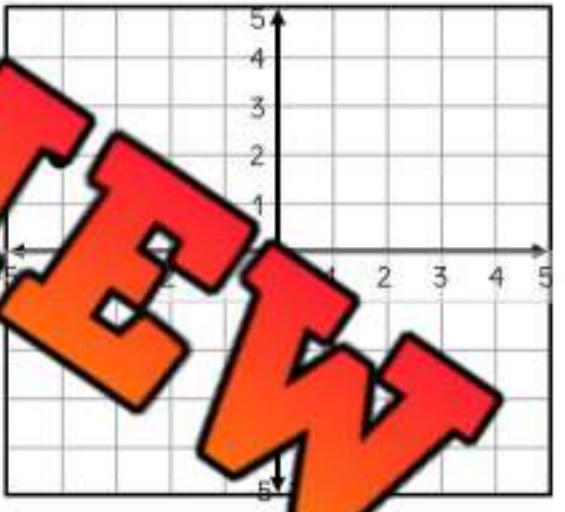
2) Reflection across the line y = 2



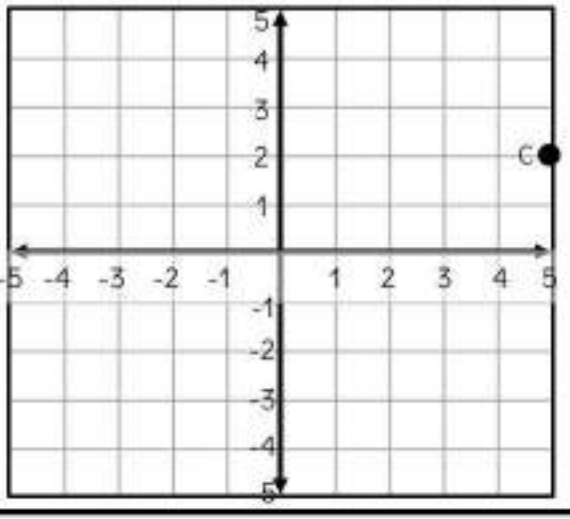
3) Reflection across t[illegible]



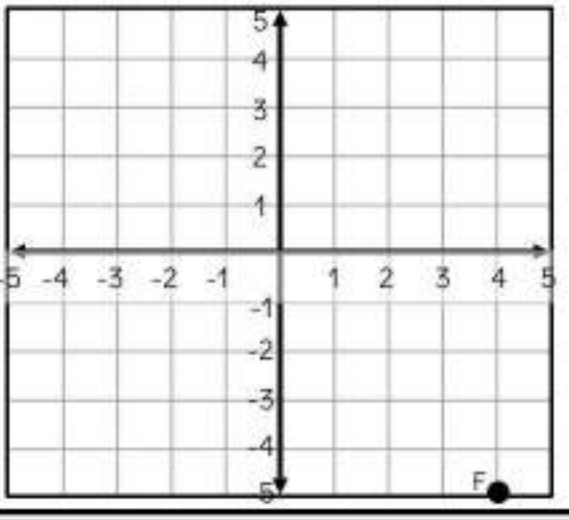
4) Reflection across the line x = -1



5) Reflection across the line x = 2



6) Reflection acro[illegible] the line y = -3



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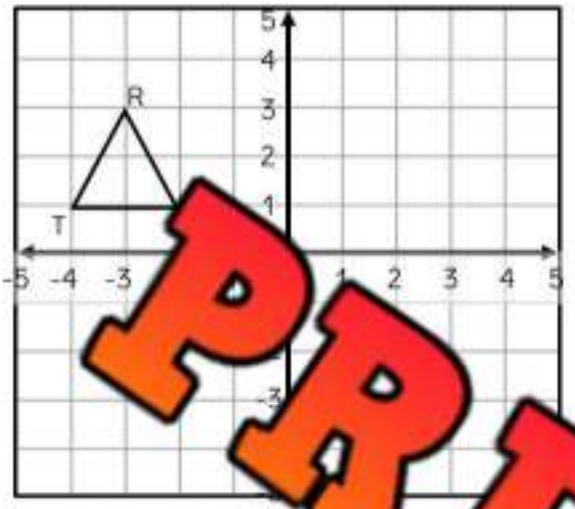
Curriculum Connection
MG.4

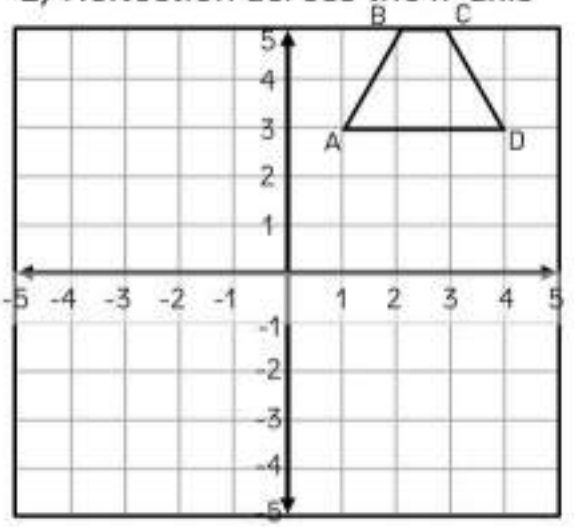
Reflecting Shapes using a Mirror Line

Questions Graph the new position of each shape after the given reflection

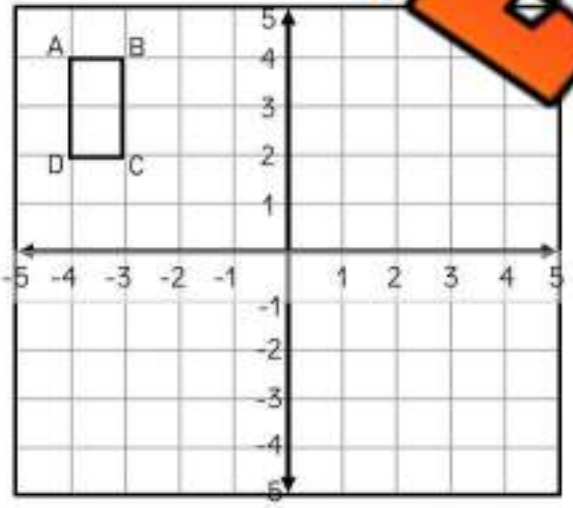
1) Reflection across the y-axis



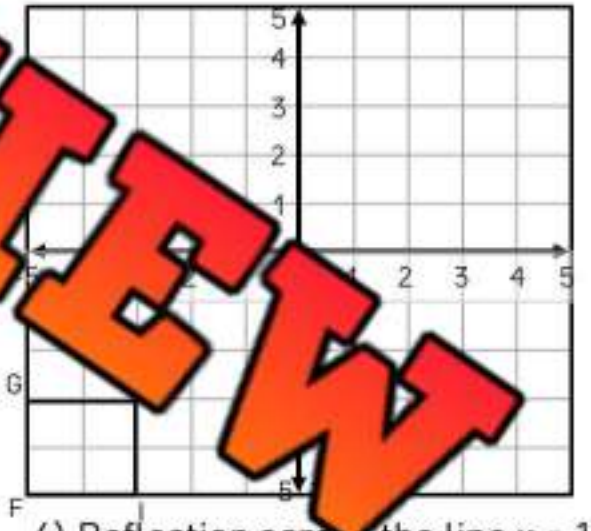
2) Reflection across the x-axis



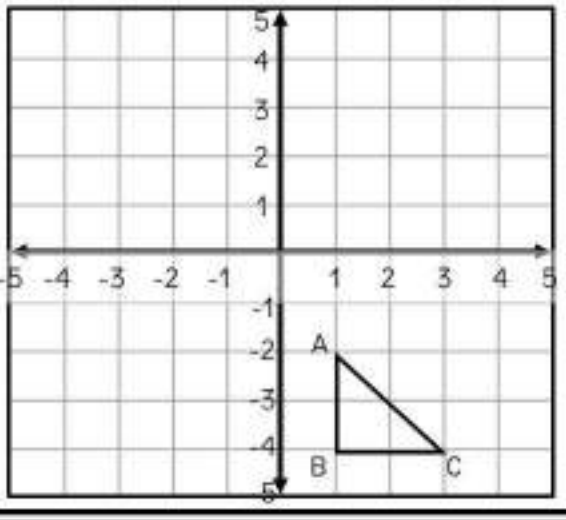
3) Reflection across t[illegible]



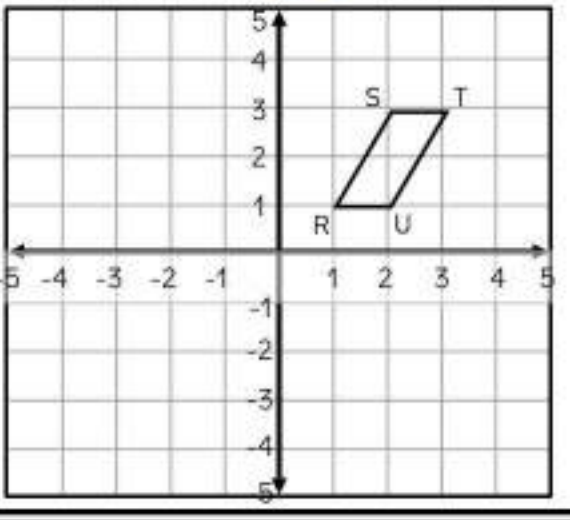
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection acros[illegible] the line x = 1



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Curriculum Connection
MG.4

Reflections - Mapping Rules

Mapping Rules for Reflections

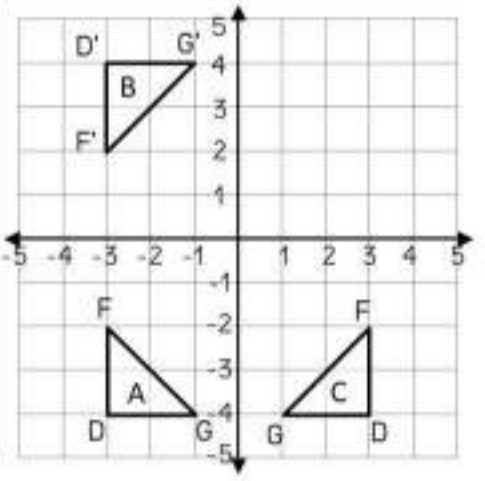
Each point on a shape moves according to the mapping rule.

The rule for a reflected shape in the x-axis is (x, y) → (x, -y)

The rule for a reflected shape in the y-axis is (x, y) → (-x, y)

In the example of Shape A being reflected to Shape B, point F (-3, -2) has been reflected across the x-axis, which means the new coordinates for F are (-3, 2).

If Shape A was reflected across the Y axis to Shape C, point F becomes (



Questio... Use mapping rules to write the new coordinates

	Original Co...te(s)	...tion across the	New Coordinates
1)	P(5, 4)		P(-5, 4)
2)	S(8, -3)	...axis	
3)	Q(-6, 7)	y-...	
4)	P(-4, -2)	y-axis	
5)	T(-5, 9) Y(-11, -15)	x-axis	
6)	S(-12, -3) R(7, 13)	x-axis	
7)	N(-4, 9) K(8, -17)	y-axis	
8)	P(13, -5) E(-6, 15)	x-axis	
9)	S(-18, -13) R(9, 14)	y-axis	
10)	N(-6, 11) K(7, -23)	x-axis	

Name: _____ 63

Curriculum Connection
MG.4

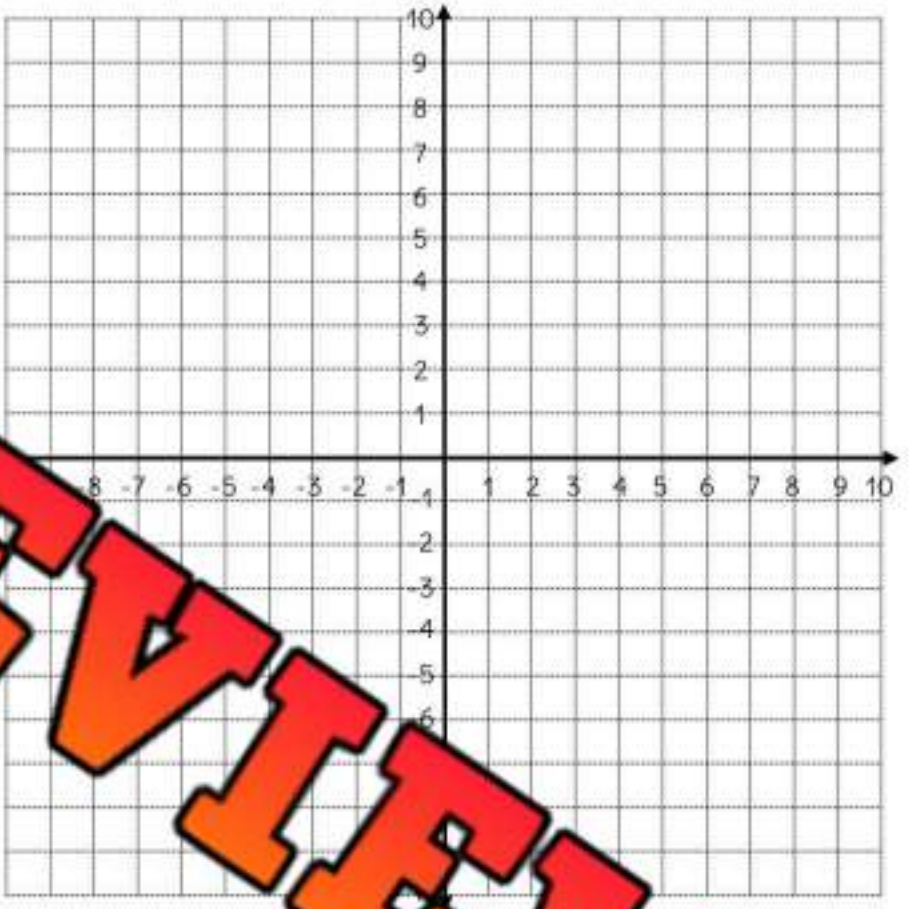
Reflections - Coordinates

Part 1 Draw the shapes using the coordinates provided. Then reflect the shapes

Shape A
P(5,4), Q(3,7), R(3,3)
Reflect over the x-axis
New Coordinates
P(,), R(,)

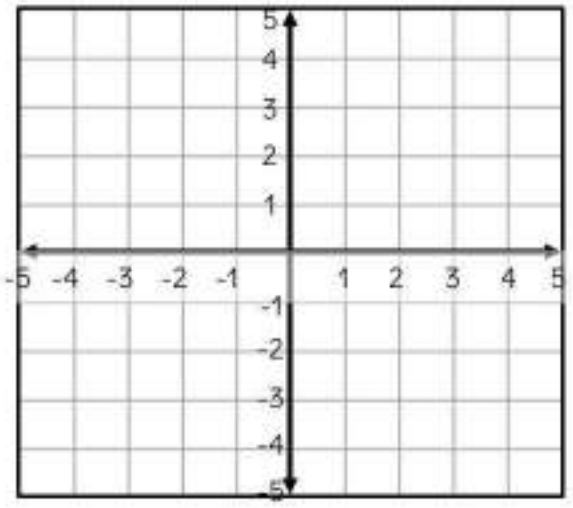
G(-4,
Reflect o
New Coord
F(,), G(,), H(

Shape C
J(-7,-4), K(-4,-9), L(-3,-3)
Reflect over the y-axis
New Coordinates
J(,), K(,), L(,)

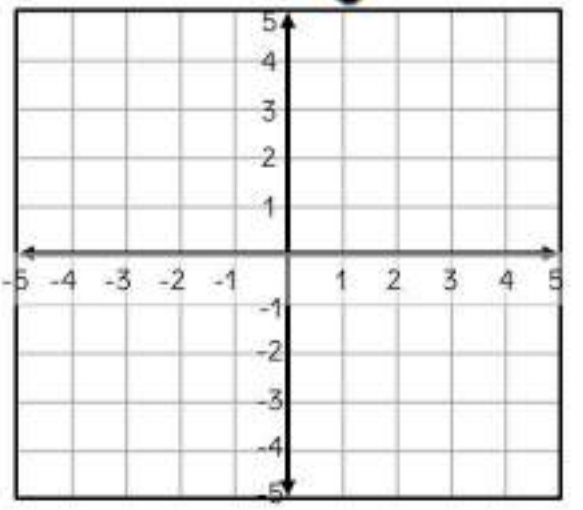


Part 2 Draw your own shape and then perform the refl

1) Reflection across the y-axis



2) Reflection acros line x = -1



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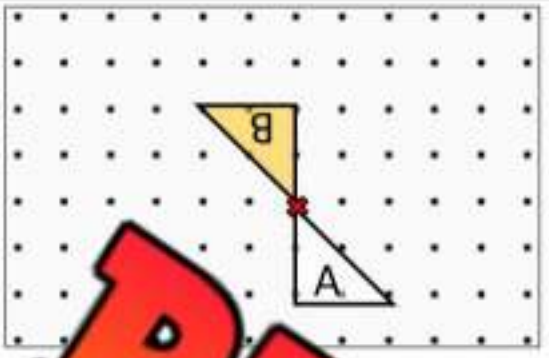
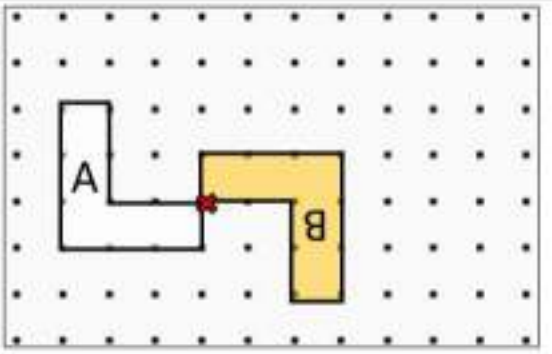
Curriculum Connection
MG.4

Describing Rotations

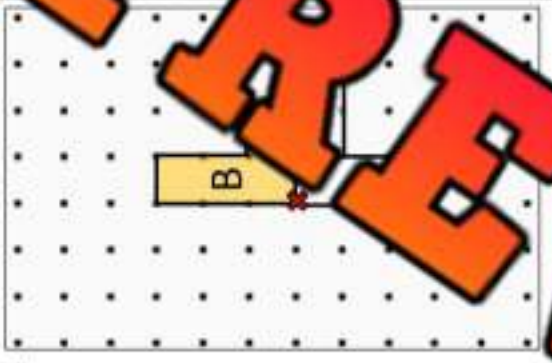
Questions Describe the rotations. Shape A is the original shape



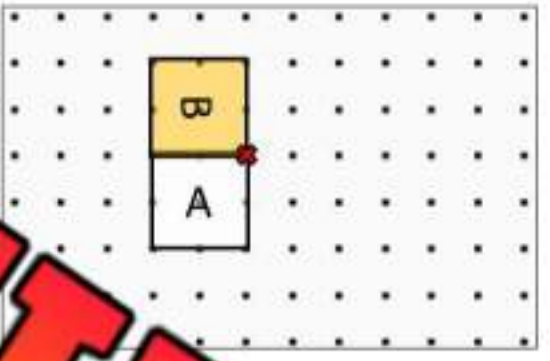
1) _____



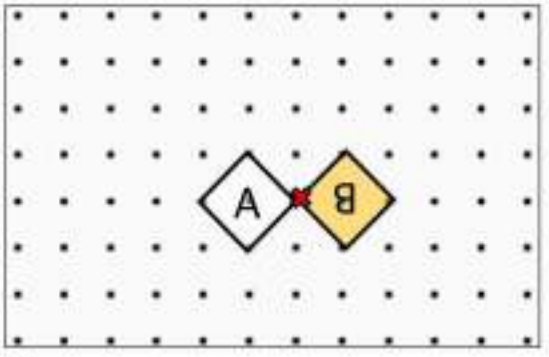
2) _____



3) _____

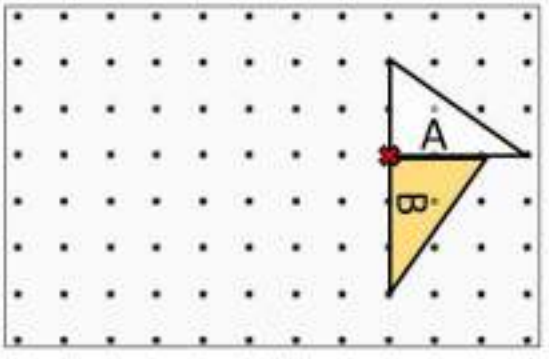


4) _____

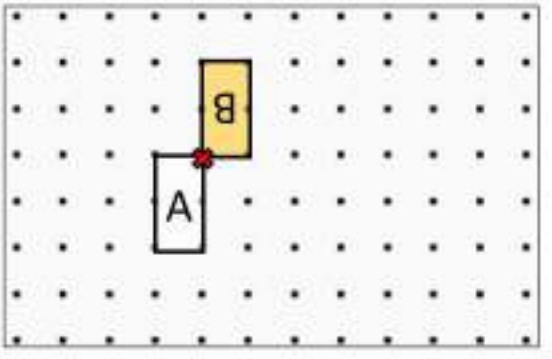


5) _____

6) _____



7) _____



8) _____

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Curriculum Connection
MG.4

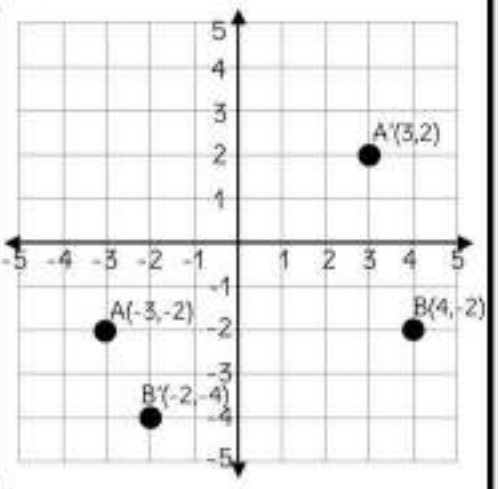
Rotating a Point

Mapping Rules for Rotations

Each point on a shape moves according to the mapping rule.

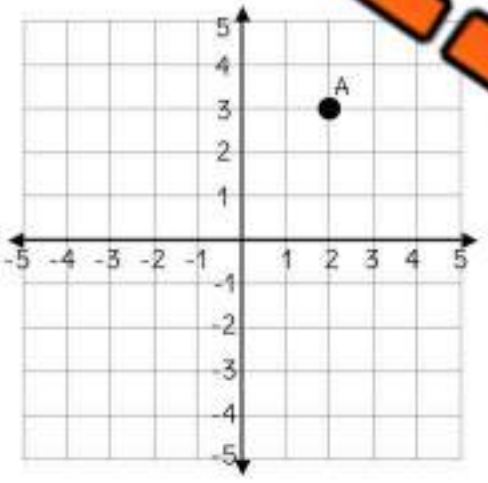
- a shape rotated 90° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-y, x)$.
- a shape rotated 180° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-x, -y)$.
- a shape rotated 270° counterclockwise has a mapping rule of: $(x, y) \rightarrow (y, -x)$.

In the exam[illegible] A was rotated 180° counter-clockwise
In the ex[illegible] as rotated 90° clockwise



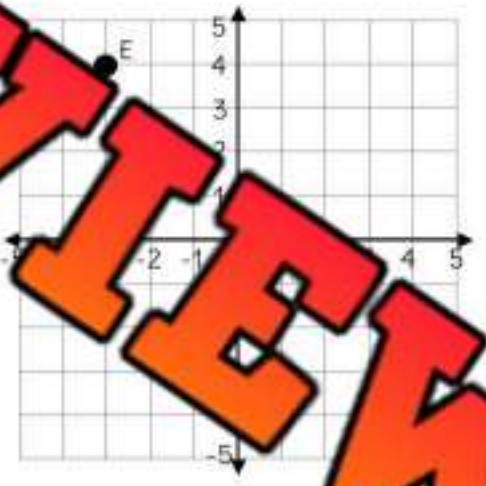
Question: [illegible] position after rotating around the origin

1) 180° rotation



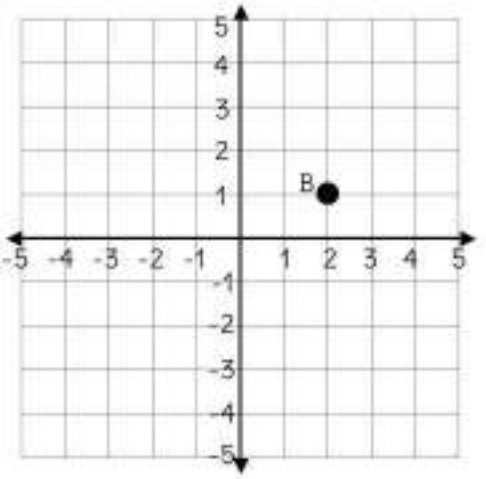
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° clockwise rotation



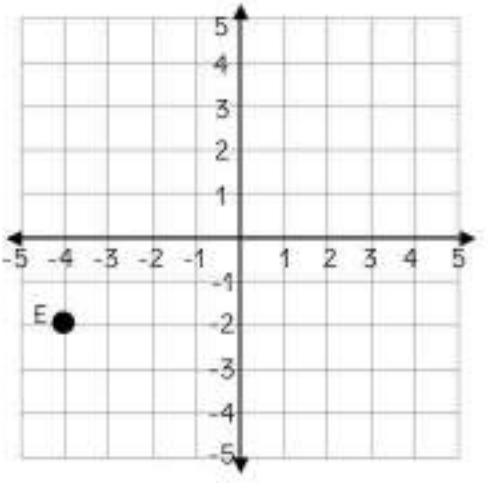
Original Coordinates
E(,)
Rotated Coordinates
,)

3) 90° counterclockwise rotation



Original Coordinates
B(,)
Rotated Coordinates
B(,)

4) 90° clockwise rotation



Original Coordinates
E(,)
Rotated Coordinates
E(,)

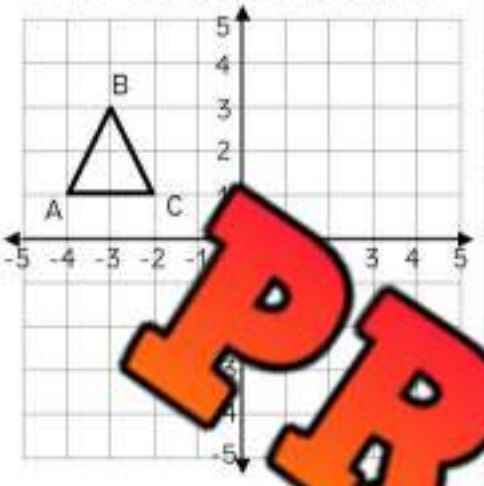
Name: _____ 71

Curriculum Connection
MG.4

Rotating Shapes

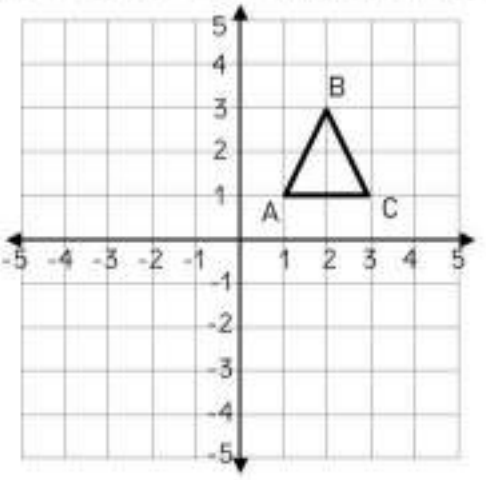
Questions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



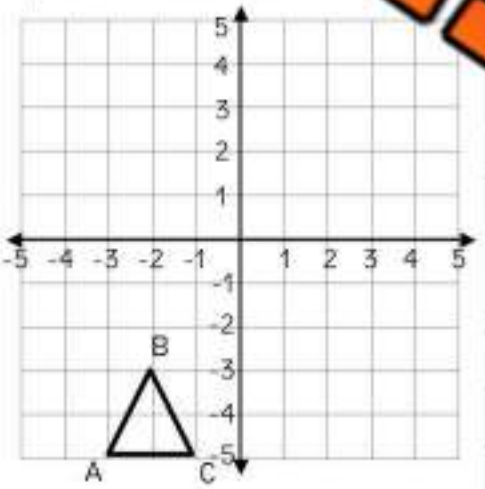
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

2) 90° counterclockwise rotation



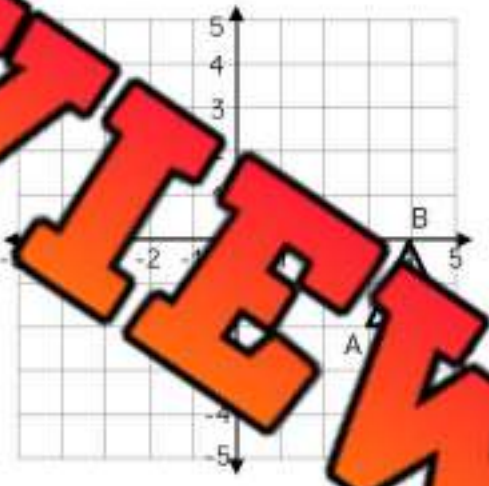
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

3) 180° rotation



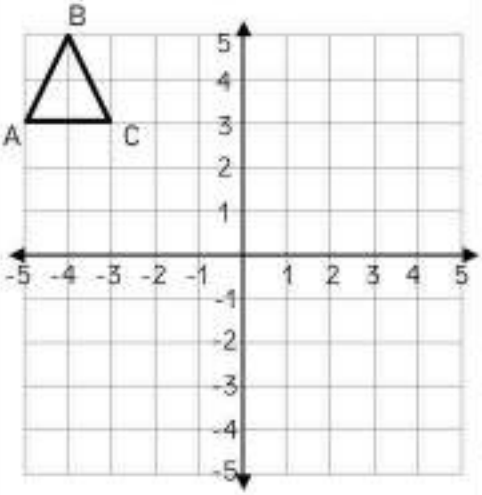
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

4) 270° clockwise rotation



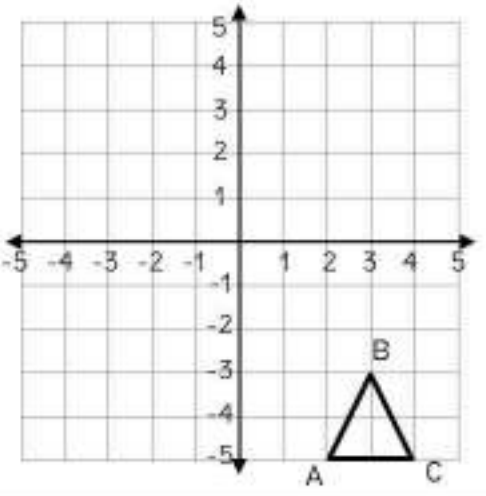
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

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(,)

Name: _____ 73

Curriculum Connection
MG.4

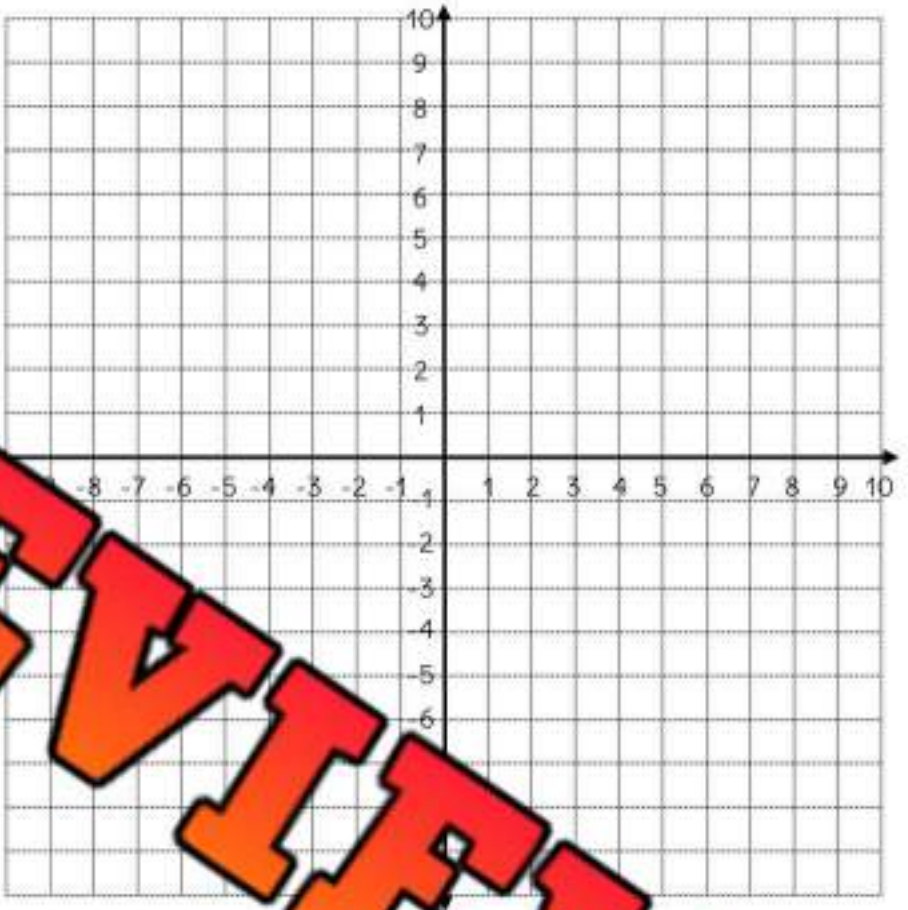
Rotations - Coordinates

Part 1 Draw the shapes using the coordinates provided. Then rotate the shape about the origin

Shape A
P(8,4), Q(5,7), R(4,3)
90° counterclockwise rotation
New Coordinates
P(,), R(,)

G(-9,5)
180°
New Coo
F(,), G(,),

Shape C
J(-1,-8), K(-4,-6), L(-1,-3)
270° counterclockwise rotation
New Coordinates
J(,), K(,), L(,)



Part 2 Give the coordinates of each point after t ota

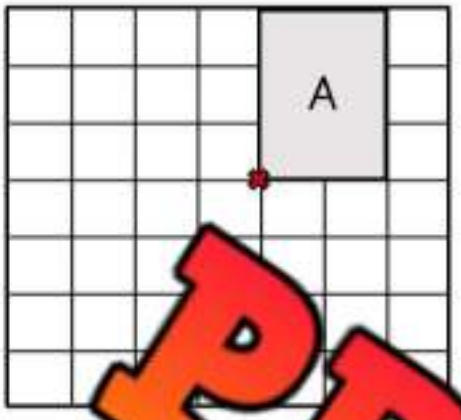
	Original Coordinate	Rotations across the line...	New nates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(3, -6)	180° rotation	
3)	Q(-4, 9)	360° rotation	
4)	P(-7, -11)	270° counterclockwise rotation	
5)	T(-5, 1) Y(-4, -7)	90° clockwise rotation	
6)	S(-7, -5) R(8, 2)	180° rotation	
7)	N(-5, 8) K(4, -9)	270° clockwise rotation	
8)	P(3, -5) E(-6, 2)	180° rotation	

Name: _____ 74

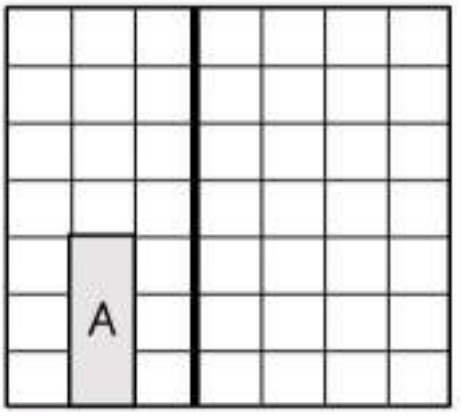
Curriculum Connection
MG.4

Performing Multiple Transformations

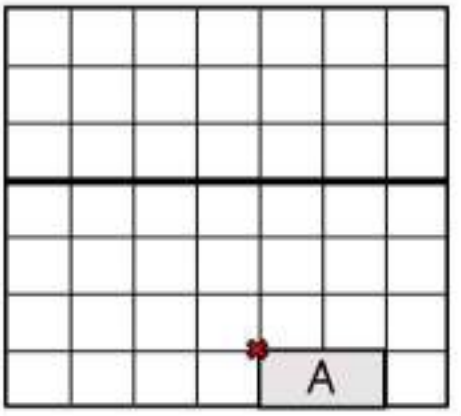
Questions Complete the following combination of transformations



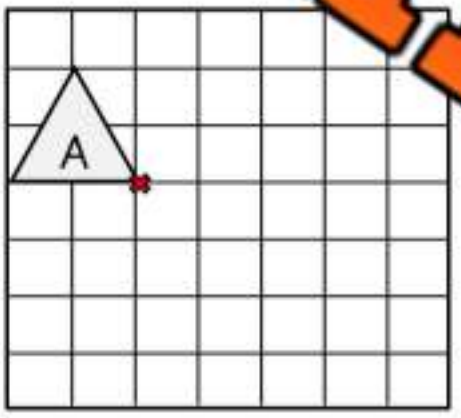
1) 180° rotation, translate down 1



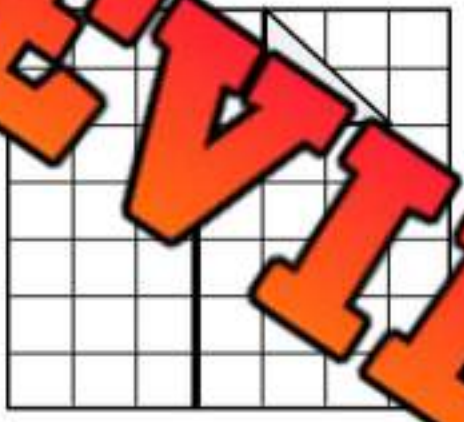
2) Reflect and translate up 3



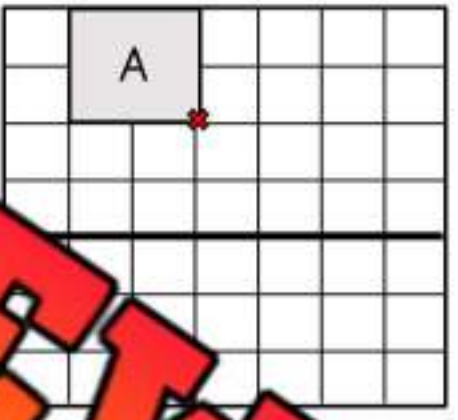
3) rotate 90° counterclockwise and reflect



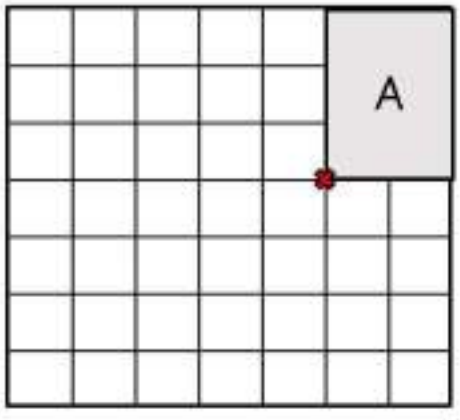
4) 90° clockwise rotation, translate right 3



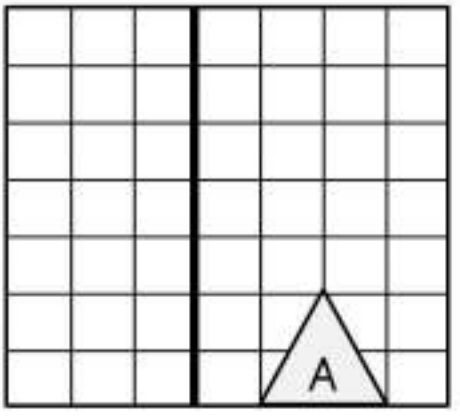
5) Translate down 5 and reflect



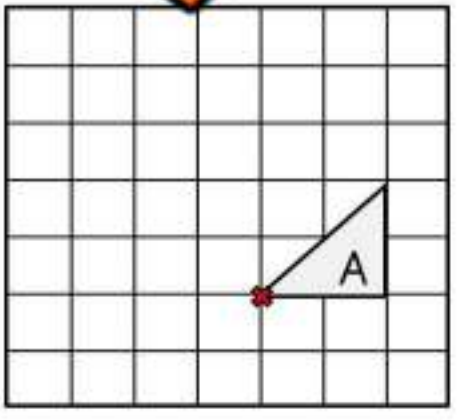
6) Reflect



7) 180° rotation, translate left 2



8) Reflect and translate up 5



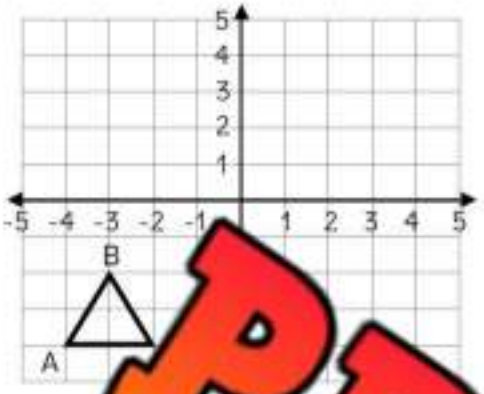
9) Rotate 90° counterclockwise and translate up 4

Name: _____ 75

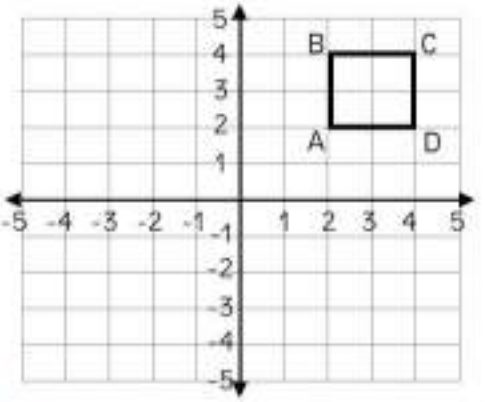
Curriculum Connection
MG.4

Performing Multiple Transformations

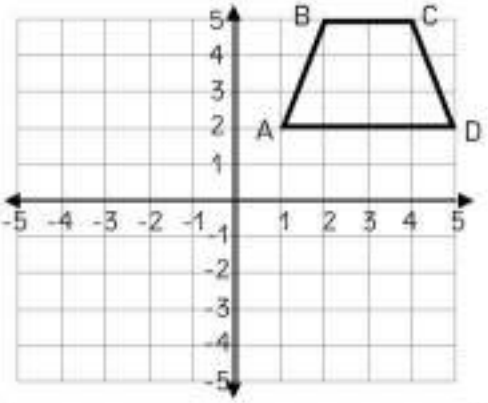
Questions Complete the following combination of transformations



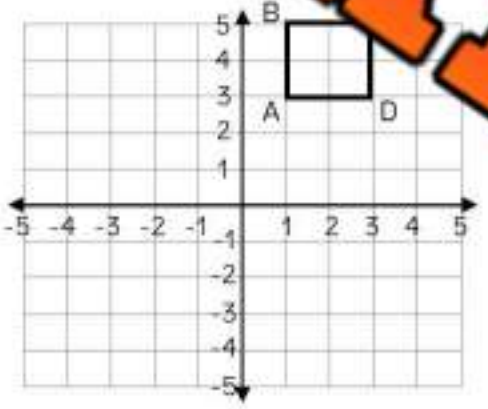
1) 180° rotation, translate down 3



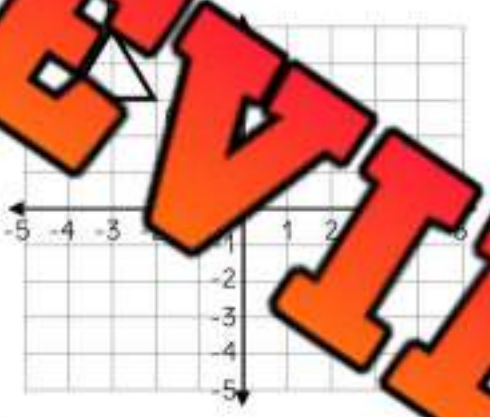
2) Reflect across the x-axis and translate left 4



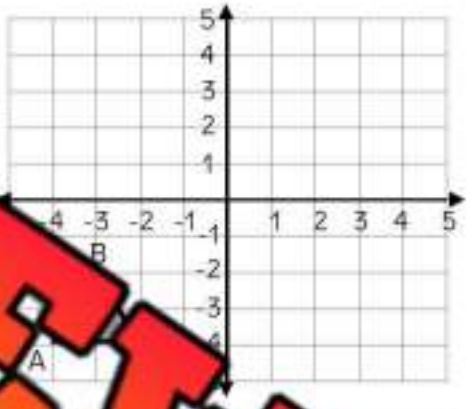
3) rotate 90° clockwise and reflect across the y-axis



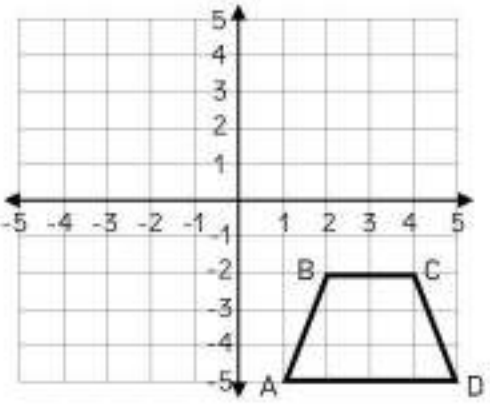
4) 90° counterclockwise rotation, translate right 3



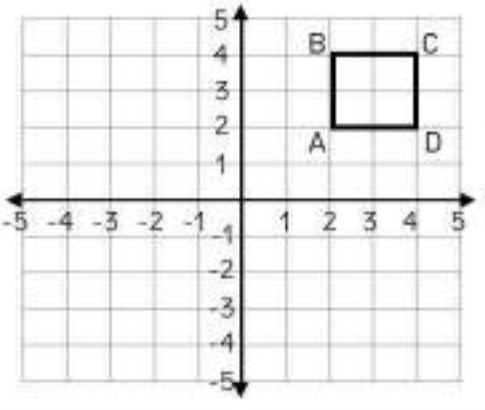
5) Translate down 3 and reflect across the y-axis



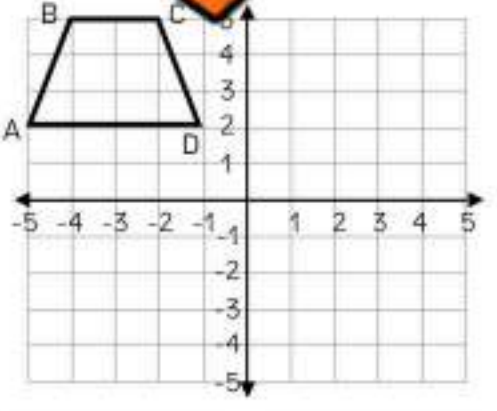
6) [illegible] axis



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: _____ 79

Curriculum Connection
MG.4

Unit Test - Cartesian Plane and Transformations

Part 1 Write which quadrant the points would be found in

Coordinates (x, y)	Quadrant (I, II, III, IV)
(4, -3)	
(-5, -4)	

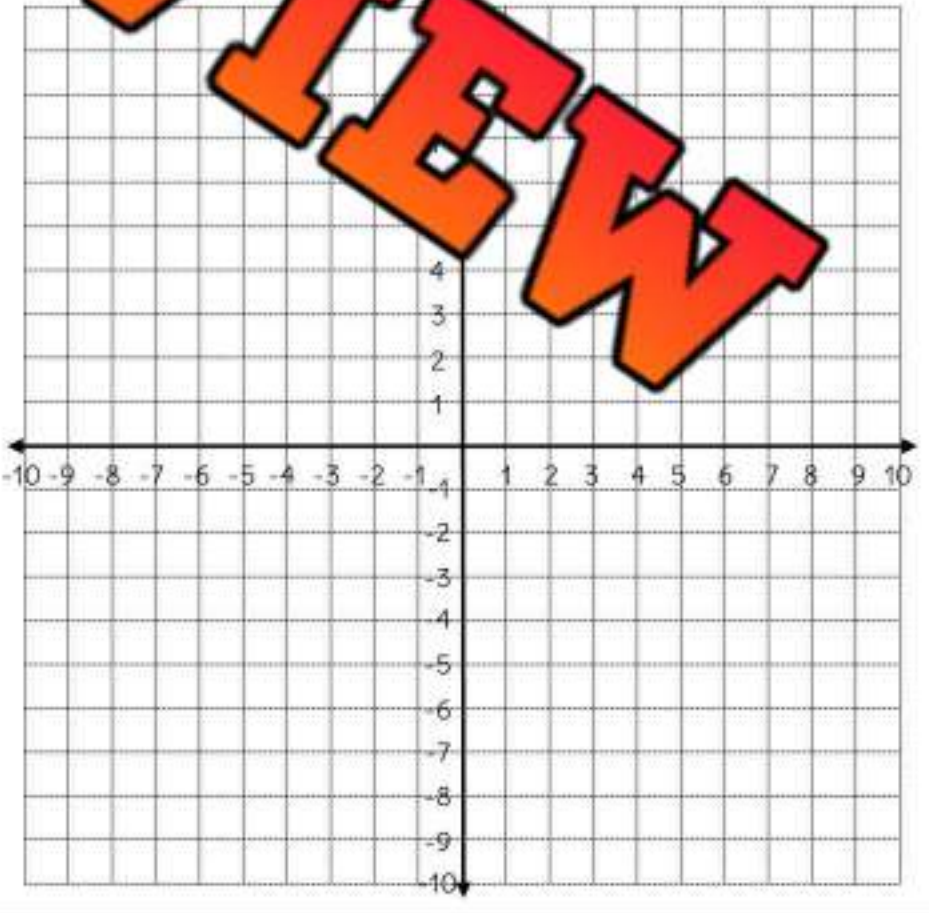
Coordinates (x, y)	Quadrant (I, II, III, IV)
(2, 5)	
(-2, 3)	

Part 2 Which quadrant number is associated with the descriptions below

	Description	Quadrant
1)	ositive	
2)	Both neg	
3)	An x positive and y ue	
4)	An x negative valu itive v	

Part 3 Plot the points of ... on the cartesian plane

Letter	Coordinates (x, y)
A	(-3, 5)
B	(-8, 6)
C	(9, -4)
D	(7, -3)
E	(-2, -1)
F	(-7, 3)
G	(8, 10)
H	(-4, 1)
I	(2, -6)
J	(0, -5)



Grade 7

Graphing

	Curriculum Expectations	Pages That Cover the Expectations
GP.1	**Circle graphs** • constructing, labelling, and interpreting circle	3 - 63

Name: _____ 3

Curriculum Connection
GP.1

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	
Personal Vehicle	3558
Bike	241
[illegible]	742
[illegible]	[illegible]9
Total	[illegible]00

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]tal[illegible] [illegible]ercentages and decimals

1) Favourite Colour			
Options	**Frequency**	**Decimal**	**%**
Blue	2560		
Red	2123		
Pink	1575		
Green	3742		
Total			

Favourite Music Genre			
Opt[illegible]	[illegible]quency	Decimal	%
[illegible]	[illegible]		
[illegible]	[illegible]5		
Rap	[illegible]2		
Country	2940		
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			

Name: _____ 4

Curriculum Connection
GP.1

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 ...ll in the tables. Is the table a frequency table or relative frequency table?

1) Nu...s ...ased Per Order

Options	Freque...	...mal	%
0	...		
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	3145
6-10	6485
	9616
...tal	

...e Fr... Frequency 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 Veh...

Options	Frequency	...nal	%
Car	26714		
Van	8485		
Truck	11452		
Motorbike	3349		
Total			

Relative Frequency Table Frequency Table

Name: _____ 5

Curriculum Connection
GP.1

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 of student's feet	Quantitative	Qualitative
2) Populati countries in North and South America	Quantitative	Qualitative
3) Anima	Quantitative	Qualitative
4) Nu countries in the Olympics	Quantitative	Qualitative
5) How many m month	Quantitative	Qualitative
6) Brand of shoes	Quantitative	Qualitative
7) Favourite drink at a	Quantitative	Qualitative
8) How many steps you get a	Quantitative	Qualitative
9) Favourite type of exercise	Quantitative	Qualitative
10) How many hours of sleep you get a night	itative	Qualitative

Part 2 Write a quantitative and qualitative below

1) Topic - Sports	
Quantitative	
Qualitative	

2) Topic - School	
Quantitative	
Qualitative	

3) Topic – Social Media	
Quantitative	
Qualitative	

Name: _____ 8

Curriculum Connection
GP.1

Discrete or Continuous Data?

Questions

Researching a car

You are purchasing a new car over the phone. You ask the car salesman the questions below. Is the data he gives you **discrete** or **continuous**?

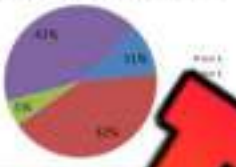
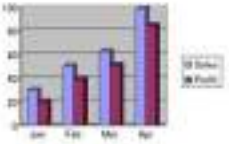
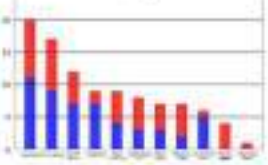
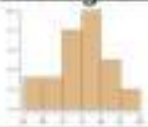
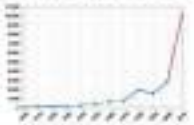
Data Collected	Discrete/Continuous
1) How [illegible] the car have?	
2) How old is [illegible]	
3) How many litres [illegible]	
4) How many wheels does the [illegible] hav	
5) How fast does the car go?	
6) How many passengers can the car hold?	
7) How many speakers are in the car?	
8) How many kilometres has the car driven already?	
9) How much does the car cost?	
10) How long does it take to get up to 60km/hour?	
11) How long is the car?	
12) How many decibels do the speakers produce?	

Name: _____ 9

Curriculum Connection
GP.1

Types of Graphs - Information

There are many different types of graphs. Each graph has features that make it better for certain data sets. Read about the different graphs below and when we use each one.

Types of Graph	Explanation	When We Use Them
Circle Graph 	- A graph that is made by dividing a circle into sections that represent parts of a whole. Each part adds up to 100%.	- When we are displaying the relative frequency of variables - Used with one set of data - Clear representation of data showing comparisons even at first glance
Bar G 	- hat plots data using bars or columns	- When we want to compare categories between different groups - Used to display 1 data set - Used with discrete data
Line Plot 	- as points (chec x's) above lin - The dots are con	- Used to show the frequency of data - Quick and simple way to organize ata with smaller values
Multiple-Bar Graph 	- A graph that shows relationship between different sets of data - The bars are presented beside each other for clear comparisons	o dis ationship between xample – gender or adu outh
Stacked-Bar Graph 	- A graph that shows the relationship between different sets of data - The bars are presented on top of each other for clear comparisons	- Used to displa ship between two sets of - Shows the relationship on the same bar, which will make the graph taller, not wider
Histogram 	- A graph similar to a bar-graph that shows frequencies for different intervals	- Used when the x-axis uses numbers (intervals). For example - age ranges
Broken-Line Graph 	- A graph that displays data as points that are connected with a line	- Used to track changes over periods of time - Used with continuous data

Name: _____ 10

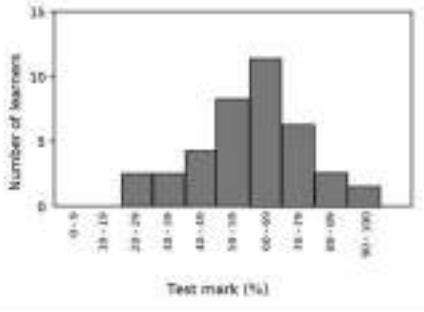
Curriculum Connection
GP.1

Types of Graphs - Questions

Part 1 Circle the graph you would use to represent the data

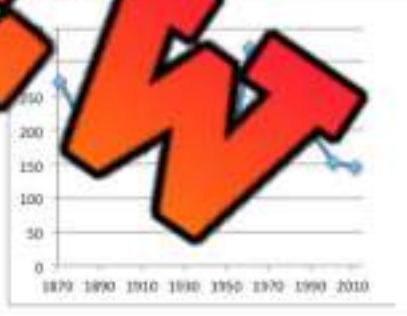
	Description	Graph A	Graph B
1)	You want a simple graph that displays one data set visually	Multiple Bar Graph	Bar Graph
2)	You want to show the relationship between two different sets of data	Bar Graph	Stacked-Bar Graph
3)	You want a graph that has smaller values	Line Plot	Bar Graph
4)	You want to display counts of data from grade 7s and grade 8s	Bar Graph	Multiple Bar Graph
5)	You want to show continuous	Broken-Line	Circle Graph
6)	You want to display the relative frequency	Broken Line Graph	Circle Graph
7)	You have data with time intervals. The data has numbers on the x and y axis	Broken-Line Graph	Histogram

Part 2 Label the names of the graphs

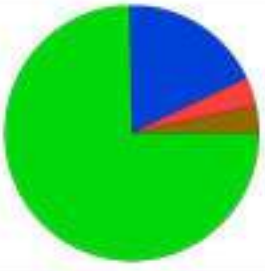


1)

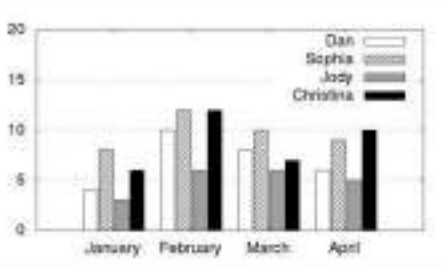
2)



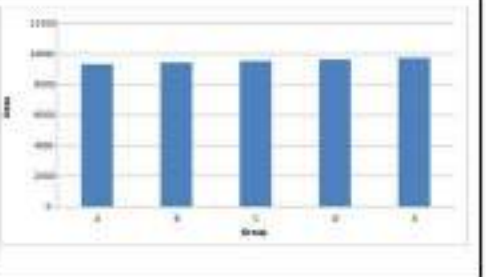
3)



4)



5)



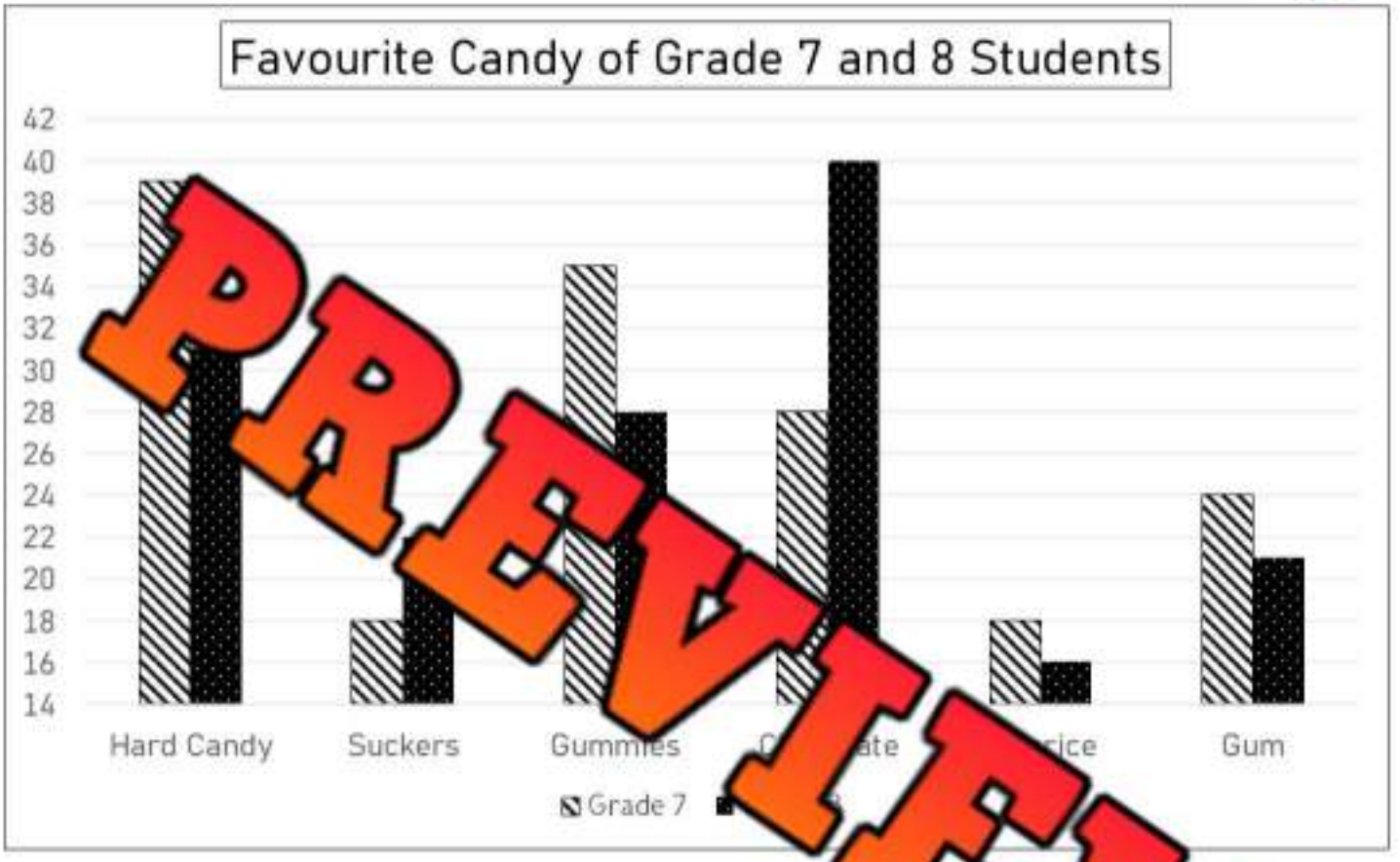
6)

Name: _____ 22

Curriculum Connection
GP.1

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.



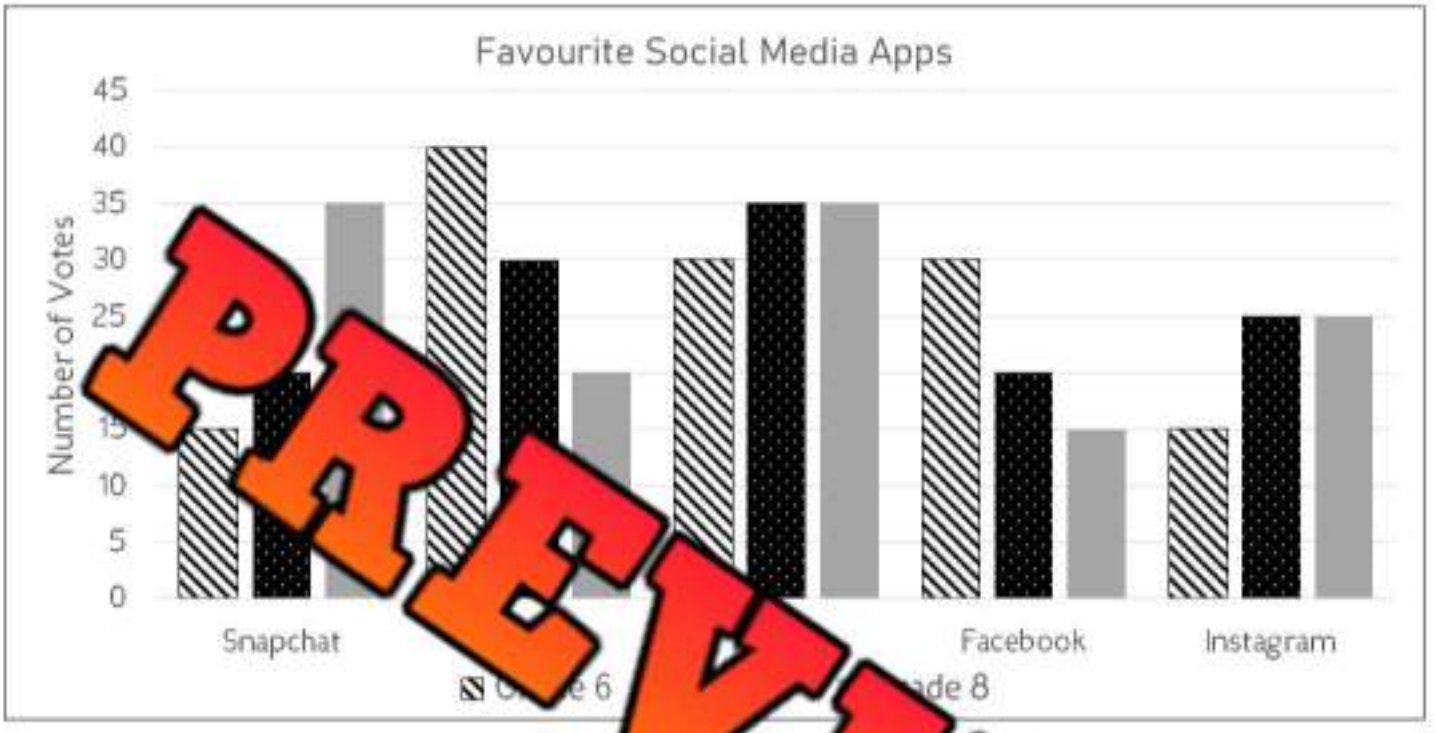
a) Which candy did the grade 7's like the most?			
b) Which candy did the grade 8's like the most?			
c) Which candy got the most votes combined?			
d) How many more votes did gummies get in total over licorice?			
e) How many students participated in the survey?	Gr 7	Gr 8	Total
f) What percentage of students chose gum as their favourite?			
g) What percentage of grade 7s chose hard candy?			
h) What percentage of grade 8s chose chocolate?			

Name: _____ 25

Curriculum Connection
GP.1

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 reading the multiple-bar graph above

	6				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: _____

Curriculum Connection
GP.1

Creating a Multiple-Bar Graph - 3 Groups

Assignment Create a multiple-bar graph using data you have col

1. Choose a population that you can segment into 3 groups.
Example – Kids with no siblings, kids with 1 sibling, kids with more t

Groups within Population: _____

2. Choose a survey question you would like to learn more abou k abou w the answers might be different based on your different groups.

Survey Question: _____

Option 1			Option 2						Option 4			Option 5		
Group 1	Group 2	Group 3												
Tally	Tally	Tally												

Name: _____ 27

Curriculum Connection
GP.1

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: _____ 28

Curriculum Connection
GP.1

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 Toronto 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 b ng t line graph

	J	F	M	A	M	J	J		S		N	D
mm												
%												

Part 2

Answer the questions below

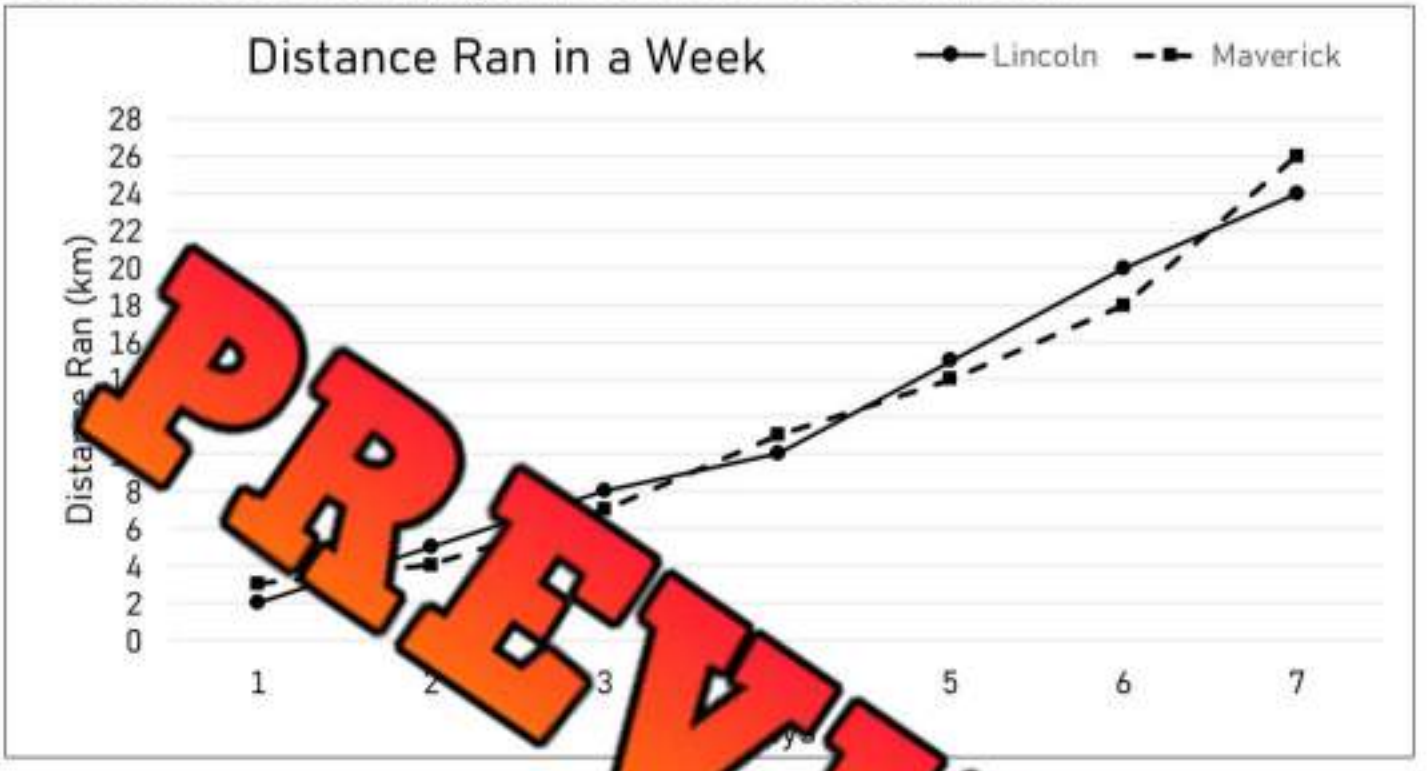
1) What percentage of precipitation falls in July and August?	
2) What 4 months of the year are the driest?	
3) Carlos thinks more precipitation falls in August, July, April and November than all the other months put together. Is he correct? Explain.	

Name: _____ 29

Curriculum Connection
GP.1

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 by reading the broken-line 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

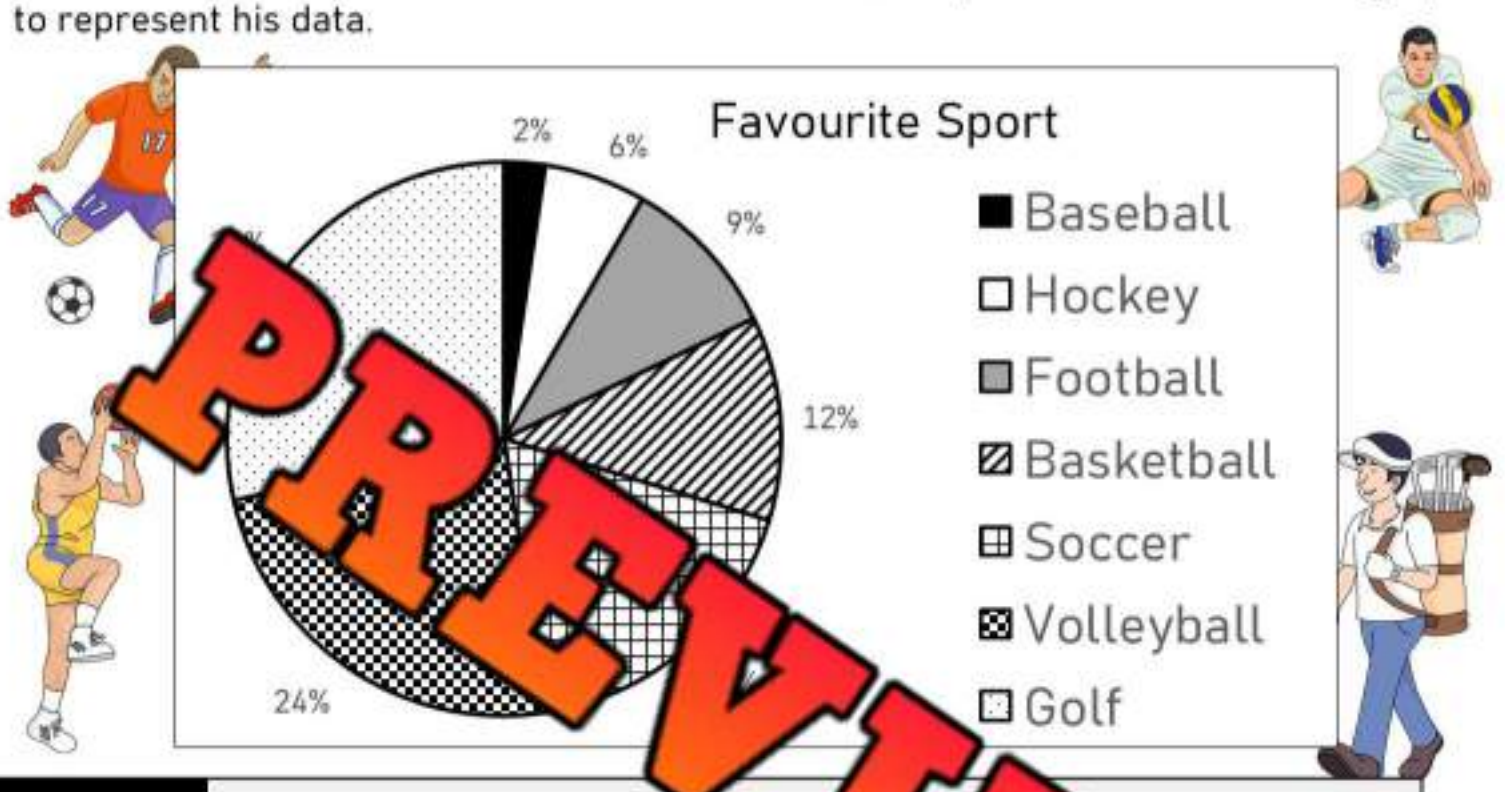
1) Who ran more km in the week?	
2) Is the data continuous or discrete?	
3) Which day did Maverick run the most? What percent of his total distance did he run on this day?	
4) Who was winning the contest after the fifth day?	
5) Which day did Lincoln run the most? What percent of his total distance did he run on this day?	

Name: _____ 32

Curriculum Connection
GP.1

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 b... ding ...cle graph

	Baseball	Hockey	Football	Basket...	...er	...all	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?	

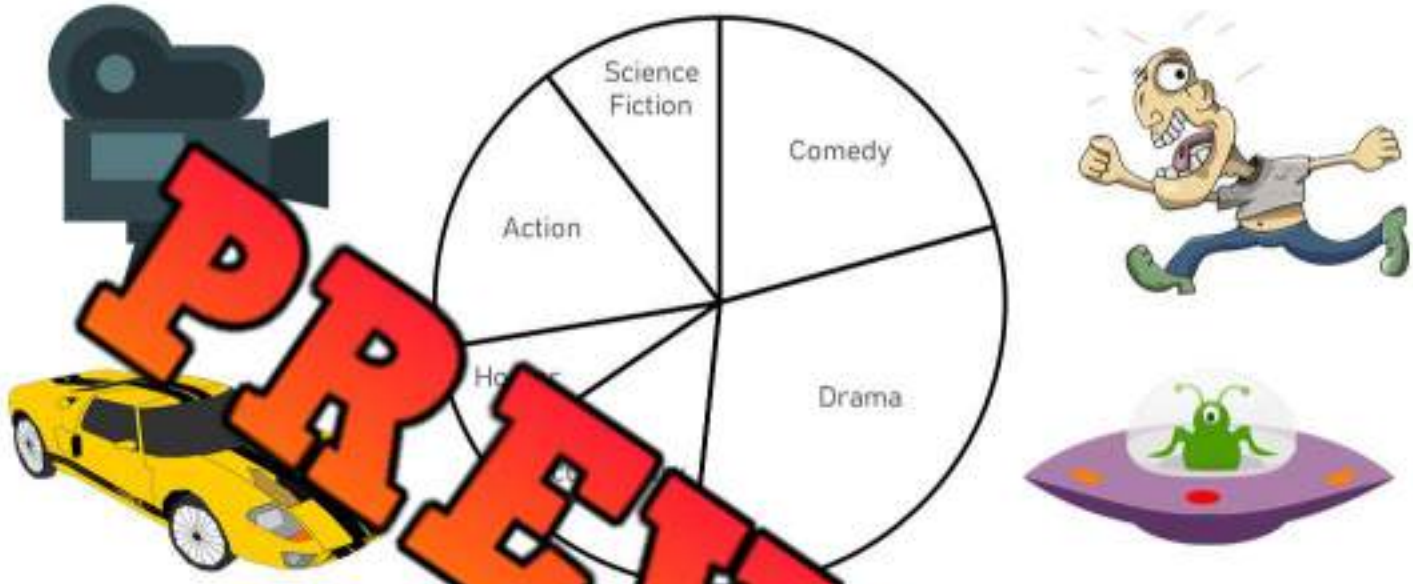
Name: _____ 33

Curriculum Connection
GP.1

Interpreting a Circle Graph - Oscar Awards

The winning movies from the Oscar awards have been displayed by genre in the circle graph below.

2021 Oscar Winning Movies By Genres



Part 1 Fill in the frequency table by reading the circle graph

	Drama	Documentary	Horror	tion	Fiction	Comedy
Votes	9/29	4/29				6/29
%			7%	18%		

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: _____ 34

Curriculum Connection
GP.1

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 tab[illegible] writin[illegible]t of each segment

	Jewelry	Shoes	Clothing	[illegible]rting[illegible]s	[illegible]rocery	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 spent 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?	

Name: _____ 35

Curriculum Connection
GP.1

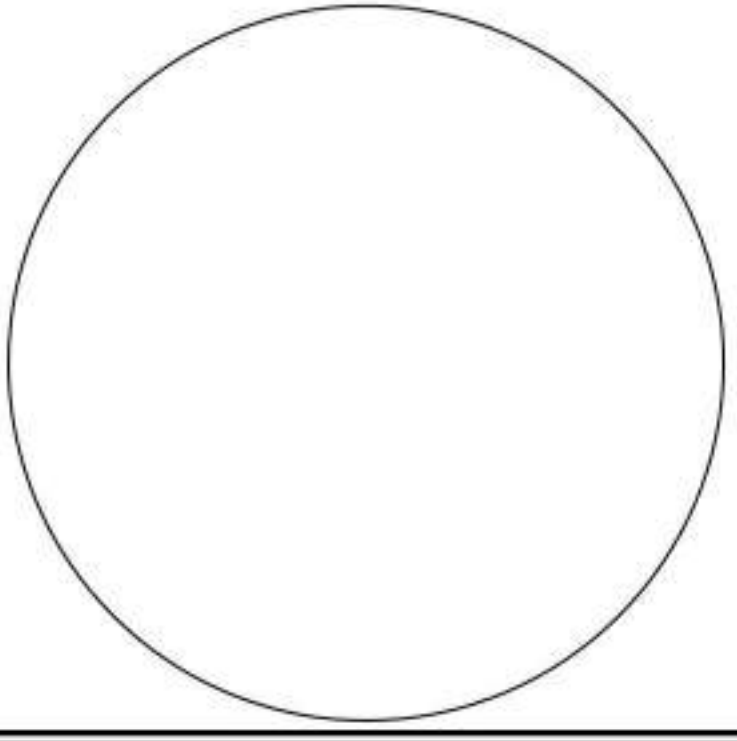
Drawing a Circle Graph - Sales

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		6/50	0.12	12%	0.12 x 360 = 43°
Wednesday	5				
Thursday					
Friday					
Saturday	11				
Sunday	10				
Total	50				

Part 2 Use a protractor to draw the angles for the circle graph



2) Why do you think she sold more on those days?

3) What conclusions can you draw from this data?

Name: _____ 36

Curriculum Connection
GP.1

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
Engli	14%	14/100	0.14	0.14 x 360 = 50°
M	13%	13/100	0.13	0.13 x 360 = 47°
Hin	%			
Spanish	7%			
French	4%			
Russian				
Other	50%			
Total	100%			

Part 2 Use a protractor to draw [illegible] circle graph

_____

[illegible] two la[illegible]es ar[illegible]st [illegible] the wo[illegible]d?	
2) What per[illegible] the world speaks languages other than English and Mandarin?	
3) What conclusions can you draw from this data?	

Name: _____ 37

Curriculum Connection
GP.1

Drawing a Circle Graph - Basketball

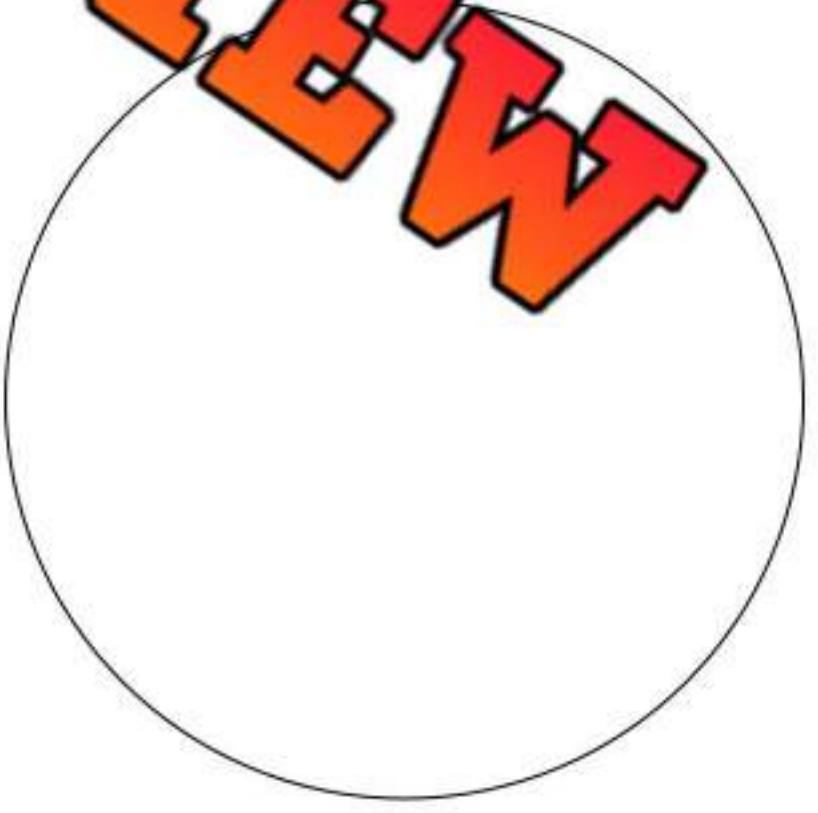
Nick has been keeping track of his basketball playoff scoring for the last 5 seasons. He played 5 playoff games in each of the last 5 seasons. How many points he scored has been recorded in the table below.

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	6	4	5	4	6	5
Season		4	6	7	10	7
Sea	1	7	12	9	12	10
Season		1	11	13	16	13
Season 5			16	25	22	21

Part 2 Use the me abov d the angle measures of each season

	Angle Measure
Season 1	
Season 2	
Season 3	
Season 4	
Season 5	



Name: _____ 38

Curriculum Connection
GP.1

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 you use most)	_____ _____

Draw a table that will help you collect and organize your data.

Interpreting The Data

1) Was your data collected from a primary or secon[illegible]ource? _____

2) What conclusions can you draw from your data? List 3 [illegible]gs

_____

_____

_____

_____

_____

3) How will graphing this data as a circle graph help readers understand the data?

_____

_____

_____

Name: _____ 39

Curriculum Connection
GP.1

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: _____ 40

Curriculum Connection
GP.1

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 years in Canada	_____ _____

Draw a table that 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 use s[illegible]one

_____

_____

_____

3) What conclusions can you draw from your data? List 3 things you learned.

_____

_____

_____

_____

_____

Name: _____ 41

Curriculum Connection
GP.1

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: _____

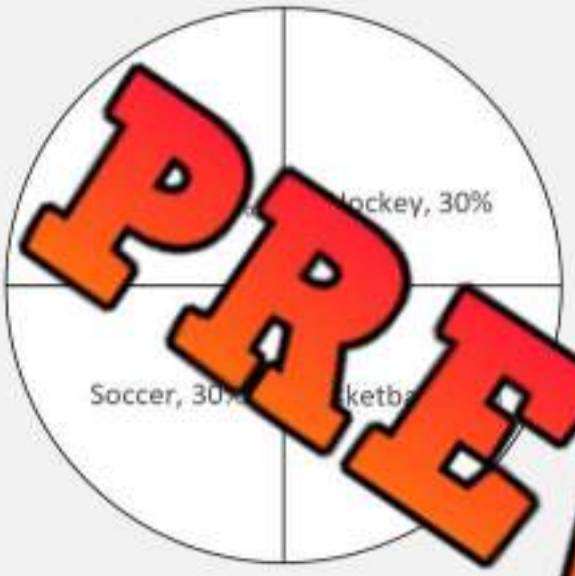
Name: _____ 57

Curriculum Connection
GP.1

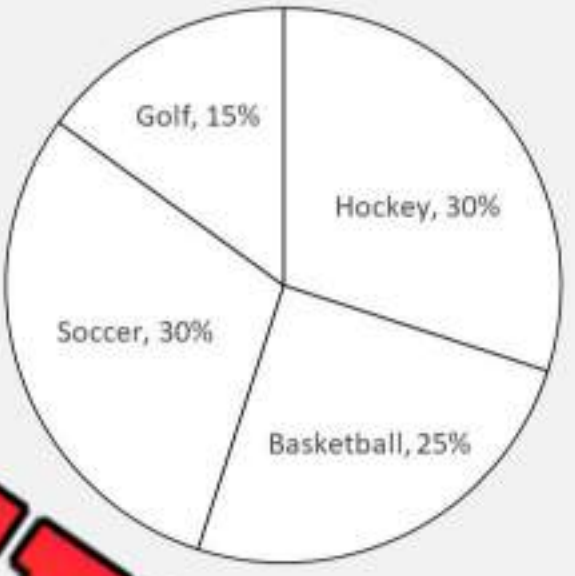
Misleading Graph - Circle Graph

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 abo wo

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.

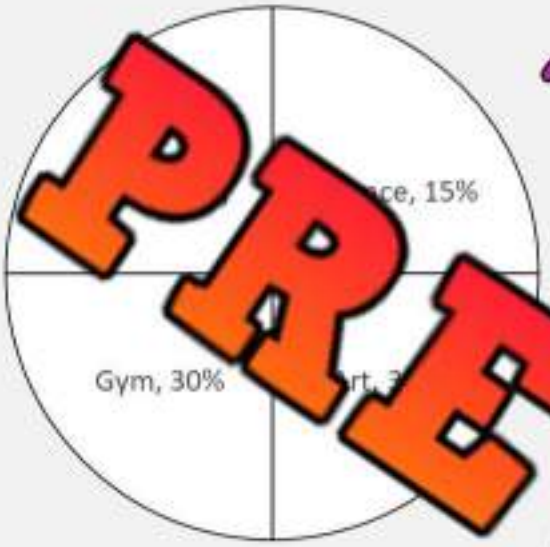
Name: _____ 58

Curriculum Connection
GP.1

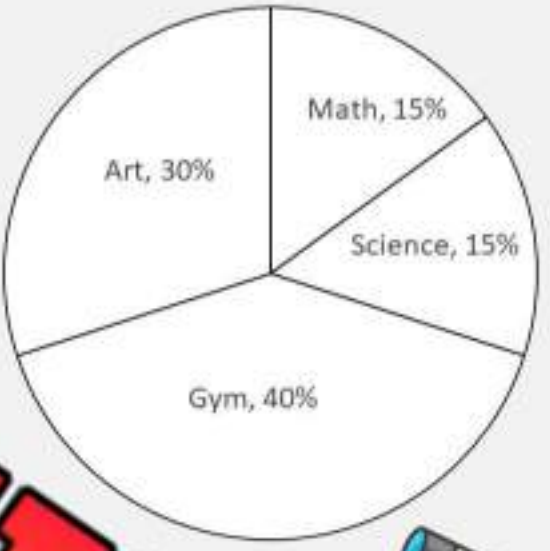
Misleading Graph - Circle Graph

A Science and Technology school is trying to advertise that Science is a popular subject for students. A study that surveyed 100 students asking what their favourite subject was completed. The results have been displayed in 2 graphs below.

Graph A - Most Popular Subjects



Graph B - Most Popular Subjects



Questions

What do you notice abo wo

a) Which of the two graphs is misleading? Explain

b) Which graph would you use if you were the science and technology school? Explain.

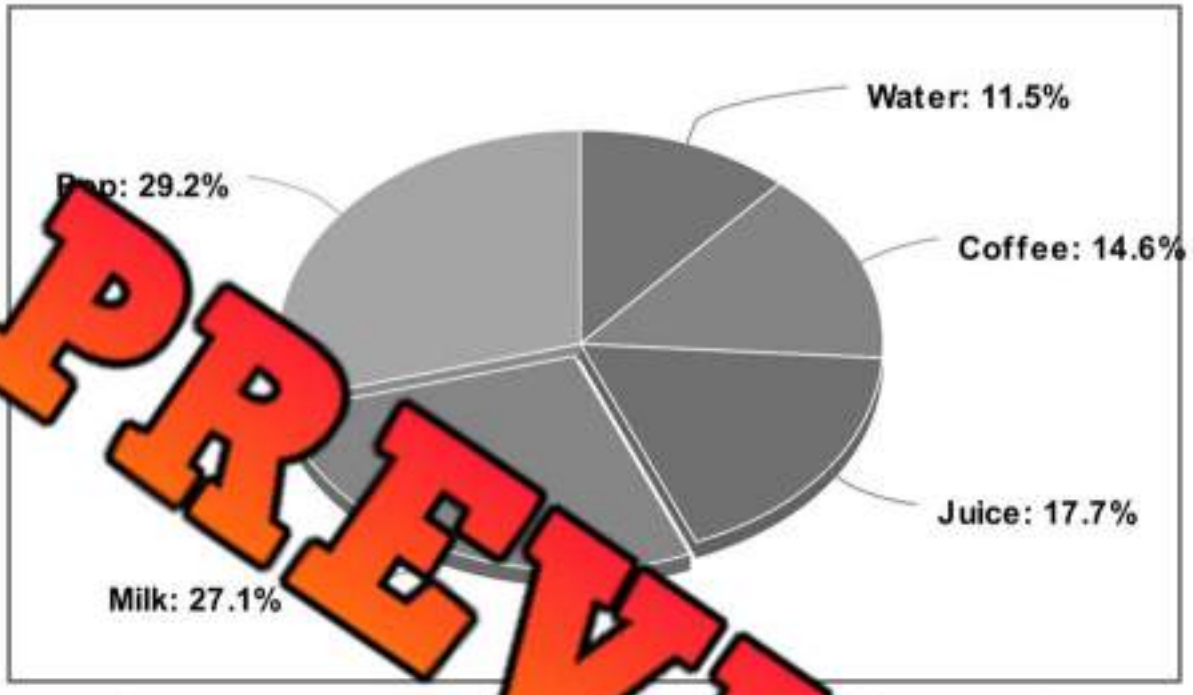
c) Do you think people would fall for this misleading graph? Explain your opinion.

Name: _____ 59

Curriculum Connection
GP.1

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 below.

a) Why is this circle graph misleading?

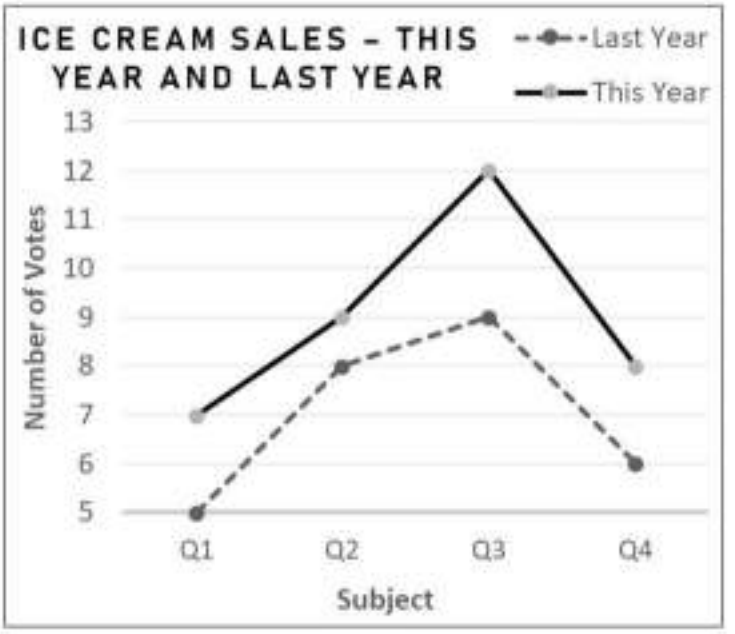
b) Why is it important to look at who completed a study before you trust their data?

c) Can you trust all data? What kinds of things can businesses do to create data that is misleading?

Name: _____ 60

Curriculum Connection
GP.1

Displaying Data Using Different Graphs



Questions

Answer the questions below

a) Both of these graphs display the same data. Which one gives us more information about the ice cream sales? Explain.

b) When is it a good option to use a double-line graph?

c) Provide an example of a data set that you would use a double line graph to represent.

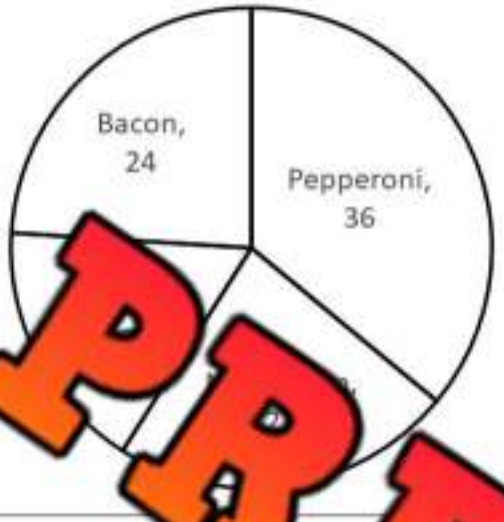
d) Is the data continuous or discrete? Explain how you know.

Name: _____ 61

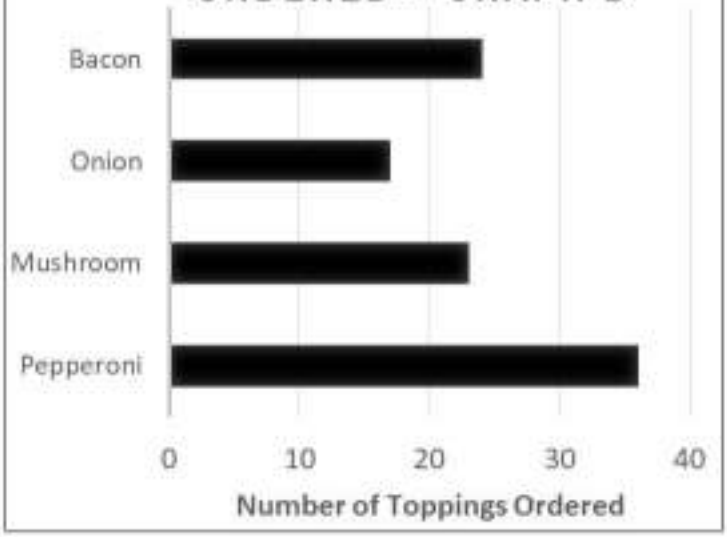
Curriculum Connection
GP.1

Displaying Data Using Different Graphs

Last 100 Pizza Toppings Ordered – Graph A



LAST 100 PIZZA TOPPINGS ORDERED – GRAPH B



Questions

Answer the questions below

a) Which graph displays the dat[illegible] ap[illegible] Explain your choice.

b) If we think of the results as a ratio, we could say 36 o[illegible]100 ([illegible]) orders were pepperoni. Which graph shows a ratio of one topping compa[illegible]all[illegible]? Explain.

c) Which graph is easier to read? Which one would you choose to display this data? Explain.

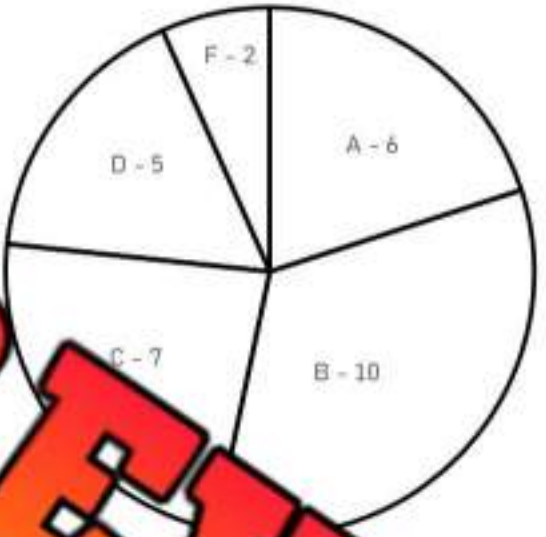
d) What is another example of data that would be best displayed as a circle graph?
Ex. Percentage of people who drive, walk, bus or bike to work.

Name: _____ 62

Unit Test - Data Literacy

Part 1 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 questio ut t ove

1. Fill in the frequency table

Grades	A	B		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?	
6. What percent of the class passed?	

7. Based on how the students in the class did on the test, do you think the test was fair? Explain your answer.

_____

_____

_____

Part 2 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

PROBABILITY

	Curriculum Expectations	Pages That Cover the Expectations
GP.2	Exp[illegible] probability with two independent events	65 – 89

Name: _____ 65

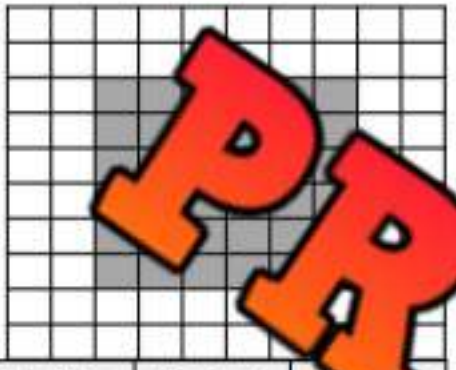
Curriculum Connection
GP.2

Independent Events - Darts

Independent events are two or more events that could happen at the same time without affecting the outcomes of the other events. Imagine below, that the shaded in area is a target and the white part is the wall. What is the probability of you hitting each target?
Think: Why are these independent events?

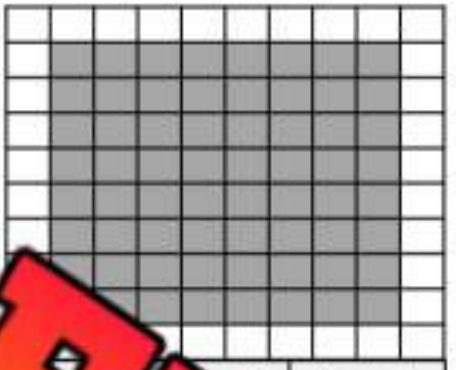
Questions Represent the probability of hitting the target using a fraction, decimal and percent

1)



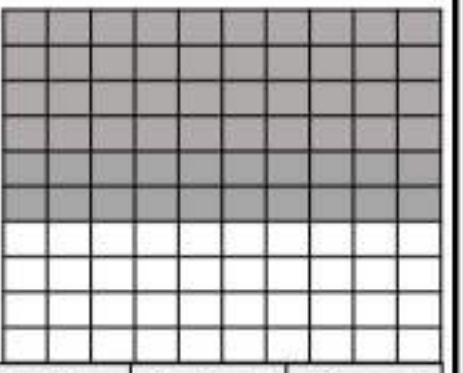
Fraction	Decimal	Percent
36/100	0.36	36%

2)



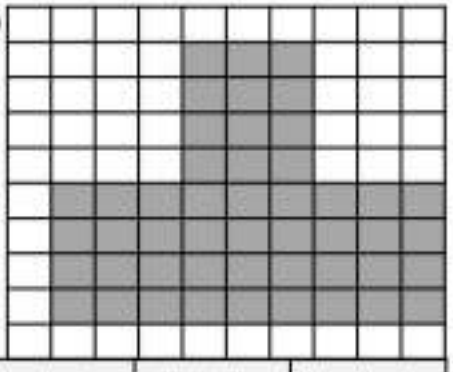
Fraction	Decimal	Percent

3)



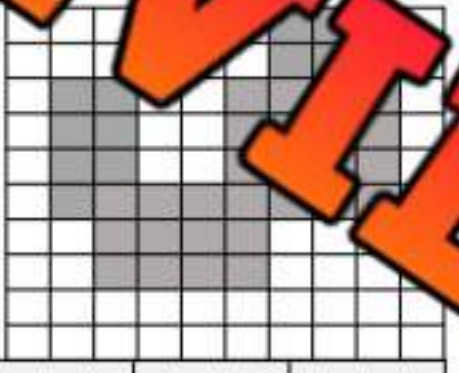
Fraction	Decimal	Percent

4)



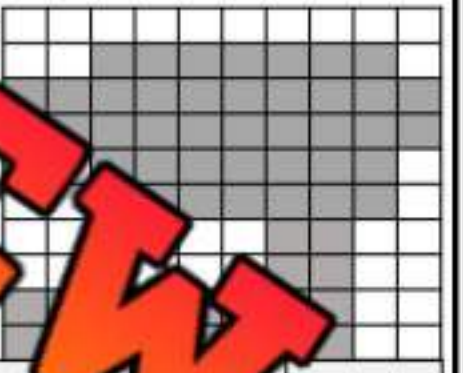
Fraction	Decimal	Percent

5)



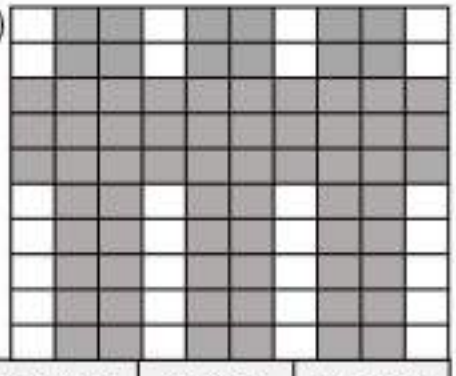
Fraction	Decimal	Percent

6)



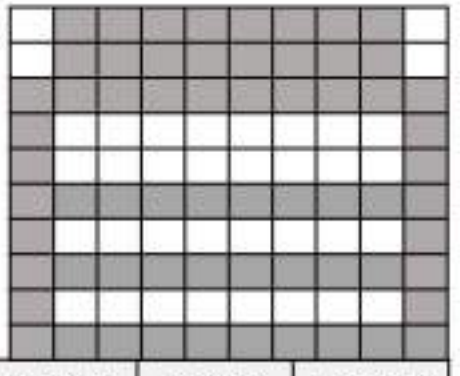
Fraction	Decimal	Percent

7)



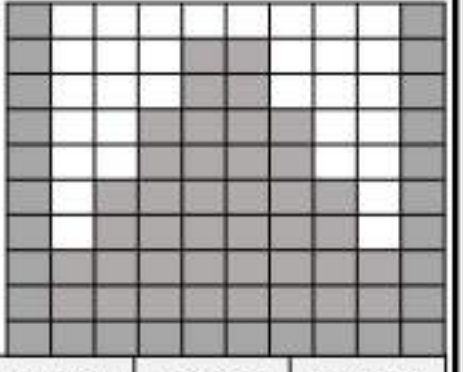
Fraction	Decimal	Percent

8)



Fraction	Decimal	Percent

9)



Fraction	Decimal	Percent

Name: _____ 67

Curriculum Connection
GP.2

Independent Events - 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 a 4?

Fraction	Decimal	Percent

2) Rolling a 5 or 6?

Fraction	Decimal	Percent

3) Rolling an odd number?

Fraction	Decimal	Percent

4) Rolling two six-sided dice and getting a 5?

Fraction	Decimal	Percent

5) Rolling two six-sided dice and getting a 1, 2, or 3?

Fraction	Decimal	Percent

6) Rolling two six-sided dice and getting an even number?

Fraction	Decimal	Percent

7) Rolling two six-sided dice and getting a 6?

Fraction	Decimal	Percent

Name: _____ 68

Curriculum Connection
GP.2

Independent Events - Rolling a Dice and Coin Flip

Rolling a Dice and Flipping a Coin

Rolling a dice and flipping a coin are two independent events. When we roll a dice, we have a 1/6 chance at rolling a particular number. When we flip a coin, we have a 1/2 chance of getting a heads or a tails. When we combine these events, we need to multiply their probabilities.

Probability of rolling a 3 and getting a heads

$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$

Questions What is the probability when you roll a dice and flip a coin...

Event	Fraction	Decimal	Percent
1) Ro tails			
2) Rolling a 6 and g a h			
3) Rolling an odd number and g ting			
4) Rolling an even number and getting a head tails			
5) Rolling a 4 and getting a heads or tails			
6) Rolling a 1 or a 2 and getting a tails			
7) Rolling a 1, 2, 3, or 4 and getting a heads			
8) Rolling a 1, 2, 3, 4, 5, or 6 and getting a tails			

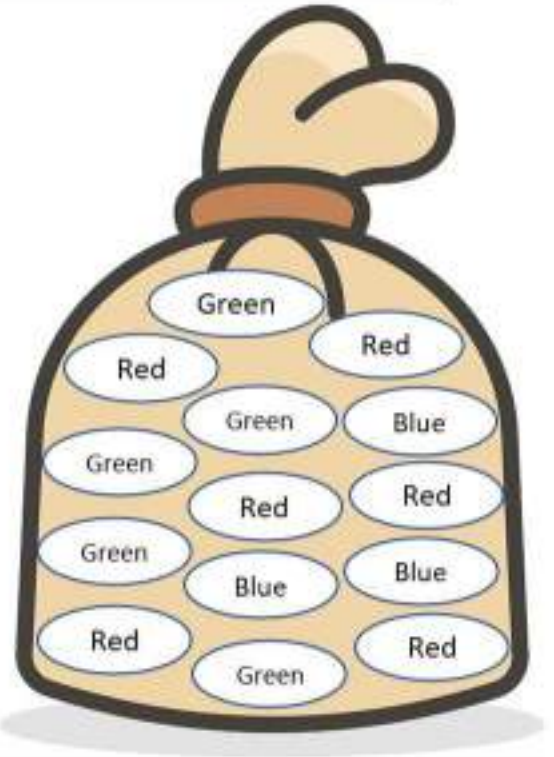
Name: _____ 70

Curriculum Connection
GP.2

Describing the Likelihood of Events

Candies

There are 14 candies in a bag. 6 are red, 3 are blue, and 5 are green.



Frequency Table Fill in the frequency table below

Candy	Frequency
Red	
Blue	
Green	

Questions What is the probability of ... if you get two pulls and always put the candy you ... first ... in the bag?

Event		Decimal	Percent
1) Pulling out 2 red candies?			
2) Pulling out 2 blue candies?			
3) Pulling out a red, blue, or green candy in both of your pulls?			
4) Pulling out a purple candy in both of your pulls?			
5) Pulling out a blue first and a green second?			
6) Pulling out a red or green first and a blue second?			
7) Pulling out a blue first and a green or red second?			

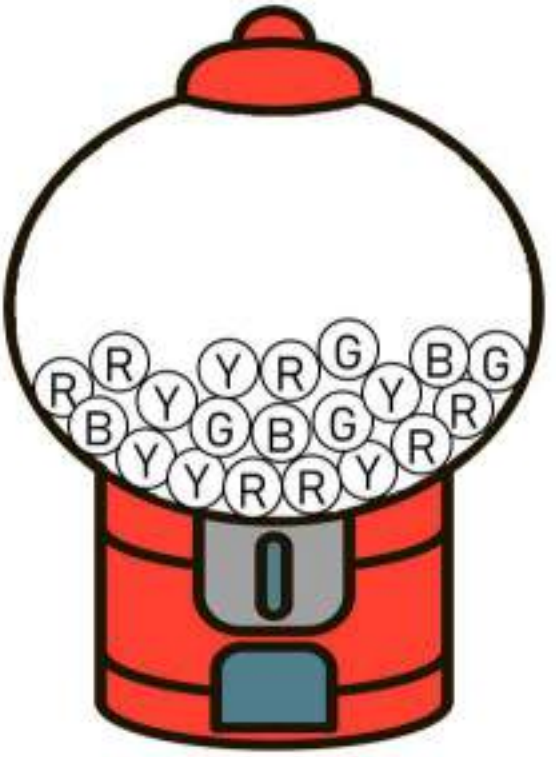
Name: _____ 71

Curriculum Connection
GP.2

Describing the Likelihood of Events

Gumball Machine

There are 20 gumballs in a machine. What is the likelihood of you pulling out a red (R), yellow (Y), green (G), or blue (B) gumball?



Frequency Table Fill in the frequency table below

Marble	Frequency
Red	
Blue	
Yellow	
Green	

Questions What is the probability of these events if you get two pulls and always put the gumball you pulled back in the bag?

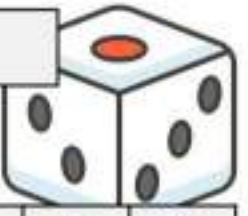
Event	Fraction	Decimal	Percent
1) Pulling out 2 green gumballs?			
2) Pulling out 2 red gumballs?			
3) Pulling out a blue or green gumball in either of your pulls?			
4) Pulling out a pink gumball in both of your pulls?			
5) Pulling out a red first and then a yellow gumball second?			
6) Pulling a red first and a green or blue second?			
7) Pulling out a blue or red first and a yellow or green second?			

Name: _____ 72

Curriculum Connection
GP.2

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?

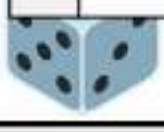
2) What is the probability of you rolling two six-sided dice and getting a sum of the two dice greater than 11?

3) What is the probability of you rolling two six-sided dice and getting a sum of the two dice less than

+	1	2	3	4	5	6
1						
2						
3						
4						
5						

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 25?

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 sum of the two dice greater than or equal to 25?

Name: _____ 73

Curriculum Connection
GP.2

Theoretical vs Experimental Probability

Examples of Theoretical and Experimental Probability
Theoretical: You should roll a 3 once every 6 rolls = 1/6
Experimental: You rolled a 3 twice when you rolled a dice six times = 2/6

Part 1 — Circle if the example is theoretical or experimental

Example	Theoretical	Experimental
1) Your free [illegible] percentage is 80%, so you should make 8 of 10 free th[illegible]	Theoretical	Experimental
2) You [illegible] the probability being 1/13 million!	Theoretical	Experimental
3) There [illegible] 80% [illegible] today	Theoretical	Experimental
4) It rained toda[illegible] ugh th[illegible] only a 10% POP	Theoretical	Experimental
5) Your teacher hande[illegible] You got a hard candy.	Theoretical	Experimental
6) You have a 25% chance of dra[illegible] a he[illegible] of cards	Theoretical	Experimental
7) You rolled a dice twice and got a 2 and [illegible]	[illegible]eoretical	Experimental
8) The Toronto Blue Jays have a 50% probability [illegible]ing their game tonight	[illegible]	Experimental
9) You flipped a coin 100 times and got heads 100 times!	[illegible]	[illegible]rimental
10) The Liberal government won the Federal election	The[illegible]	[illegible]ental

Part 2 — Follow the instructions below to complete the exp[illegible]nts

Example	Theoretical or Experimental	Fraction	Decimal	Percent
1) You should make 2 in every 5 three pointers.				
2) There is a one-in-8 chance of pulling a green candy from the candy bag.				
3) You rolled a dice 4 times. You got a 5 two times.				

Name: _____ 74

Curriculum Connection
GP.2

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 probably is 7/10.

Part 1

Write the theoretical probability of the events happening below

Question	Fraction	Decimal	Percent
1) What [illegible] probability of flipping a heads?			
2) What [illegible] ability of flipping a tails?			
3) What is the [illegible] flipping a heads if you flipped the coin [illegible] nes?			
4) What is the theoretical [illegible] heads and then rolling a dice and g[illegible]?			
5) What is the theoretical probability of [illegible] getting an odd number and then flippin[illegible]?			

Part 2

Experimental Probability - Flip a [illegible]0 tim[illegible] ord your results

1) How many heads and tails do you think you will flip o[illegible]

	He[illegible]	Tails
		20

2) Perform the experiment by flipping a coin 20 times. Record how many head[illegible] tails you get

	Tallies	Total
Heads		
Tails		

3) Was the theoretical probability and experimental probability the same? Should it be the same? Explain.

Name: _____ 75

Curriculum Connection
GP.2

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.

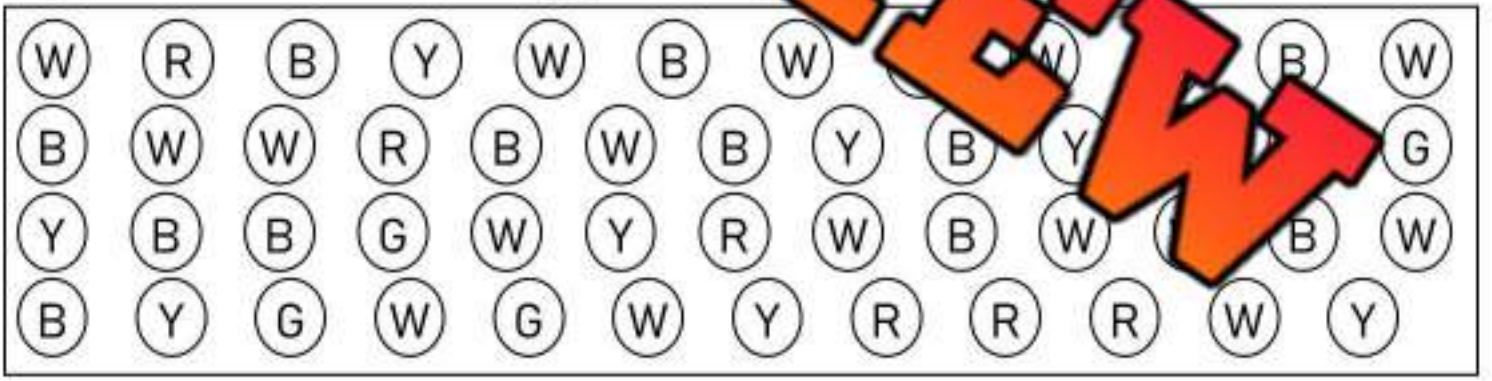
Colour of Sock	White	Yellow	Black	Green	Red
Number of Socks	14	4	22	6	4

1) If you re[illegible]nto the drawer 50 times without looking, what is the theoretical probability that you wi[illegible]ch of the colours below.

[illegible]	White	Yellow	Black	Green	Red
Fraction					
Decimal					
Percent					

Part 2 — Complete the exp[illegible]erimental probability

2) Close your eyes and point to a random spot in [illegible]box [illegible]with your eraser. Repeat this for 50 trials and tally your results [illegible].



Colour of Sock	White	Yellow	Black	Green	Red
Tally					
Percent					

a) How did the experimental probability compare with the theoretical probability? Explain.

_____

_____

Name: _____ 76

Curriculum Connection
GP.2

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

How many times should you get a 1, 2, 3, 4, 5, or 6 when performing the ...mber of rolls below?

	2	3	4	5	6
6 ro...					
12 rolls					
60 rolls					
600 rolls					
1200 rolls					

Part 2

Follow the instructions bel... ...ompl... ...experiments

1) Roll the dice 6 times. Tally your results

1				5	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: _____ 77

Curriculum Connection
GP.2

Rolling Doubles

Part 1 What is the theoretical probability of rolling doubles when rolling 2 dice

1) Fill in the table to help discover the theoretical probability of rolling doubles when rolling two dice.

Tip: favourable outcomes / total possible outcomes

2) What is the theoretical probability of rolling doubles as a fraction and percent?

Second Throw

First Throw	1	2	3	4	5	6
1	(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
2						
3						
4						
5						
6						

Part 2 What is the experimental probability of rolling doubles when rolling 2 dice

1) Roll 2 six-sided dice 24 times and record any 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? Explain.

3) Was your experimental probability the same as the other students in your class? Explain why or why not.

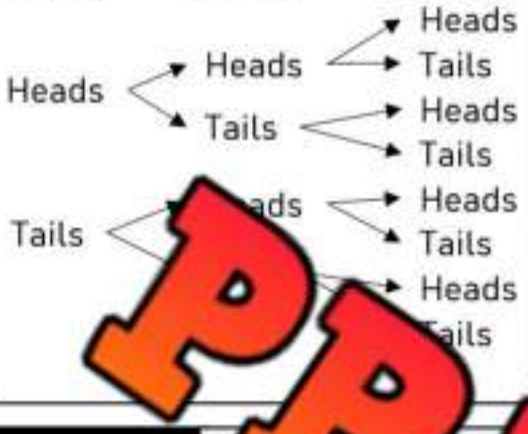
4) If you performed 1000 rolls, do you think your experimental probability would be closer or further from the theoretical probability? Explain.

Name: _____ 78

Curriculum Connection
GP.2

Theoretical Probability of Two Events - Tree Diagrams

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

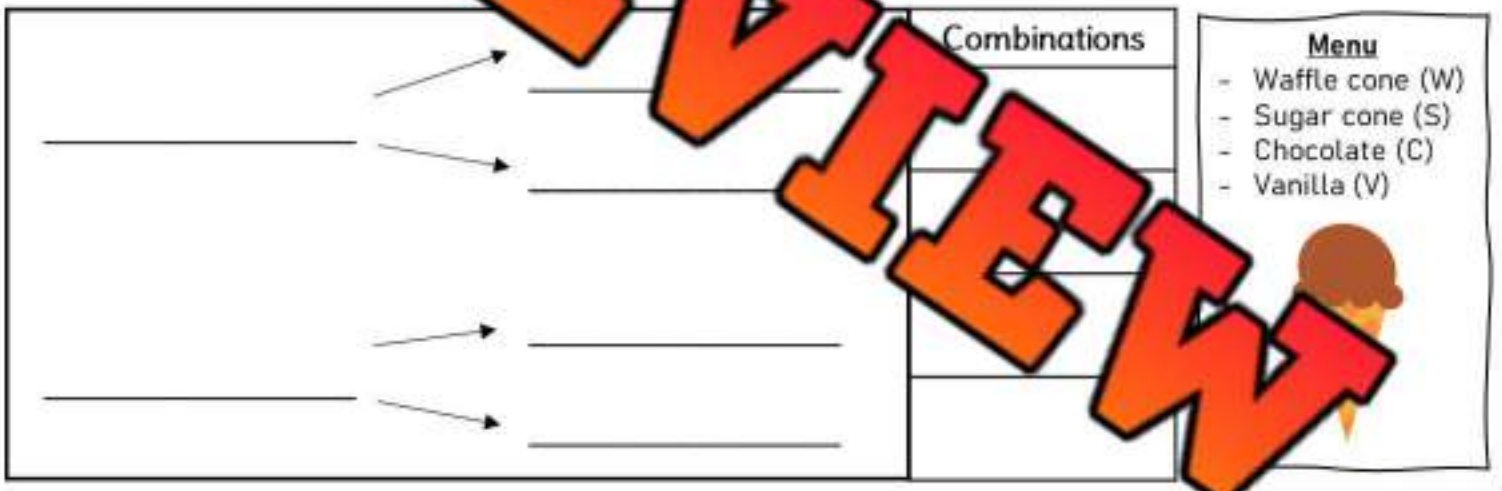
If you flip a coin three times, you could have 8 different combinations of outcomes.

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 D… diagra… …w how many different combinations you could have

An ice cream shop sells … fl… …m and two different cones. Show the combinations of ice cream … have … 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: _____ 79

Curriculum Connection
GP.2

Tree Diagrams - Independent 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			

Name: _____ 80

Curriculum Connection
GP.2

Tree Diagrams - Independent Events

Questions Draw a tree diagram to help you find the probability of different combinations

A restaurant sells hot dogs, sausages, and cheeseburgers. They also have toppings and sauces. What is the probability a customer will order a specific combination of food, topping, and sauce?

Food	Topping	Sauce
Hot Dog (H)	Onion (O)	Ketchup (K)
Sausage (S)		Mustard (M)
Cheeseburger (C)		Relish (R)
		Mayonnaise (M)

1) How many combinations of food could you have? _____

What is the probability of a customer ordering a...	Fraction	Decimal	Percent
2) Hot dog with onion, and ketchup			
3) Sausage with onion and relish or mustard			
4) Cheeseburger or Sausage with onion and relish			
5) Hot dog or sausage with onion and ketchup, mustard, relish, or mayonnaise			
6) Cheeseburger with onion and ketchup, mustard, or mayonnaise			

Name: _____ 81

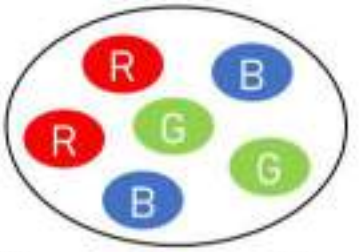
Curriculum Connection
GP.2

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 on[illegible]ble, and then put it back in the bag before pulling another marble

Tree Diagram	Combinations
Dra[illegible] 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 another blue marble?			
5) A red marble and a blue marble?			

Name: _____ 83

Curriculum Connection
GP.2

Determining Probability of Multiple Events

Questions | Solve each problem

1) A customer walks in Premiere Pizza where you can order one type of pizza and a drink for $10. The menu is below.

Pizza	Drink
Pepperoni	Soda
	Juice

a) How [illegible] can the customer order?

b) What is the pro[illegible] the cu[illegible] orders bacon pizza wi[illegible]da?

c) What is the probability the custo[illegible]der mushroom or pepperoni pizza with ju[illegible]e?

2) Your teacher teaches 3 classes in the morning. The options for each class are below.

Class 1	Class 2	Class 3
Math	Gym	Social Studies
Language	French	Science
Health	Drama	Music

a) How many combinations could your teacher choose

b) What is the probability your teacher chooses math or health, gym, and music?

[illegible] the probability your teacher chooses [illegible]ath, [illegible] French, and science or music?

3) At a fancy restaurant, you can order a surprise dinner. They tell you the options for the meat, vegetables, and dessert.

Meat	Vegetables	Dessert
Chicken	Potatoes	Donuts
Steak	Salad	Brownie
Fish		Cake

a) How many combinations could the chef make?

b) What is the probability the chef makes chicken with potatoes and cake or donuts?

c) What is the probability the chef makes steak or fish with salad or potatoes and donuts?

4) [illegible] tell [illegible] [illegible]rprise you with your [illegible]ptions [illegible]low.

Top	[illegible]n	[illegible]	Hat
Shirt	Pants	[illegible]	[illegible]oque
Sweater	Shorts	S[illegible]	Cap
Hoodie		R[illegible]ers	

a) How many combinations could your mom pick?

b) What is the probability your mom picks a shirt with pants and shoes and a cap?

c) What is the probability your mom picks a hoodie or shirt with pants and sandals or runners with a toque or cap?

Name: _____ 84

Curriculum Connection
GP.2

Experimental Probability of Two Events

Activity Complete the experiment below to find the experimental probability

Question: What is the experimental probability of getting two heads in a row when flipping a coin?

Directions
1) Flip a coin twice
2) Repea times
3) Recor esults in the frequency table

Results	Frequency
HH	
HT	
TT	
TH	

1) Fill in the ta to fin perimental probability as a percent, decimal, and fraction.

Results	ction	Decimal	Percent
HH			
HT			
TT			
TH			

2) Fill in the table below to determine the theoretical pro ility elow if you completed 30 trials (each trial is flipping a coin twice).

Results	Fraction	Decimal	Perce
HH			
HT			
TT			
TH			

3) If you performed this experiment 100 times instead of 30, would you be closer to the theoretical probability? Explain.

_____

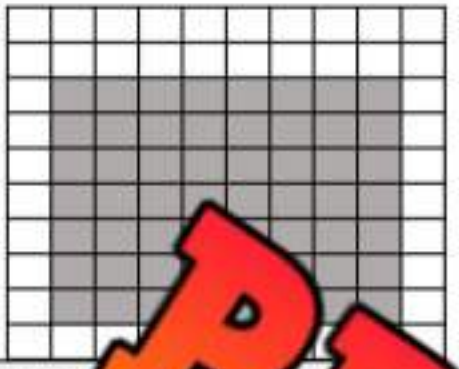
_____

Name: _____ 86

Unit Quiz - Probability

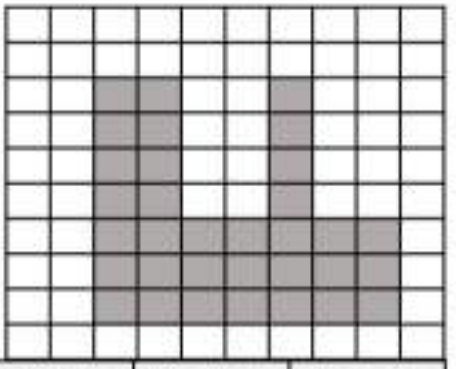
Part 1 Represent the probability of hitting the target using a fraction, decimal and percent

1)



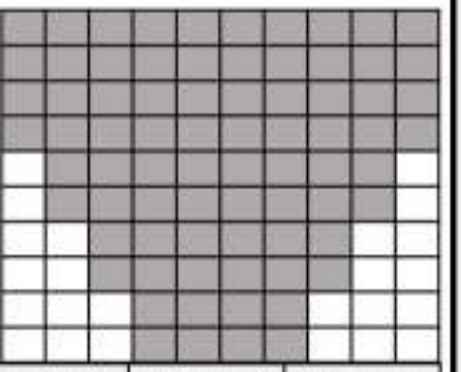
Fraction	Decimal	Percent

2)



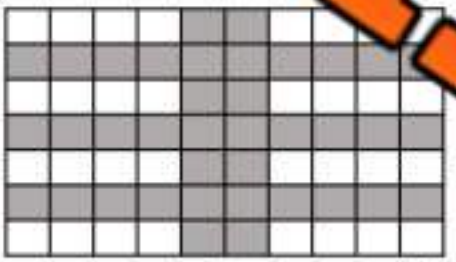
Fraction	Decimal	Percent

3)



Fraction	Decimal	Percent

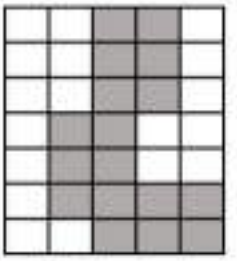
4)



Fraction	
Decimal	
Percent	

Fraction	
Decimal	
Percent	

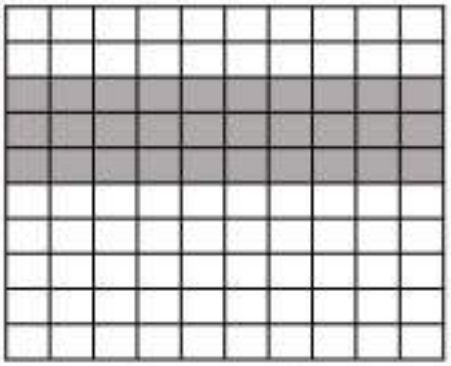
6)



Fraction	
Decimal	
Percent	

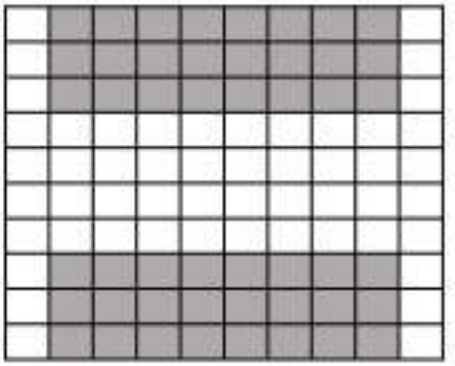
Part 2 What is the probability of hitting the target twice if you get [illegible]

7)



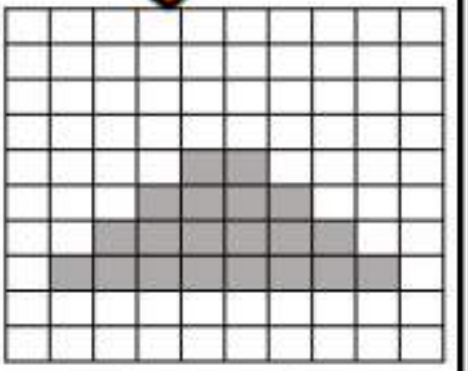
Fraction	Decimal	Percent

8)



Fraction	Decimal	Percent

9)



Fraction	Decimal	Percent

Part 3 — What is the probability of...

Event	Fraction	Decimal	Percent
1) Flipping a heads with a coin			
2) Rolling a 6-sided dice and getting an odd number			
3) Rolling a 2 and getting a tails			
4) Rolling getting a heads			
5) Ro nd getting a tails			
6) Rolling an ting a heads or a tails			
7) Rolling a 1, 2, 3, or			
8) Rolling a 1, 2, 3, 4, 5, or 6 a			

Part 4 — Circle if the example is theo l or mental

Example	Experimental
1) You should get a tails 5 out of 10 times when flipping a coin	
2) You should make 30 three pointers out of 100 because your 3-point percentage is 30%.	Experimental
3) You made 10 free throws out of 13	Theoretical Experimental
4) You have a 1/100 chance of winning the 50/50 draw because you have 1 ticket out of 100 sold.	Theoretical Experimental
5) There is a 25% chance that it will rain today	Theoretical Experimental

Grade 7

Financial Literacy

	Curriculum Expectations	Pages That Cover the Expectations
F	financial literacy — financial percentage	

Name: _____ 4

Curriculum Connection
F1.1

Mental Math - Calculating Percentages - 1%, 10%

Percents represent a rate out of 100 in relation to a whole. Therefore, we can represent 1% as 0.01 and 10% as 0.1.

Example – 150 x 0.01 = 1.5 (1% of 150 is 1.5)
150 x 0.10 = 15.0 (10% of 150 is 15)

Questio

Fill in the table below

		x0.01	1%	x0.10	10%
1)					
2)	200				
3)	300				
4)	150				
5)	250				
6)	275				
7)	375				
8)	411				
9)	537				
10)	672				

Name: _____ 5

Curriculum Connection
F1.1

Mental Math - Calculating Percentages - 10% and 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 answer (5%)
3. Add the 5% to the 10%

Example

1. 210 x [illegible]1.0
2. Half [illegible]5
3. 21[illegible]1
4. Th[illegible]re, 15% [illegible]31.5

Questions [illegible] the [illegible]low

	Number	x	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			

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Mental Math - Calculating Percentages - 25% and 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. Divide the number 148 in half (148 ÷ 2 = 74)
2. 50% of [illegible] is 74

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]alf of the numbers below?

1)	24	_____	[illegible]	[illegible]	_____	3)	76	_____
4)	128	_____	[illegible]	15[illegible]	_____	6)	212	_____
7)	264	_____	8)	3[illegible]	_____	9)	410	_____
10)	550	_____	11)	636	_____		844	_____

Part 2 — Fill in the table below

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

	Number	[illegible]	[illegible]5%
7)	348		
8)	414		
9)	560		
10)	644		
11)	828		
12)	940		

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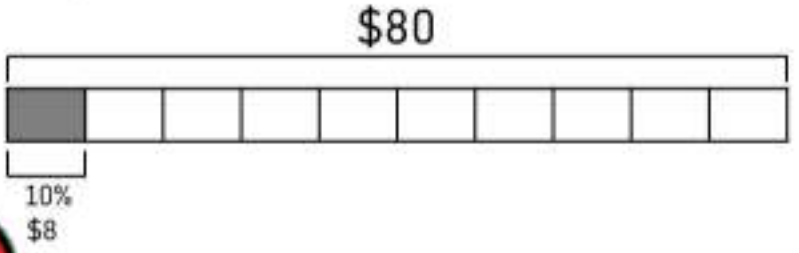
Mental Math - Calculating Percentages - Visuals

When we want to find the percent of a number, scaling up and down is the best way.

For example, a shirt costs $80 at regular price. To calculate a sale price, we can scale 10% up and down. First, 10% of 80 is 8 which means 20% is 16 and 30% is 24.



Practice the problems below

1) Tom is shopping for new shoes and finds a pair he likes for $70.00 that are on sale for 15% off. How much will the cost before tax?

2) Lindsay is out shopping for a new winter coat and finds one for $90.00 plus an additional 20% off. How much will the coat cost before tax?

3) Joe brings $100 to the mall to buy some new speakers. He finds some for $78.00 with an additional 35% off.

a) How much will the speakers cost before tax?

b) With tax costing 15%, how much will the speakers cost?

c) How much of the $100 will Joe have when he leaves the mall?

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Estimating Sales Tax - Word Problems

Questions Answer the word problems below. Use 15% as an approximate sales tax

1) Brad is shopping for a new bike. He finds one he likes for $150.00. Approximately how much will the bike cost him with sales tax included?

2) Stephanie is [illegible] new boots. Her mom sees a pair for $98.00. Approximately [illegible] will [illegible] cost?

3) Neill brings $100 to a sports store to buy a [illegible] one for $82.00. Approximately how much will the hockey [illegible] Approximately how much will he have left?

4) Jane sees a pair of jeans she wants that costs $46.00. She has $60.00. Approximately how much will these jeans cost her? Approximately how much money will she have left after she buys the jeans?

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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
$10.00	$0.10	$0.20	$1.00	$1.20	$11.20

1% of 10.00 is 0.10, which is 10 cents. We can multiply this by 2 to get 2%, which gives us 0.20 or 20 cents. 10% of 10.00 is 1.00 or 1 dollar. This gives us a total of $11.20.

Question: Follow the steps above to calculate the sales tax and total price

#	Product Price	1%	2%	10%	12%	Total Price
1	$24.00	0.24	0.48	2.40	2.40 + 0.48 $2.88	$26.88
2	$17.00					
3	$27.00					
4	$44.00					
5	$74.00					
6	$68.00					

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Determining Sales Tax

We can determine the exact price of a good or service by using a calculator. We can either convert the percentage to a decimal or we can use the percent button on our calculator.

Steps to use % Button on a Calculator

1) Enter the cost of the product
2) Hit the + button
3) Type the tax percentage (12)
4) Hit the % button (this will display the sales tax)
5) Click the = button

Question: Follow the steps above to calculate the sales tax and total price

#	Price	Sales Tax (12%)	Total Price
1	$25.00	$3.12	$27.12
2	$17.50		
3	$27.35		
4	$44.75		
5	$74.25		
6	$68.70		
7	$125.15		
8	$174.10		
9	$194.65		
10	$214.20		

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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 $7.99 before taxes. Calculate the total cost of the meal. Can he afford the meal?

Bonus: How much money does he have left?

2) Dexter wants to buy a video game. He has $100 and the game costs $65.00 before tax. How much will the game cost with 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 $79.99. She only has $65.00. Does she have enough money? Explain.

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Curriculum Connection
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Determining Final Price with Sales Tax

Item	Taxes	Total Cost	Money Used	Change
	$0.90	$8.40		$1.60

Questions Fill in the table below

Money	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

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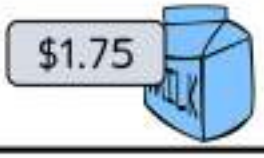
Determining Sales Tax - Multiple Items

Item #1	Item #2	Total Price	Taxes	Total Cost
		$16.00	$1.92	$17.92

Questions | Fill in the table below

Item	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

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Curriculum Connection
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Determining Final Price - Multiple Items - Word Problems

Questions | Answer the word problems below

1) George went to the movies with his friends. He ordered a bag of popcorn for $6.50 and a drink for $4.75. How much was his total purchase with tax included?

Bonu[illegible] bill. How much will he get back?

2) Ruby went to the [illegible] field meet. Her money is below:

She bought a hot dog for $3.00, a bag [illegible]ips fo[illegible] a drink for $2.25. How much did it cost her with tax?

Bonus: How would you pay - would you use all three pie[illegible]f m

3) Steve went to a video game store and bought a video game for $2[illegible] and a controller for $49.99. How much money total did he spend with tax?

Bonus: He paid with a $100 bill. How much will he get back?

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Challenge - Resteraunt Menu

Questions | Answer the word problems below

You are just sitting down to a meal at a restaurant with your friends. The waiter hands you a menu. You plan to choose 1 appetizer, 1 main, and 1 des

1) Whi s will you choose?

_____

2) How much w se th without tax?

_____

3) How much will these things c with tax? (12%)

_____

4) When you finished your meal, it is customary to leave a 15-20% gratuity (tip). What percent will you leave? _____

5) What will your entire meal costs with the tax and tip included?

_____

6) Your friend enjoys expensive things. He orders the most expensive dinner, picking the most expensive appetizer, main, and desert. How much would it cost him with tax and a 20% gratuity?

_____

Menu

Appetizer

Soup ---------- $4.50
Salad ---------- $8.25
Chicken Wings ---- $9.75
Poutine ---------- $8.99

Mains

Pasta ---------- 14.99
Steak ---------- $25.99
Hamburger ------- $8.99
Pizza ---------- $22.50

Des

Ic ------ $4.99
ie Su -- $6.99
Ch ak 25
Chocolat 50

PREVIEW

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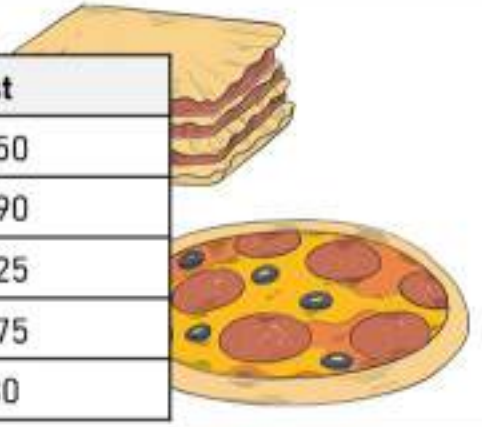
Restaurant Order - Adding Tip

Word Problems | Answer the questions below

An Italian restaurant serves the items below.

Menu	Cost
Spaghetti	$14.50
Pizza	$18.90
Lasagna	$22.25
Risotto	$19.75
ssert - Gelato	$5.80



1) James orde for and gelato for dessert.

a) How much will eal tax (12%)?

b) James adds 15% tip to the total w ow will he owe?

2) Sophia brings her family to the restaurant. They zzas risotto.

a) How much will the meal cost with sales tax (12%)?

b) Sophia adds 20% tip to the total with tax. How much will she owe

3) Evelyn and her 4 friends go to the restaurant. Each friend got a different meal and they all got gelato for dessert. Evelyn paid for the entire meal.

a) How much will the meal cost with sales tax (12%)?

b) Evelyn adds 18% tip to the total with tax. How much will she owe?

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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 about 10%. This means that after one year, your $100 is now worth $110.

Interest From Borrowing

Most people will need to borrow money to pay for things like cars, houses, or even water bills and household necessities. When we borrow money, we pay the lender (usually a bank) interest. The amount we pay in interest depends on the interest rate. A higher interest rate causes us to pay more back in interest. For example, if we borrow $100 with a 15% interest rate, we will owe $115 at the end of the year. It is important to shop around for the best interest rate.

Part 1 A bank pays you interest on your savings account – $5 per $100

Savings	Savings + Interest	Savings	Savings + Interest
1) $200	$10	5)	
2) $450		6) $377	
3) $625		7)	
4) $932		8) $281	

Part 2 You pay 19% interest on your credit card - for every $100 you owe, you pay $119

Debt	Debt + Interest	Debt	Debt + Interest	Debt	Debt + Interest
1) $300	$357	4) $999		8) $4230	
2) $485		6) $1452		9) $5417	
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?

_____

_____

_____

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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 mu[illegible]nterest does a $430 investment earn at 6% over one year?

3) How m[illegible]ch int[illegible] he[illegible]n an $875 investment at 4% for six years?

4) How much interest will y[illegible] to[illegible] orrow $325 for 2 years at a 12% interest rate.

5) Jacob invested $250 for 4 years. He earne[illegible] of [illegible]e forgets his interest rate. He thinks it was either 5% or 10%. W[illegible]st rat[illegible]e get?

6) If you borrow $1750 for 3 years at an interest rate of 6%, ho[illegible]d[illegible]st 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?

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Calculating Simple Interest

When we borrow money, we usually pay interest on the total amount we borrow. We call this amount the **principal**. Depending on the type of loan, the interest rates will vary. **Simple interest** is interest paid on the principal amount. We can calculate simple interest by using the following formula:

Simple interest = principal x interest rate x time to pay back the loan

This will give us how much interest we will pay for our loan.

For example, you owe $5000 for a car loan with a 5% simple interest rate on a 5-year term. The amount of interest you will pay after the 5 years is 5000 x 0.05 x 5 = $1250

Part 1 — Use the formula to determine the cost of borrowing for 3 and 8 years

#	Principal	Interest Rate	3-Year Loan	8-Year Loan
1)	$2000		$300	$800
2)	$3500			
3)	$6000	19%		
4)	$10,000	8%		
5)	$17,000	10%		
6)	$25,000	4%		
7)	$47,500	3.5%		

Part 2 — Answer the questions below

1) Is it more or less costly to borrow money for longer periods of time. Explain why that might be the case.

_____

_____

2) Jake is borrowing $8000 for a new car. The interest rate is 6%. He's not sure if he'll choose the 5- or 7-year term. How much will he save in interest on the 5-year term?

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Calculating Simple Interest

Questions Answer the questions below

1) If you borrow $750 for 5 years with an annual interest rate of 8%, how much interest will you pay?

b) How much in total will you pay?

2) How much interest will you have to pay if you borrow $525 for 2 years at a 12% annual interest rate?

3) If you borrow $2[illegible] with an annual interest rate of 6%, how much interest will you pay?

b) How much will you pay in total?

4) If you get a mortgage loan for $225 000 to buy a house and it has an interest rate of 2.56%, how much interest will you pay for a 25-year loan?

b) How much will the house end up costing you?

5) Ivy paid $72 of interest when she borrowed $800. Her father said she paid 9% interest, but she says she had to pay 12%. Who is correct?

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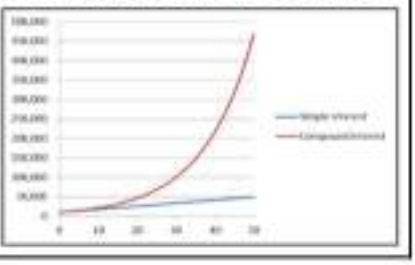
Simple Interest vs Compound Interest

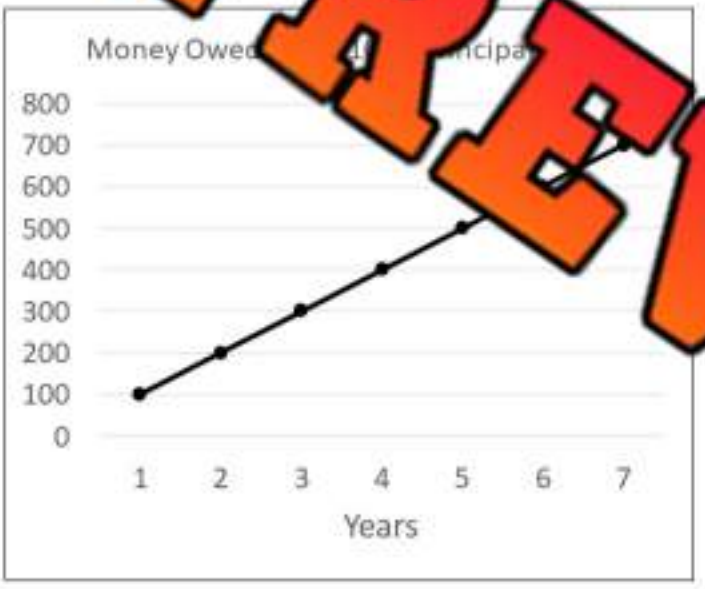
Overview – Simple Interest vs Compound Interest

Simple interest is based on the principal amount of the loan or deposit. This means the interest paid does not change. For example, if you borrow $100 at a 5% annual interest rate, you will owe $5 in interest each year until the loan is paid.



Compound interest is based on the principal amount and the interest that accumulates on it every period. For example, if you borrow $100 at a 5% annual interest rate, you will owe $5 after the first year, a[illegible]% of $105 the next year ($5.25). The third year, you would owe [illegible]10.25, which is $5.51.

Ques[illegible]e graph display a simple or compound interest loan?



1) How do you know which type of loan this was? Explain

_____

_____

_____

2) How [illegible] will be paid after 7 years?

_____

3) Wh[illegible] te a massive amount [illegible] being

_____

1) How do you know which type of interest is being applied? Explain

_____

_____

_____

2) What do you notice about the graph? Why isn't it linear?

_____

_____

_____

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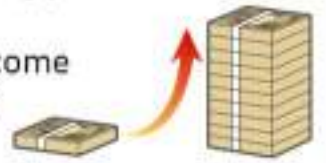
Compound Interest - Investing

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 8th wonder of the world!



Question: Calculate how much the initial investment grows after 5 years

#	Initial Investment	1-Year Total	2-Year 10% Total	3-Year 10% Total	4-Year 10% Total	5-Year 10% Total
1	$200	$2		$266.20	$292.82	$322.102
2	$750					
3	$1000					
4	$1,500					
5	$2,100					
6	$3,500					
7	$72,000					
8	$115,000					
9	$150,000					
10	$500,000					

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Compound Interest - Borrowing

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 [illegible] how credit card debt can become overwhelming with compound [illegible]

Ques[illegible] [illegible]w much interest is paid after borrowing for up to 5 years

#	Prin[illegible] Borrowing	1-Y[illegible] 19% -	2-Year [illegible]% - Total	3-Year 19% - Total	4-Year 19% - Total	5-Year 19% - Total
1	$100			$168.52	$200.53	$238.64
2	$250					
3	$700					
4	$1250					
5	$2000					
6	$2500					
7	$2800					
8	$3250					
9	$5000					
10	$15,000					

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Compound Interest - Online Tool

Calculating compound interest is a complicated process. Fortunately, we can use online compound interest calculators to help us with the math. Using these tools helps us understand the importance of compounding interest, as it can get us in a lot of debt or earn us a lot of money.

Directions:

1) Search online: compound interest calculator
2) Type in the values from the table below to determine how much your investm or debt will grow.
3) Use th interest is compounded monthly for all your results

Part 1 — Use the table below

#	P (Initial inv or borrowing am)	ular	Interest Rate	Years to Grow	Total Value of Debt or Investment
1	$100	100	10%	45	
2	$500	$50	8	40	
3	$2000	$200		30	
4	$25	$25	%		
5	$5000	$100	9%	30	
6	$8000	$250	8%	2	

Part 2 — Answer the questions below

1	What amount could you contribute now and each month? How much would you have in 40 years if you started today assuming a 10% return?	
2	Alex and Jeff are both 14 years old. Alex plans to contribute $10 today and $25 every month for the next 40 years. Jeff has more money now, so he will contribute $2000 today, but only $20 each month for the next 40 years. Assuming a 10% interest rate, who will earn more?	
3	Sam has two options for a compound interest loan. Option A is borrowing $500 for 5 years with a 7% interest rate and option B is borrowing $500 for 4 years with an 8% interest rate. Which will cost him more money?	

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Compound Interest - Online Tool

Use an online compound interest tool to learn more about how you can reach different financial goals.

For example, to earn $250,000 in 25 years, you could invest $0 initially and add $200 each month. At the end of the 25 years, you'll have $267,578 with a 10% interest rate.

Directions Fill in the table with the minimum amount of contributions needed to reach the financial goal. Do not use an interest rate above 10%.

#			Principal *(Initial investment or borrowing amount)*	Regular Monthly Additions	Interest Rate	Investment Exact Value
1	$2000			25	10%	$2,117
2	$5000					
3	$25,000	7				
4	$50,000	10				
5	$100,000					
6	$200,000					
7	$500,000					
8	$750,000					
9	$1,000,000					
10	$10,000,000					

Part 2 Answer the questions below

1) What did you learn about compound interest? Can small regular investments make a big difference in your savings?

_____

_____

2) If you invested the cost of a drink each day ($2.50/day) for 30 years with an interest rate of 10%, how much would you have in 30 years?

_____

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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 rate that stays the same for the period of time chosen – typically 5 years. You can get a longe rate, but the interest rate will rise the longer you request. These loans are safe becau n't be surprised by the payment you need to make as the rate and payment Fixed rates are usually slightly higher than variable but less risky.

s an interest rate that changes whenever the bank changes their pri ate. Th e is the base interest rate that all loans are based on. Usually all five big bank rate. When they give any loan, they describe the loan as prime plus a nber. ple, a low mortgage rate might be prime plus 1%, whereas an expe car l rime plus 5.5%. In 2021, the prime rate was 2.45%, the lowest it ariable rate could change each day as the prime rate changes. up it is a bit riskier.

Part 1 If the prime rate is 2.45% te th st paid for 1 year

Loan Amount	Prime + 0.5%
1) $5000	
2) $15 250	
3) $250 000	

Amo	Prime + 4%
4) $5	
5) $42	
6) $66 750	

Part 2 Compare the fixed rate (5%) and variable-rate loans over f 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					

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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 has a large amount of savings. He doesn't mind taking risks, so he will save money. He needs a loan for a new house that he will pay off over the next 20 years. 		
Fixed Rate – 3 Year	**Fixed Rate – 5 Years**	**Fixed Rate – 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 years. He will have a fixed income until his contract is up. His job pays him well, but he'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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Curriculum Connection
F1.1

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 Tax
Everyone pays income tax. **Income tax** is a percentage of income that is paid to the government. The more income you earn, the more income tax you will pay.

An Example
For example, the average Canadian earns $54,000 in gross income yearly. Earning this much means you will pay 17% in income tax. This means the average Canadian takes home $41,887 in net income. Someone with gross income of $100,000 will pay $27,084 in tax for a net income of $72,916.

Questions Answer the following questions.

1)	Alex earned $38,413 from his employment. He also won $2,000 in the lottery. He paid $9340 in taxes. What is his net income?	
2)	Robert earned $79,575 from his job. He sold his house and earned an additional $95,350. He paid $53,538 in taxes. What is his net income?	
3)	Suzanne earned $145,094 from her salary and from selling investments. She decided to contribute $45,095 towards her retirement to put her 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 $90,400 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?	

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Curriculum Connection
F1.1

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 $70,00 u will pay 7.5% on $20,000, 15% on $20,000, 21 0,000, and 24% on $10,000.

To get a c can use the average tax rates th So, if you earned $83,540, you wo y 83 5 $21,720.40 in income tax. This would i in is $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

De ne h e tax would be paid and the net income

	Gross Income		Net Income
1)	$95,542	.92	$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?	

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Financial Literacy - Unit Test

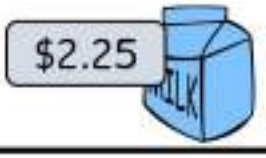
Part 1 — Calculate the sales tax and total price

#	Product Price	Sales Tax (12%)	Total Price
1	$21.50		
2	$23.00		
3	$28.75		
4			
5			

Part 2 — [illegible] the [illegible] below

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total [illegible]	[illegible]	Total Cost
				

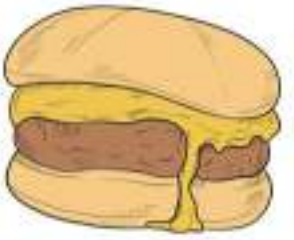
Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Part 3 — Answer the questions below

1) George has a $10 bill and wants to know if he can afford a burger and milk shake that costs $7.50 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) Lu nts to video game controller. He has $100 and the controller costs $5 0 bef w m ch will the controller cost with a 12% tax?

Bonus: How much money wil ave the controller?

Part 4 — A bank pays you a 5% interest rate for your s oun er $100

Savings	Savings + Interest
1) $200	
2) $550	
3) $725	

Savings	est
4) $1365	
5) $1952	
6) $2382	

Part 5 — 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	
6) $2525	

Part 6 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	$1					

Pa do you end up owing after 5 years?

#	Initial Bo Amount	1-Y 19	2-Year Total	3-Year 19% Total	4-Year 19% Total	5-Year 19% Total
1	$300					
2	$1300					
3	$4500					

Part 8 Which loan should Warren choo

Scenario	Warren is earning a high income from his job. He has a l s nd investments. He likes taking risks, especially if it earns or sav 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.