



Preview – Information



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Google Slides Lessons Preview





Manitoba Math Curriculum Statistics– Grade 6

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!

TYPES OF DATA

Learning Goal

We are learning to **identify and classify** different data types (qualitative vs quantitative, primary vs secondary, and discrete vs continuous data) so that we can **collect, organize, and interpret** information effectively.

QUANTITATIVE DATA

Read the description of the data and drag Yes if it is quantitative data and No if it isn't.

Description of data	YES/NO
1) The number of students in each grade 6 class	
2) The temperature at noon each day for a week	
3) The height of each sunflower in a garden	
4) Types of birds seen in a park	
5) Favourite flavour of ice cream	
6) The time it takes students to complete a puzzle	
7) The colours of cars in the school parking lot	

YES

NO



Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

TYPES OF DATA

Unscramble each set of letters to find the correct word.

VYSEUR	LCTLEDC
RYMIRAP	ATAD
TECSIRE	PLSEAM
TAVILUQATE	DROCR

RECORD
QUALITATIVE
SAMPLE
SURVEY
DISCRETE
DATA
PRIMARY
COLLECT



Manitoba Math Curriculum Statistics– Grade 6

QUALITATIVE, DISCRETE, AND CONTINUOUS DATA

Sort the data below into the correct category.

Qualitative Data	Discrete Data	Continuous Data
Temperature outside today	Number of students in a class	Hair colour
Number of goals scored in a game	Weight of a backpack	Time it takes to run 1 kilometre
Amount of water in a bottle	Favourite school subject	Choice of music genre
Type of pet at home	Number of text messages sent	Number of siblings

4.38

...es of the graphs below.

- Pictograph
- Multiple Bar Graph
- Line Plot

PICTOGRAPHS

Answer the questions about the pictograph.

A pictograph shows how many raffle tickets each student sold for a school fundraiser.

Name	# of tickets sold	Frequency
Liam		
Ava		
Noah		
Maya		
Luke		

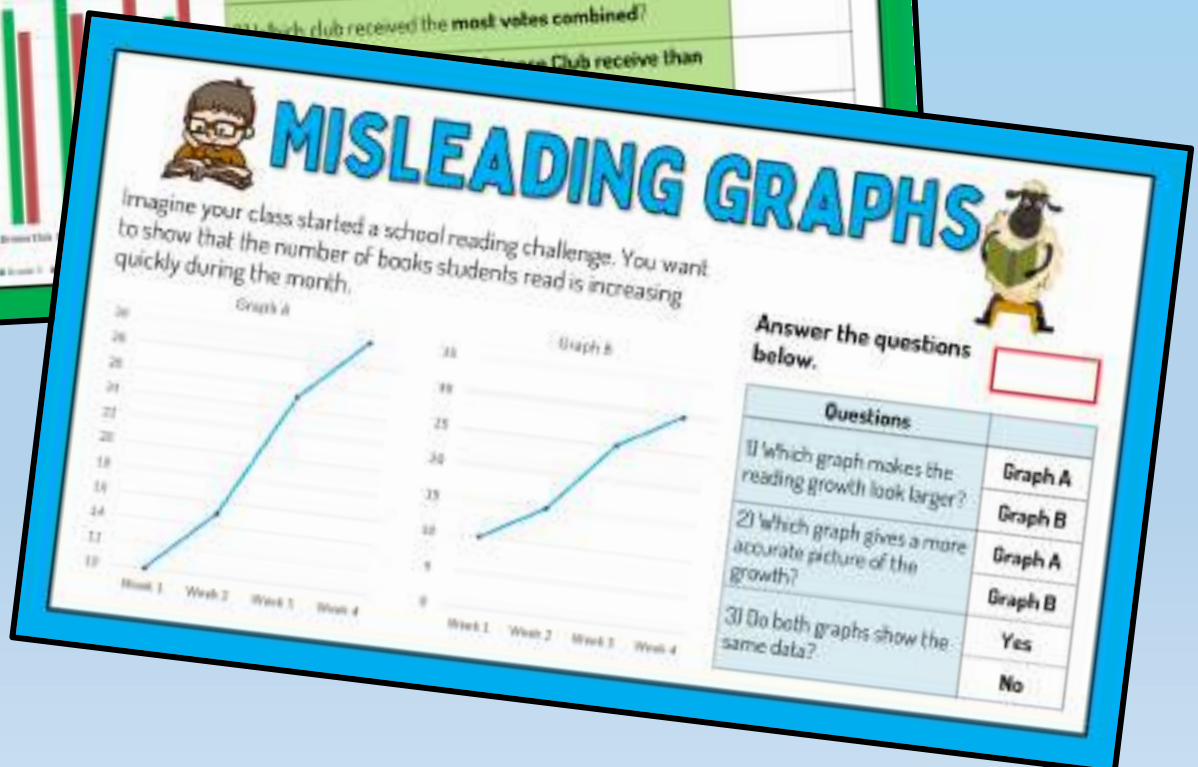
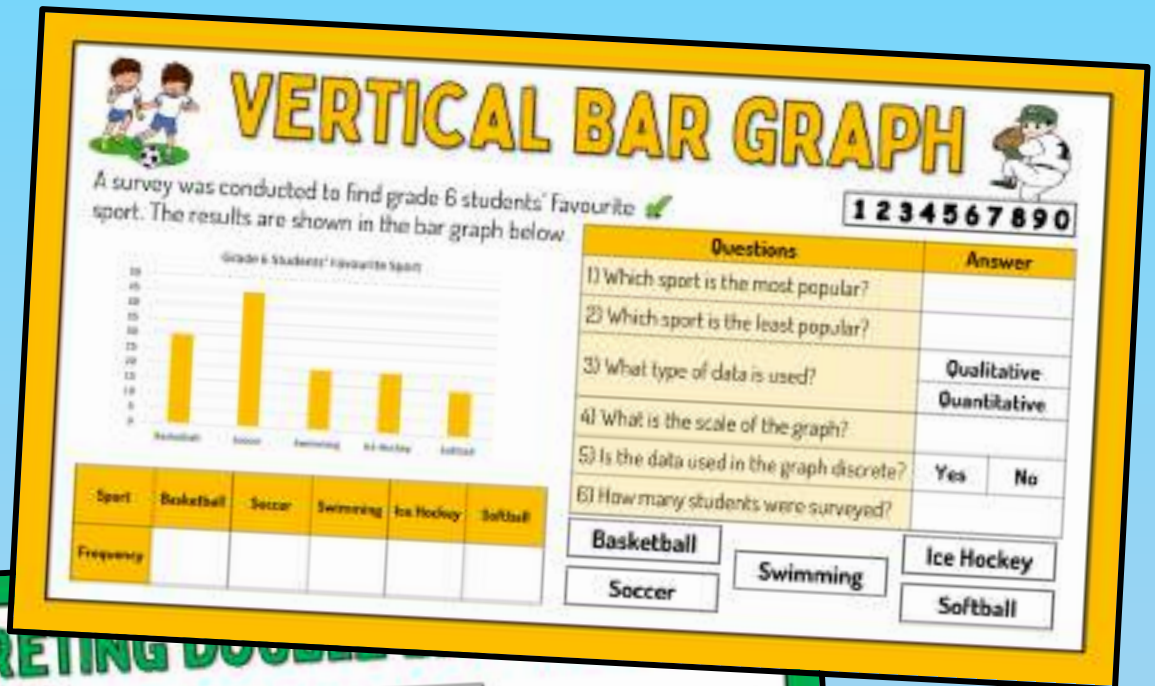
= 4 Tickets = 2 Tickets

1 2 3 4 5 6 7 8 9 0

- How many raffle tickets does one picture represent?
- Who sold the most raffle tickets?
- How many more tickets did Maya sell than Noah?
- How many raffle tickets were sold altogether?
- How many tickets does half a ticket represent?



Manitoba Math Curriculum Statistics– Grade 6



Grade 6

STATISTICS AND PROBABILITY (Data Analysis)

	Curriculum Expectations	Pages That Cover the Expectations
SP.1	Create, label and interpret line graphs to draw conclusions.	19 – 22, 37, 40 – 41, 44 – 46, 61 – 64
S	Select, justify and use appropriate methods of	
SP.3	solve problems.	36, 37, 43, 48, 50, 58, 60

Preview of 50 pages from this product that contains 158 pages total.

Qualitative Data

Qualitative data - data that uses words (categories) instead of numbers (quantitative). The data is commonly in the form of choices or favourites.

Examples

Favourites - food, drink, pet, sport, etc.

Choices - where you live, class you are in, colour hair you have, car you drive, etc.

Part 1 Read the description of the data and circle yes if it is qualitative data and no if it isn't

1) Different ways to travel to school	Yes No
2) Favourite subject in school	Yes No
3) How much snow in city in January last year	Yes No
4) Best YouTuber	Yes No
5) How many seconds it takes you to run 100 m	Yes No
6) How tall a tree grows each month	Yes No
7) The type of plants growing in your yard	Yes

Part 2 Write your own qualitative data descriptions below

1)
2)
3)
4)
5)

Quantitative Data

Quantitative data - data that uses numbers instead of words (qualitative). The data is made from counting or measuring.

Examples

Counting: How many siblings you have, numbers of games you own, number of snacks

Measured: Weight of animals, time to read a book, height of students, or speed of vehicles

Part 1 Read the description of the data and circle yes if it is quantitative data and no if it isn't

1) Length of songs are in an album	Yes No
2) Height of towers in a science experiment	Yes No
3) Favourite drink of students in grade 6	Yes No
4) The colours of the next car that drives past school	Yes No
5) How many pets the students in grade 6 have	Yes No
6) How long it takes students to answer a math question	Yes No
7) Favourite music genre of adults ages 18-35	Yes No

Part 2 Write your own quantitative data descriptions below

1)
2)
3)
4)
5)

Qualitative vs Quantitative Data

Quantitative data

Data that uses numbers (measured, counted)

- length, height, area, weight, time, etc.

Qualitative data

data that uses words (categories)
- choices, favourites, foods, colours, etc.

Questions

Read the description of the data and circle if it is quantitative or qualitative

1) Money made by the bake sale last month	Quantitative Qualitative
2) Height of the students in grade 4	Quantitative Qualitative
3) Favourite food of the grade 4 students	Quantitative Qualitative
4) Rainfall in April last year	Quantitative Qualitative
5) Favourite colours of the students in your class	Quantitative Qualitative
6) The weight of different hockey skates	Quantitative Qualitative
7) The height of the grade 4 students	Quantitative Qualitative
8) Favourite season of the students in your school	Quantitative Qualitative
9) Which town/city people live in that go to your school	Quantitative Qualitative
10) Whether or not you have a pet	Quantitative Qualitative
11) How long it took to get to school	Quantitative Qualitative

Quantitative vs Qualitative Observations

Image #1



Image #2



Part 1 Make observations about image #1 and put an x if it is quantitative or qualitative

Observations	Quantitative	Qualitative
1) The car has 4 wheels	x	
2) The vehicle is white		
3) The vehicle is wide and low		
4) The vehicle's age is 3 years old		
5) The vehicle has silver rims		
6) The vehicle has 2 headlights		
7) The vehicle is a car		
8) The vehicle drives up to 180km/hour		
9) The vehicle's tires are large		
10) The vehicle weighs 1700 kilograms		

Part 2 Write quantitative and qualitative observations about image #2

Observations	Quantitative	Qualitative
1)		
2)		
3)		
4)		
5)		

Primary vs Secondary Data

Primary Data

Data that you have collected yourself

Example

- asking your classmates their favourite food

Secondary Data

Data that has been collected by someone else

Example

- finding data on the internet

Questions

Read the description of the data and circle if it is primary or secondary data

1) You research how many points LeBron scored in the NBA playoffs last year	Primary Secondary
2) You measure the height of the kids in your class	Primary Secondary
3) You measure the temperature in your yard each day for a week	Primary Secondary
4) You look up how much snow each day in December	Primary Secondary
5) You record how many minutes you study each day	Primary Secondary
6) You weigh different sized rocks in your yard	Primary Secondary
7) You measure the weight of your cat each year	Primary Secondary
8) You research how many Orcas are left off the coast of Vancouver	Primary Secondary

Part 2

Write your own primary and secondary data descriptions below

1) Primary	
2) Secondary	
3) Primary	
4) Secondary	

Name: _____

||

Curriculum Connection
SP.2

Generating Questions - Primary Data

When we collect primary data, we often use survey questions to ask people to gather the data. We can also create research questions for experiments we plan to perform so that we can collect primary data.

Example of Primary Data Survey Questions

- What is your favourite hobby?
- What is your favourite food?

Example of Primary Data Research Questions

- How much snow will fall this month in my backyard?
- How many pushups can I do every day for 10 days?

Part 1

Write 5 survey questions you could ask to gather primary data

1)

2)

3)

4)

5)

Part 2

Write 5 research questions for experiments you could do to gather primary data

1)

2)

3)

4)

5)

Generating Questions - Secondary Data

When we collect secondary data, we are finding data from another source. This means someone else has collected the data for others to use as secondary data.

Using secondary data allows us to answer questions we may have. With so much data available to us, we can write research questions about almost anything and find the data online.

Examples

- 1) Which YouTubers had the most views last year?
- 2) Which players scored the most points last year?
- 3) What were the average temperatures in Canada, the USA, Jamaica, and

Practice Write a question you could look up to gather secondary data

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Name: _____

13

Curriculum Connection
SP.2

Research - Finding Secondary Data

Choose a research question that you are most interested in. Find data that answers your research question. Organize your data by using the table below.

Organizer

Fill in the table below

1) What is your research question?

2) How will you organize your data? You will need 4 or 5 categories so you can use your data to make comparisons.
For example: Swisher's goal totals for his first 5 seasons.

Categories

Data

3) What did you learn about your secondary data?

4) Why is this data considered secondary data?

Discrete or Continuous Data?

Discrete and continuous data are both forms of quantitative data. This means both are numerical, meaning the data is acquired through counting or measuring.

Discrete data is collected when the answers to a survey are only numbers. It is quantitative data that has no relationship between the numbers. For example, "how many pets you have" is discrete data because there is no relationship between 1 and 2 pets. You cannot have 1 and a half pets, only 1 or 2. Discrete data is counted.

With **Continuous data**, there is a relationship between the numbers. For example, "how much rainfall there was last week?" You can have 1 and a half millimetres of rain, which means there is a relationship between 1 and 2. Continuous data is measured.

Question: Is the research question discrete or continuous?

Tip: Ask yourself if you can split the answer in half.



Research Question	Discrete/Continuous
1. How many cm of snow was there in December?	
2. How many siblings do you have?	
3. What was the average temperature in July?	
4. How many minutes did you read this week?	
5. How many video games do you own?	
6. How many kilometres did you run this week?	
7. How many sports do you play?	
8. What grade are you in?	
9. How many litres of milk do you drink a week?	
10. How many cars does your family have?	

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 many doors does the car have?	
2) How old is the car?	
3) How many litres of fuel does the car hold?	
4) How many wheels does the car have?	
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?	

Data - Qualitative, Discrete, or Continuous?

Part 1

Researching a basketball team

You are the manager of a basketball team and are researching your next opponent. You decide to collect data based on the questions below. Is the data qualitative, discrete, or continuous?



Data Collected	Qualitative/Discrete/Continuous
1) How many players are on the team?	
2) How many games are there?	
3) How many points does a team score?	
4) What colour are the jerseys?	
5) Which teams have they played before?	
6) How many games have they played?	
7) How old are their players?	
8) How many wins do they have this year?	
9) How many seconds do they take before they shoot?	
10) Which type of defense do they play - zone or man?	
11) How many three pointers do they take a game?	
12) What is the name of their mascot?	

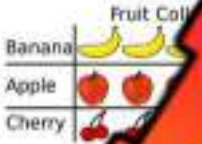
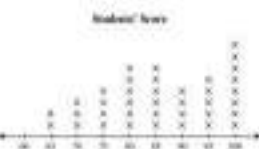
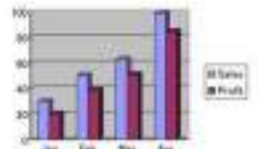
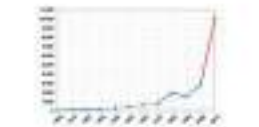
Part 2

Write one example of each type of data

Type of Data	Example
<u>Qualitative</u>	
<u>Discrete</u>	
<u>Continuous</u>	

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
Pictograph  A pictograph showing fruit collection data. The title is 'Fruit Collection'. The categories are Banana, Apple, and Cherry. Bananas are represented by 3 banana icons, Apples by 2 apple icons, and Cherries by 1 cherry icon.	- A graph that uses images or symbols to represent data	- When we want to display simple data in picture form. - When we want to make our data more interesting
Bar Graph  A bar graph showing the number of people using different modes of transport. The x-axis categories are Car, Walking, Bus, and Taxi. The y-axis represents the number of people, ranging from 0 to 20. The bars show approximately 10 for Car, 20 for Walking, 15 for Bus, and 5 for Taxi.	- Used to represent data using rectangles - Used for comparing categories	- When we want to compare categories between different groups - Used with discrete data
Line Plot  A line plot showing the number of books read by students. The x-axis is labeled 'Number of Books' and ranges from 0 to 10. The y-axis represents the frequency of each number of books. The data points are: 1 book (2), 2 books (3), 3 books (4), 4 books (5), 5 books (6), 6 books (4), 7 books (3), 8 books (2), 9 books (1), 10 books (1).	- A graph that displays data as points or symbols (checkmarks or x's) above a number line - The dots are not connected	- Used to show the frequency of data - A good way to organize small values
Multiple-Bar Graph  A multiple-bar graph showing sales and profit over four months (Jan, Feb, Mar, Apr). The y-axis ranges from 0 to 100. The legend indicates that blue bars represent Sales and red bars represent Profit. Sales are consistently higher than profit.	- A graph that shows the relationship between different values of data - The bars are presented beside each other for clear comparisons	- To display the relationship between two sets of data. For example - gender differences or adults vs youth
Broken-Line Graph  A broken-line graph showing a trend over time. The x-axis represents time in months (Jan to Dec). The y-axis represents a numerical value. The line shows a steady increase from January to December.	- 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

Types of Graphs - Questions

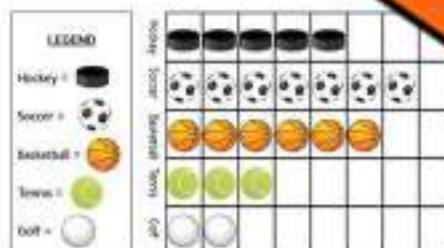
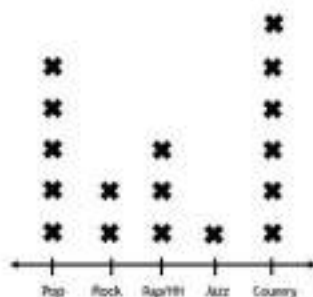
Part 1

Circle the graph you would use to represent the data

Description	Graph A	Graph B
1) You want a simple graph that shows a visual representation of the data	Broken-Line	Pictograph
2) You want to show the relationship between two different sets of data	Bar Graph	Multiple Bar Graph
3) You want a graph that has smaller values	Line Plot	Bar Graph
4) You want a graph that displays your data visually	Multiple Bar Graph	Bar Graph
5) You want to graph continuous data	Broken Line Graph	Line Plot
6) You are displaying two sets of data for men and women	Bar Graph	Multiple Bar Graph

Part 2

Label the names of the graphs

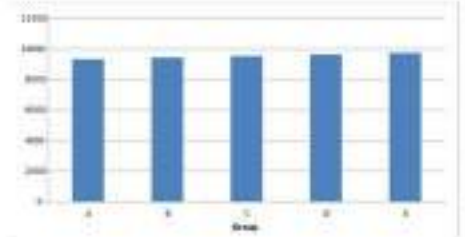
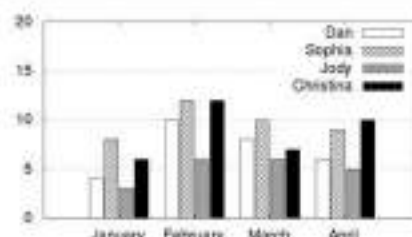


1)

2)

3)

Students' Score



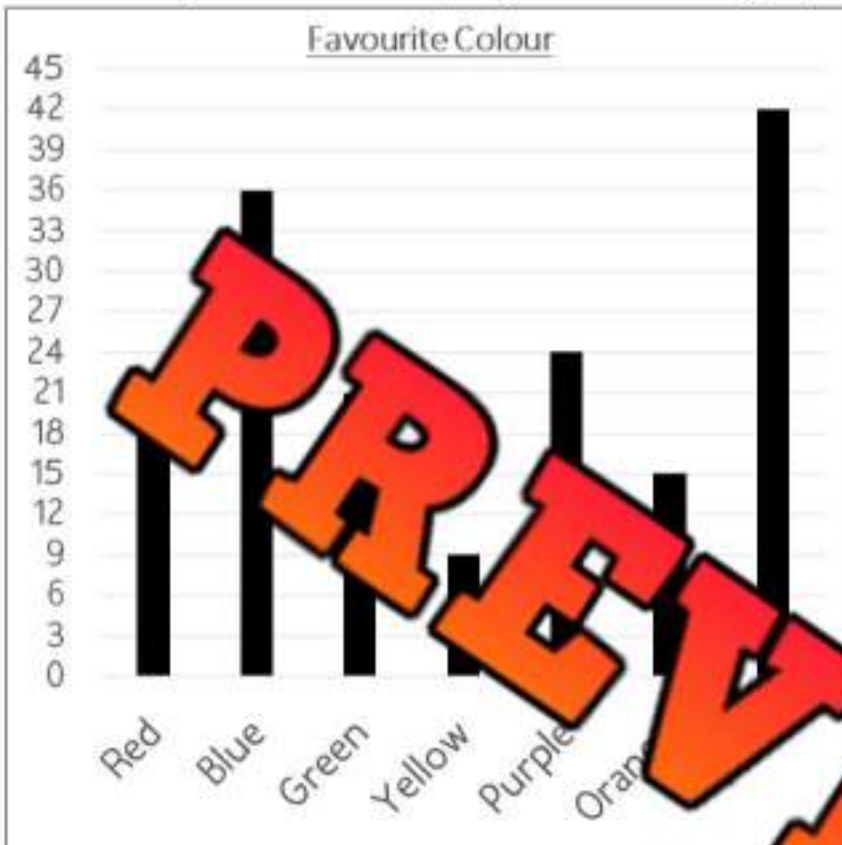
4)

5)

6)

Vertical Bar Graph - Favourite Colour

The students in grade 6 were asked which colour was their favourite. The results of the survey have been displayed in the bar graph below.



Frequency Table	
Red	
Blue	
Green	
Yellow	
Purple	
Orange	

a) Which colour was most popular?

b) Which two colours add up to pink?

c) Is the data quantitative or qualitative?

d) What is the scale of the graph?

e) What could the title of the x-axis be → ?

f) What could the title of the y-axis be ↑ ?

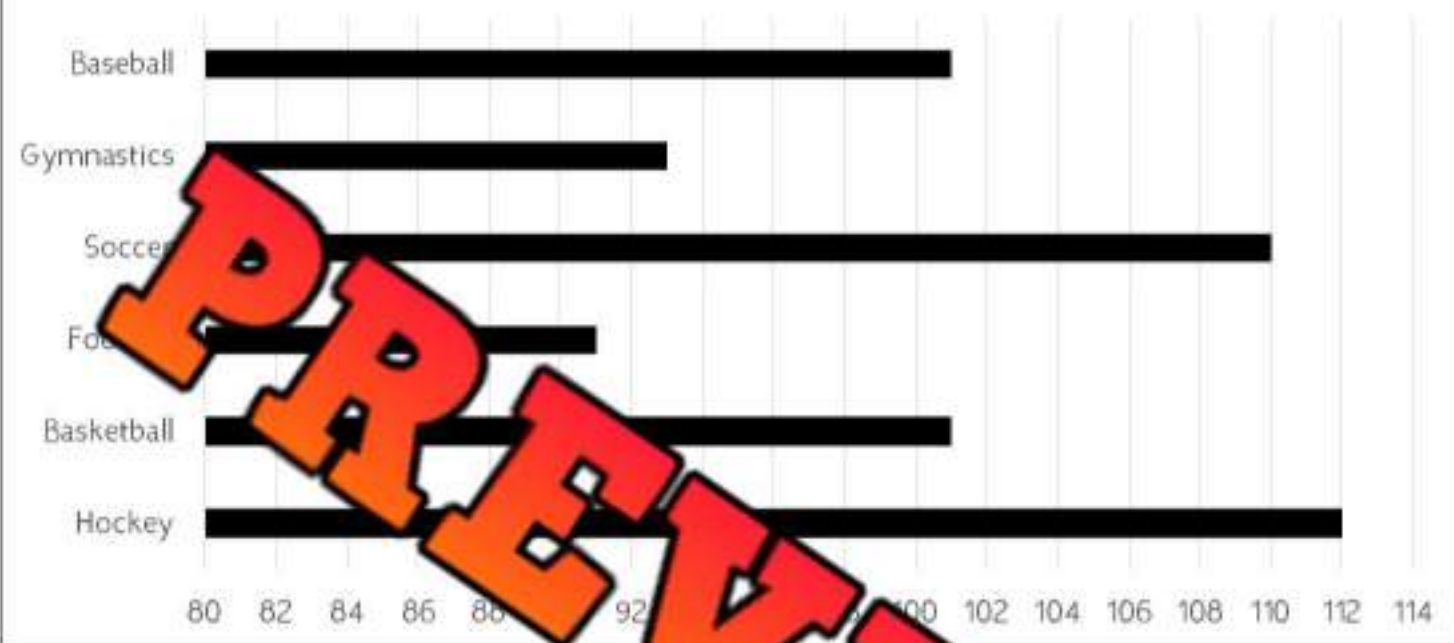
g) Is this data discrete or continuous?

h) How many people were surveyed?

Horizontal Bar Graph - Favourite Sport

The kids at camp were asked which sport they liked the best. They surveyed each kid and the results have been displayed below in a horizontal bar graph.

Favourite Sport



Questions

Fill in the tables below

Frequency Table	
Baseball	
Gymnastics	
Soccer	
Football	
Basketball	
Hockey	

a) Which sport was the most popular?

b) What number does the scale start at?

c) How many people chose gymnastics as their favourite?

d) How many kids liked basketball and soccer the best?

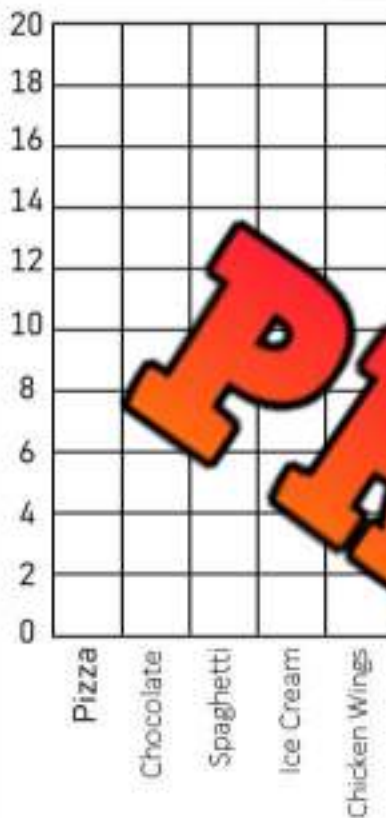
e) How many kids liked hockey more than football?

f) How many kids were surveyed?

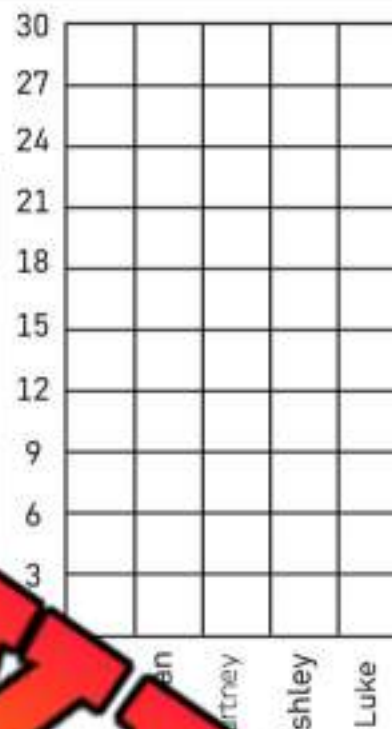
Drawing Bar Graphs

Questions

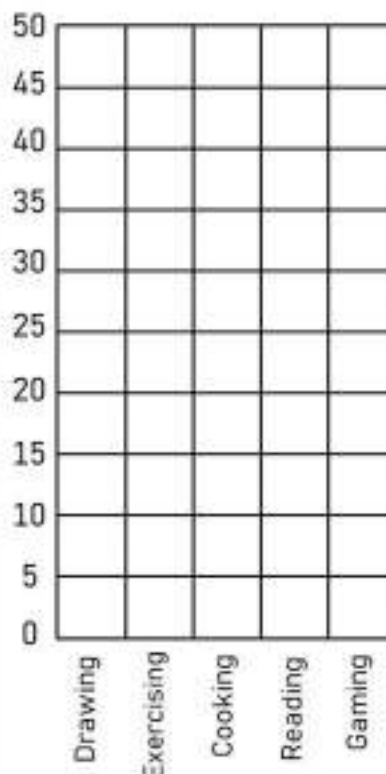
Draw the bars for each of the bar graphs below



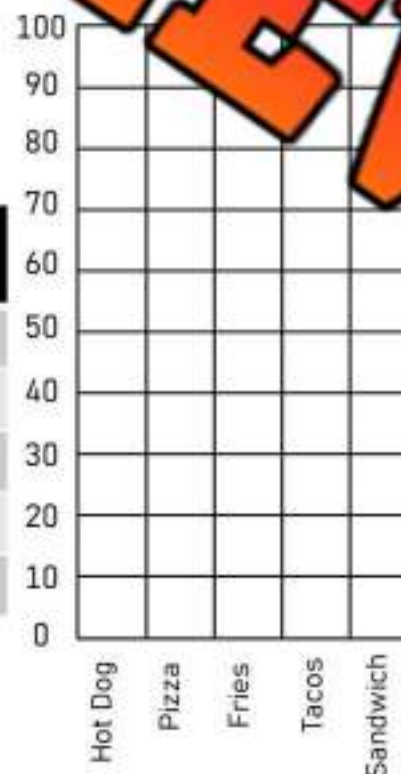
Favourite Food	# of votes
Pizza	16
Chocolate	14
Spaghetti	8
Ice Cream	12
Chicken Wings	10



Player	# of points
Jake	21
Nathan	12
Courtney	18
Ashley	28
Luke	8



Favourite Hobby	# of votes
Drawing	30
Exercising	11
Cooking	29
Reading	13
Gaming	45

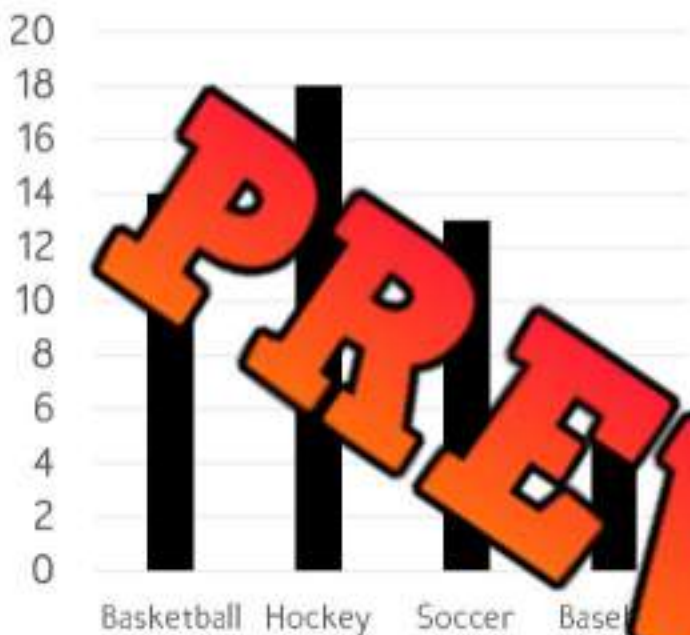


Favourite Food	# of votes
Hot Dog	40
Pizza	80
Fries	75
Tacos	35
Sandwich	25

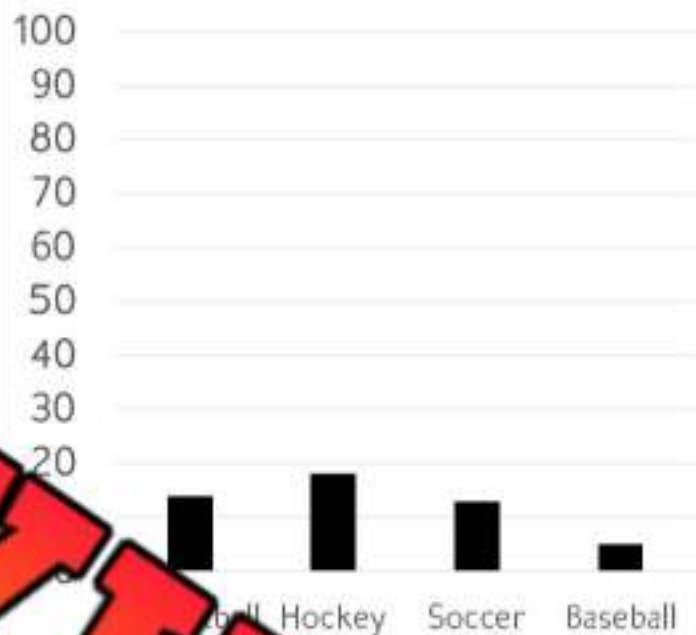
Examining Scale - Favourite Sport

The two graphs below display the same data. Examine both graphs and answer the questions below.

Favourite Sport – Graph A



Favourite Sport – Graph B



Questions

What do you notice about the two graphs?

- What is the scale in Graph A?
- What is the scale in Graph B?
- Which graph uses more of the space?
- Which graph is easier to read and interpret? Why is that graph better?
- Why is it important to choose an appropriate scale?

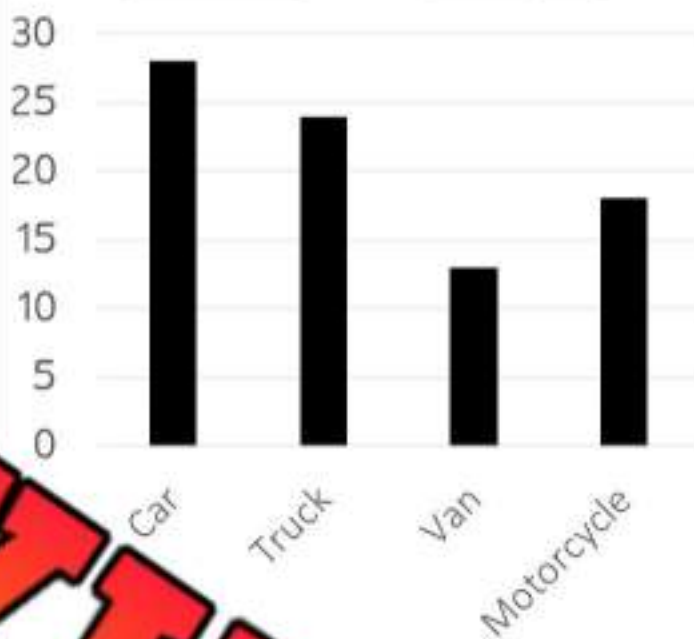
Examining Scale - Favourite Vehicle

The two graphs below display the same data. Examine both graphs and answer the questions below.

Favourite Vehicle – Graph A



Favourite Vehicle – Graph B



Questions

What do you notice about the two graphs?

- What is the scale in Graph A?
- What is the scale in Graph B?
- Which graph uses more of the space?
- Which graph is better? Why?
- What other scales could you use for the data?
 - Go up by _____
 - Go up by _____

Creating Scale

When you create a scale for your graph, you need to look at the data so you can decide what to go up by. The goal is to create a graph that will fill the graph area.

Step 1: Look at the data. Find the lowest and highest numbers.

Step 2: Count how many lines you have to plot your data.

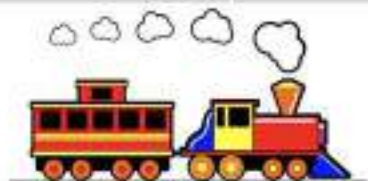
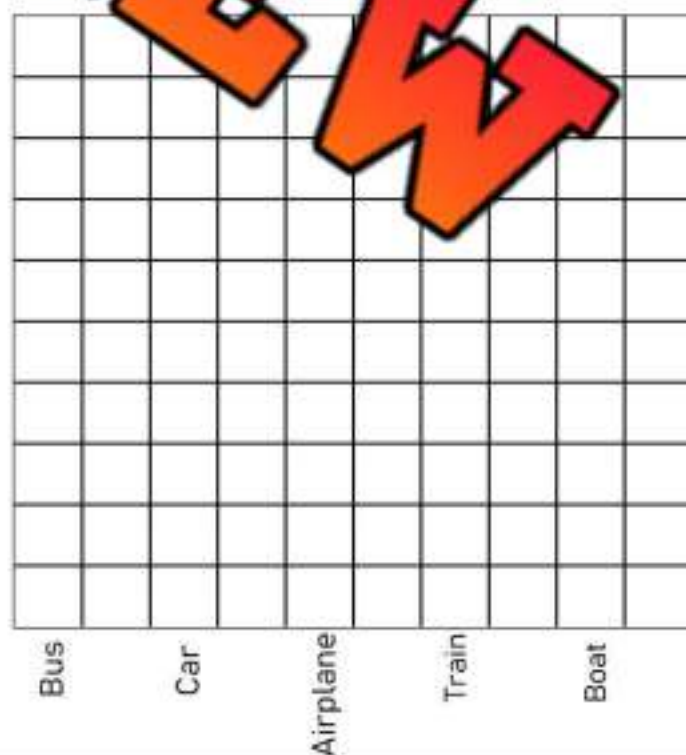
Step 3: Decide what to go up by to ensure you have enough space to plot ALL the data.



Favourite Dessert	# of votes
Brownie	21
Ice Cream	27
Cookie	15
Donut	12
Pudding	9

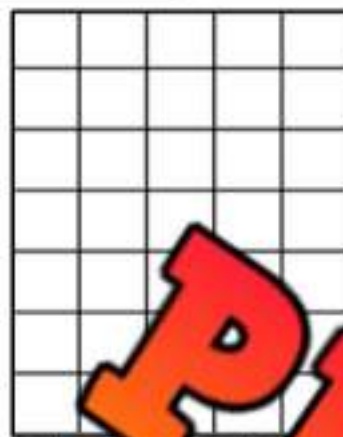


Favourite Transportation Method	# of votes
Bus	11
Car	49
Airplane	91
Train	70
Boat	82



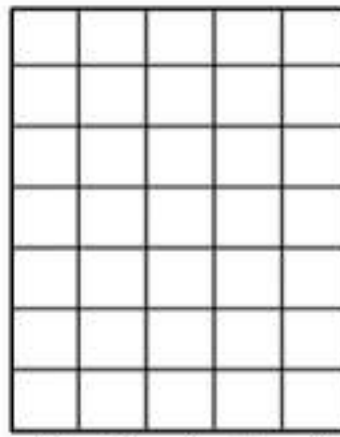
Creating Scale

Questions 1. Read the numbers and decide which scale to use 2. draw your bar graphs



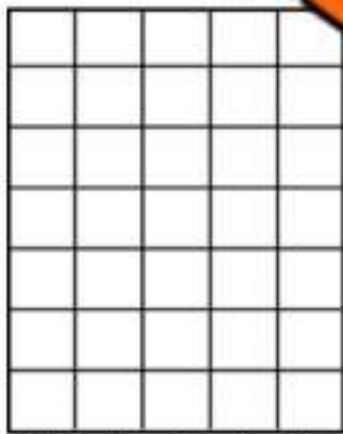
Dog
Cat
Bunny
Hamster
Turtle

Pets	Votes
Dog	3
Cat	12
Bunny	18
Hamster	15
Turtle	9



Nike
Puma
Adidas
U.A.
Reebok

Brand	Votes
Nike	10
Puma	6
Adidas	3
Under Armour	8
Reebok	12



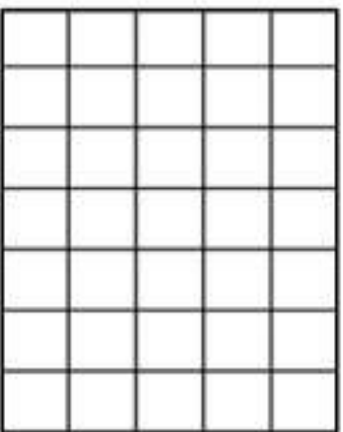
Cookies
Cake
Candy
Ice Cream
Donuts

Food	Votes
Cookies	1
Cake	15
Candy	35
Ice Cream	24
Donuts	12



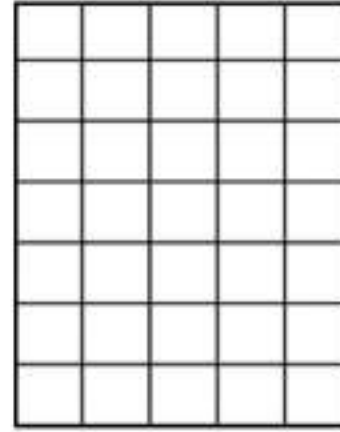
Math
Science
Gym
Art
Language

Subject	Votes
Math	8
Science	22
Gym	65
Art	41
Language	30



Honda
BMW
Toyota
Tesla
Ford

Cars	Votes
Honda	200
BMW	450
Toyota	225
Tesla	675
Ford	350

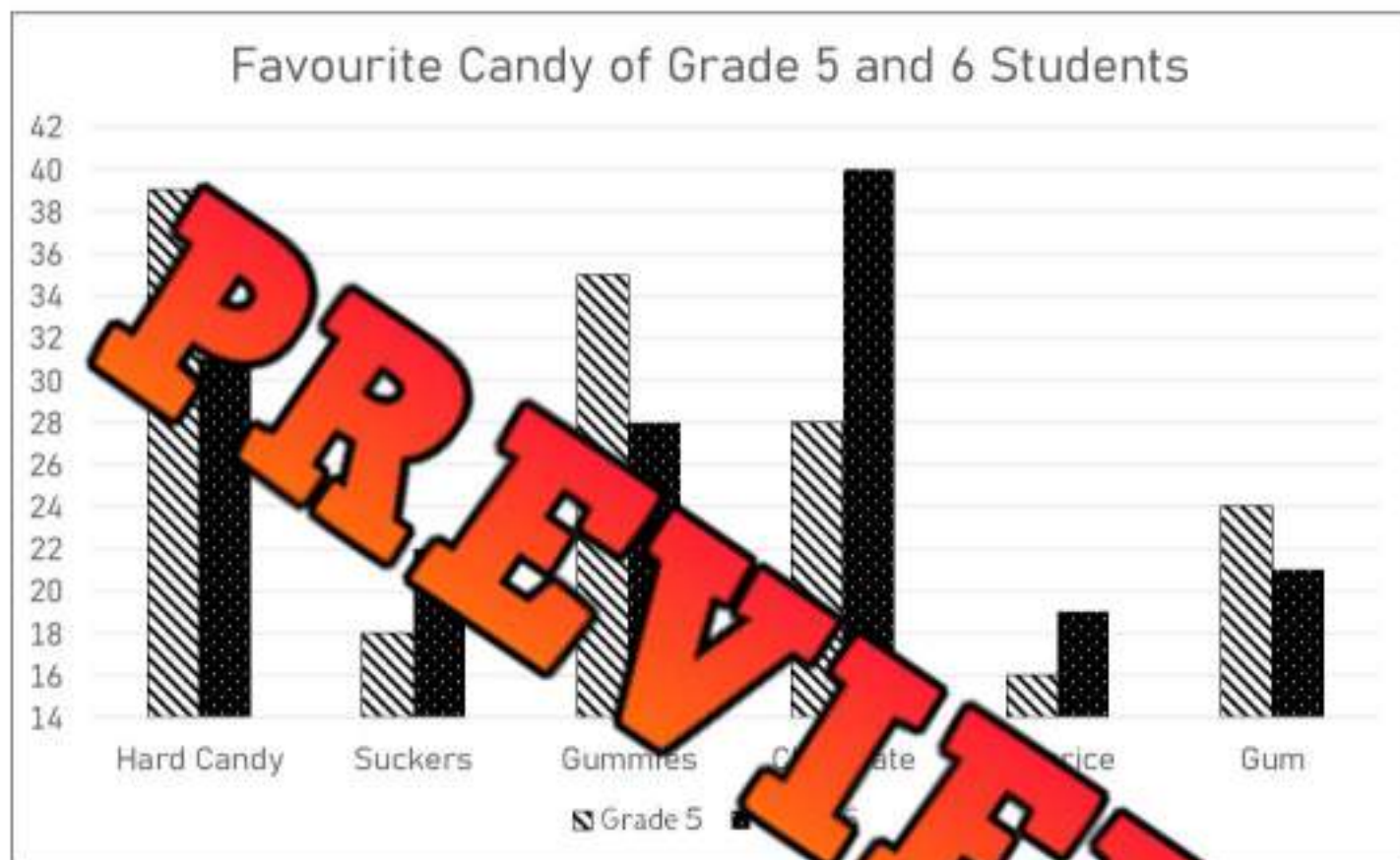


Water
Pop
O.J.
Milk
A.J.

Drinks	Votes
Water	700
Pop	1300
Orange Juice	550
Milk	150
Apple Juice	825

Interpreting a Double Bar Graph

The students in grades 5 and 6 were asked which candy was their favourite. The results have been sorted by grade in the double bar graph below.



a) Which sport did the grade 5's like the most?

b) Which sport did the grade 6's like the most?

c) Which sport got the most votes combined?

d) How many more votes did chocolate get in total over licorice?

e) Did more grade 5s or grade 6s participate in the survey?

f) How many students participated in the survey?

Multiple-Bar Graph - Favourite Social Media

The students in grade 4, 5, and 6 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

Grades	Snapchat	YouTube	Tik Tok	Facebook	Instagram
4					
5					
6					

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?	
c) How many more grade 4's liked YouTube than grade 6's?	

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 Winnipeg 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 by reading the broken-line graph

J	F	M	A	M	J	J	A	S	O	N	D

Part 2

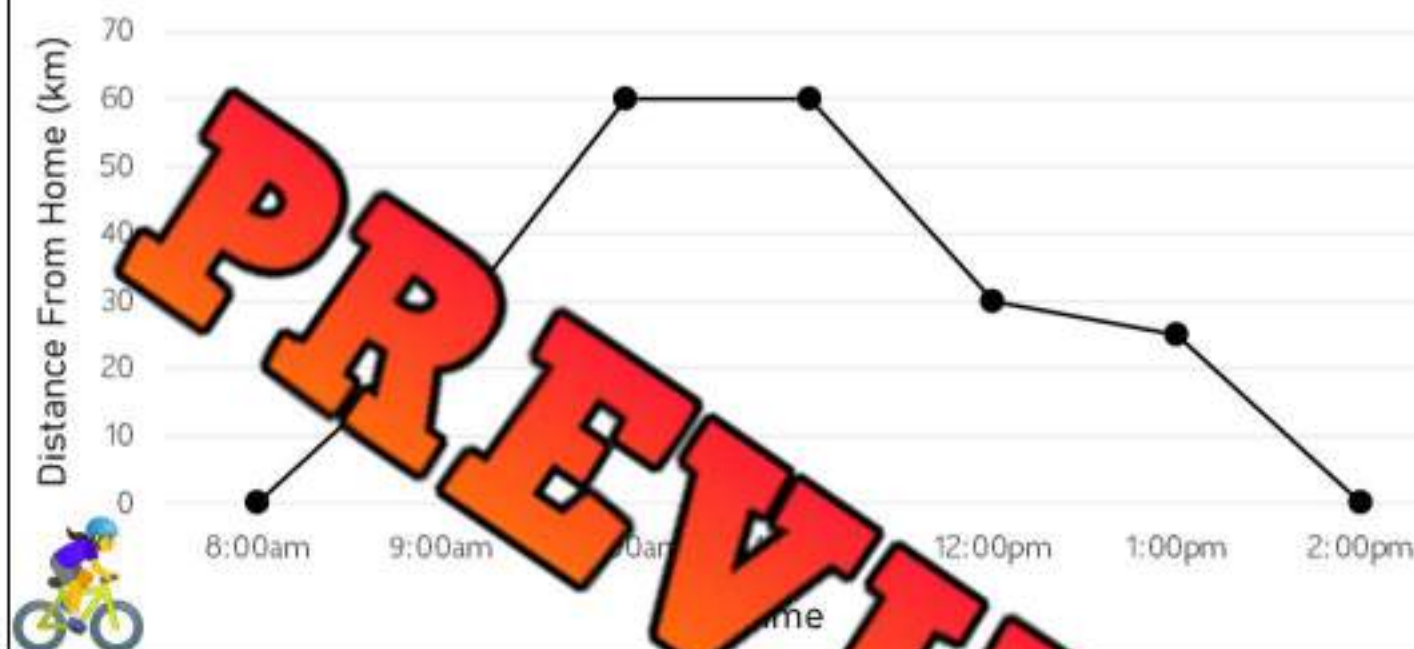
Solve an argument

- a) Nolan and Rachel are arguing over which time of year has more precipitation. Nolan says that more precipitation falls from January-June, but Rachel says more falls from July-December. Who is correct? Explain using data to support your answer.
- b) Rachel says the largest increase of precipitation happened from January to February, but Nolan thinks it was from September to October. Who is correct? Explain.

Interpreting a Broken-Line Graph

Jessica went for a bike ride from 8:00am to 2:00pm. She stopped to enjoy some food at a park and then went home. Unfortunately, she had a flat tire on the way home, but she eventually made it.

Bike Ride



Part 1 Fill in the frequency table by reading the broken-line graph above

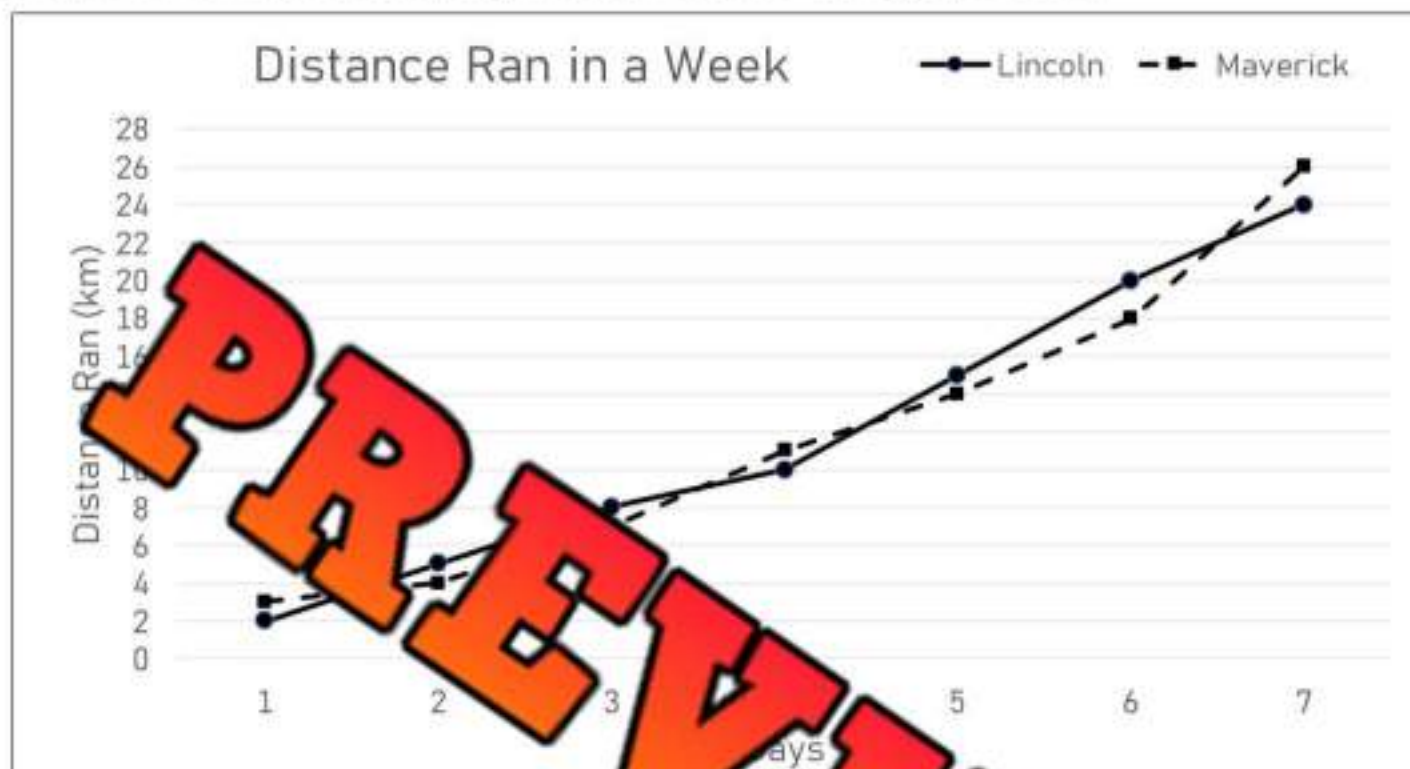
Time							
Distance Travelled (km)							

Part 2 Answer the questions below

a) How many kilometres in total did Jessica travel?	
b) What time did Jessica stop at the park?	
c) When did Jessica have a flat tire?	
d) What hour did Jessica travel the most kilometres?	
e) How many hours was Jessica biking for?	

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.



Questions

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? How far did he run?
- 4) Who was winning the contest after the fifth day?
- 5) How many total km did the two girls run together?
- 6) Which day did Lincoln run the furthest? How far did he run?
- 7) How many more km did Maverick run on day 7 than Lincoln?

Collecting Quantitative Continuous Data

Quantitative continuous data is data that is collected through measuring. We don't use categories, instead we use numbers. Quite often, continuous data is collected over time – examples: minutes, days, weeks, months, or years.



Example – how many steps taken in each day for a week

Data Collection Collect data by measuring or researching your question of interest

Question of Interest _____

Use the _____ below to _____ your data.

Interpreting The Data

- 1) Was your data collected from a primary or secondary source?

- 2) What conclusions can you draw from your data? What did you learn?

- 3) What surprised you about the data you collected? Include at least 1 surprise.

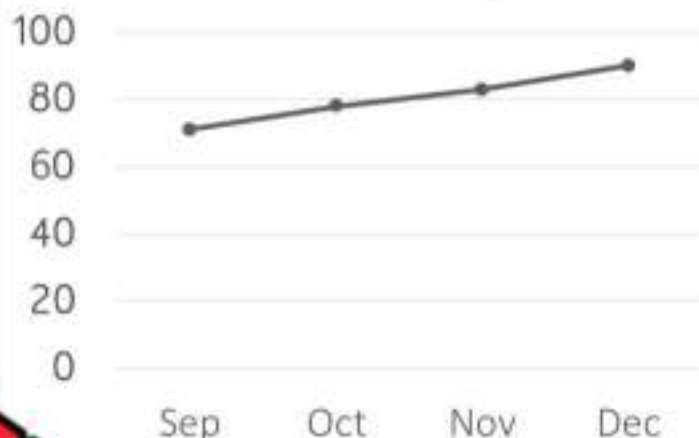
Misleading Graphs

Imagine you are selling a book you wrote. You want to show your customers that your book is selling like crazy, and they should buy it now before it sells out. Which graph would you choose for an infographic?

Book Sales – Graph A



Book Sales – Graph B



Questions

What do you notice about the two graphs?

a) Which graph would you use to show customers that book sales have been growing massively? Why?

b) How are the graphs different? Do they have the same data?

c) How many sales were made from September to December?

d) Does graph A make it seem like more books were sold? Explain.

d) Why is it important to read a graph carefully?

Misleading Graphs

Fantastic Footwear is running an ad campaign comparing their products versus their competitor, Super Shoes.

Best Shoes – Customer Votes – Graph A



Best Shoes – Customer Votes – Graph B



Questions

What do you notice from the two graphs?

a) Which graph would you use if you were Fantastic Footwear? Why?

b) How many more votes in total did Fantastic Footwear get over Super Shoes?

c) Are Fantastic Footwear shoes a lot better than Super Shoes? Explain.

d) Why would advertisers use charts like this to sell their products?

Unit Quiz - Data Literacy

Part 1 Read the description of the data and circle if it is quantitative or qualitative

1) Favourite music genre	Quantitative	Qualitative
2) Heights of students in your class	Quantitative	Qualitative
3) Number of students in each classroom	Quantitative	Qualitative

Part 2 Read the description of the data and circle if it is discrete or continuous

1) Temperature over a month long time period	Discrete	Continuous
2) How many siblings each student has in a class	Discrete	Continuous
3) How tall a tree grows over a year time period	Discrete	Continuous

Part 3 Draw the bars for each of the graphs below and calculate the averages

Pizza
Chocolate
Spaghetti
Ice Cream
Chicken Wings



Favourite Food	# of votes
Pizza	27
Chocolate	15
Spaghetti	12
Ice Cream	15
Chicken Wings	21

Jake
Nathan
Courtney
Ashley
Luke

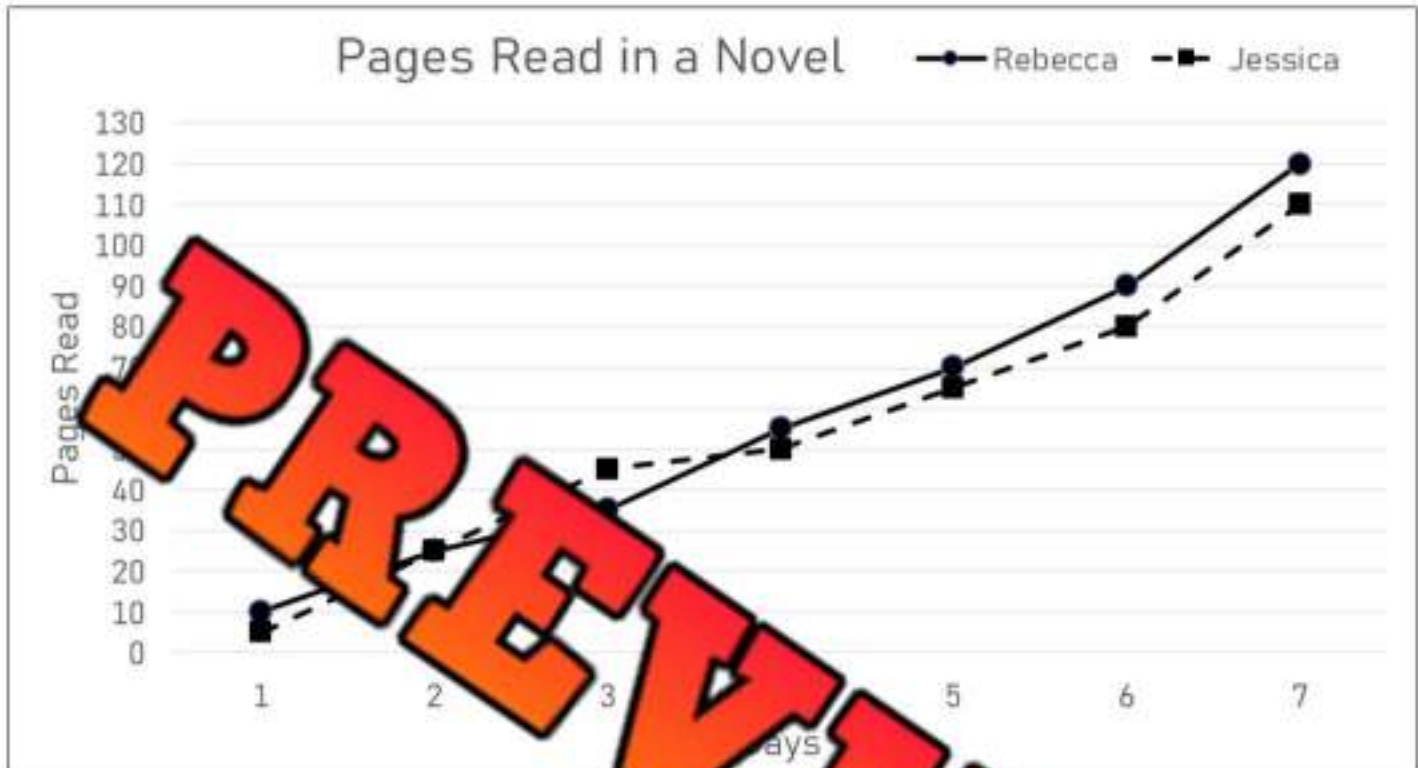


	# of points
Jake	70
Nathan	60
Courtney	30
Ashley	70
Luke	90

Part 4

Read the graph and answer the questions below

Rebecca and Jessica had a contest to see who could read more pages in their novels in 7 days.



Questions

Answer the questions below

- Who read more pages in the 7 days?
- Is the data continuous or discrete?
- Which day did the two girls read the most pages?
- Which day were they tied?
- How many total pages did the two girls read together?
- Which day was Jessica ahead?
- How many pages did Rebecca read from day 6 to 7?

Part 5

Graph the data below in a broken-line graph

The data for the amount of snowfall in Winnipeg is presented in the table below. Graph the data as a broken-line graph. Make sure to label your graph properly.

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Snowfall (cm)	8	24	19	50	75	9	5



- 1) Which month had the most snowfall? _____
- 2) Which month had the least snowfall? _____
- 3) How much did it snow in total during these 7 months? _____
- 4) Is this data discrete or continuous? _____
- 5) What conclusions can you make from this data? List at least 2.

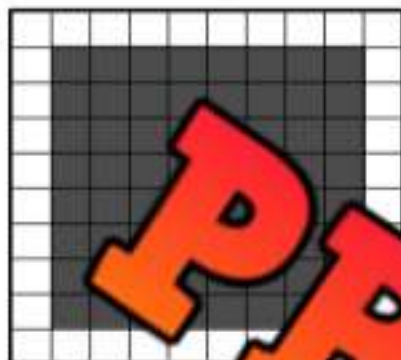
Finding Probability Using Fractions, Decimals, and Percents

Imagine throwing a dart blindly at wall with a target on it. The probability of hitting the target depends on the size of it compared to the wall. Complete the questions below using the shaded in area as the target and the wall as the entire grid.

Questions

Represent the probability of hitting the target using a fraction

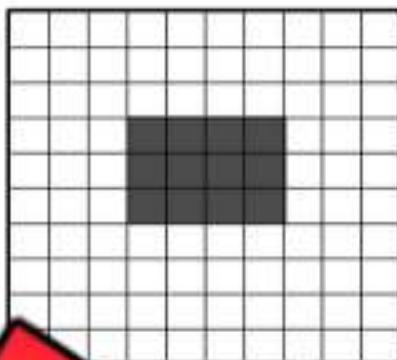
1)



Fraction

--

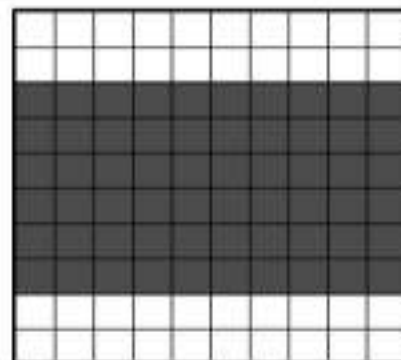
2)



Fraction

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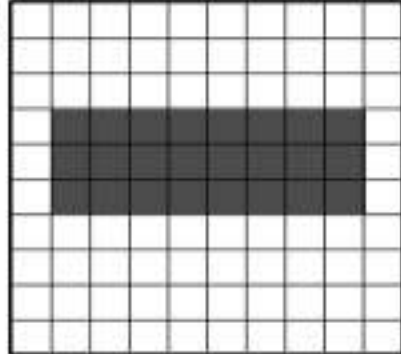
3)



Fraction

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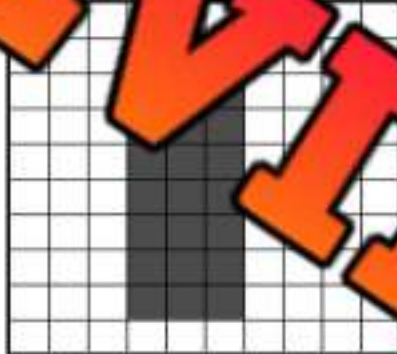
4)



Fraction

--

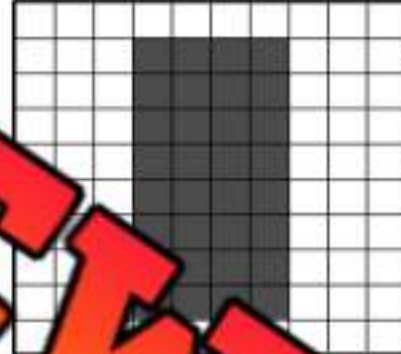
5)



Fraction

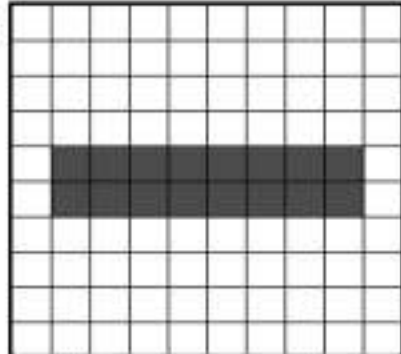
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6)



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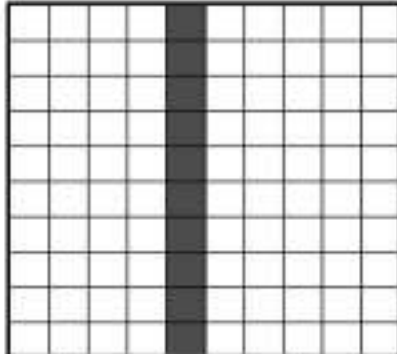
7)



Fraction

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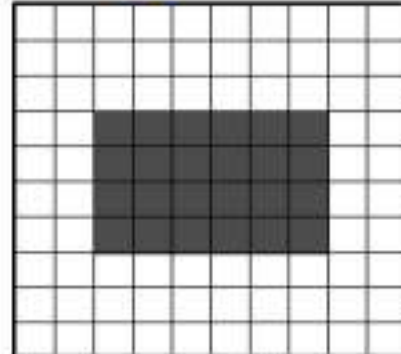
8)



Fraction

--

9)



Fraction

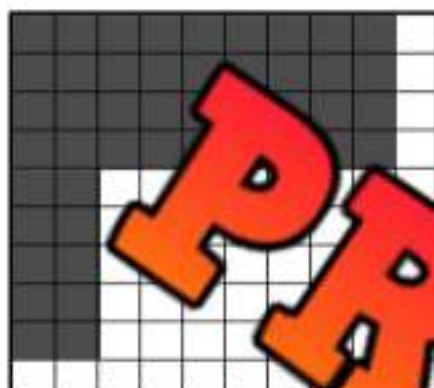
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Representing Probability Using Fractions

Claire is throwing darts at differently shaped dart boards. What is the probability out of 100 that she hits the dart board?

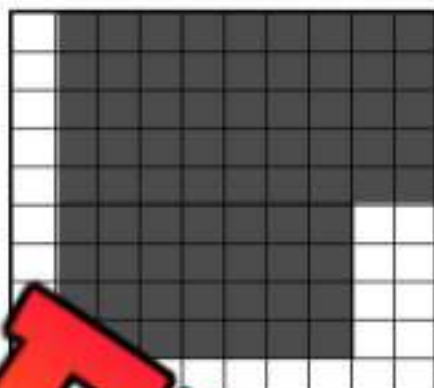
Questions

Represent the probability of hitting the target using a fraction

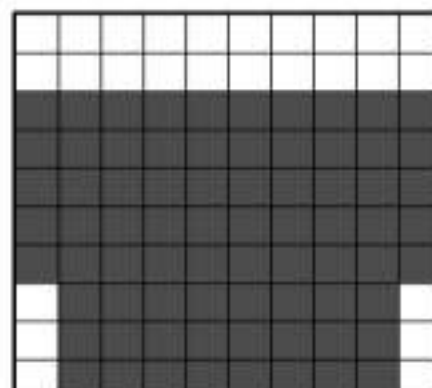


1) Fraction

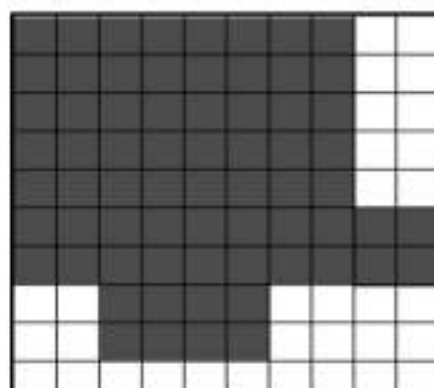
/100



2) Fraction



3) Fraction



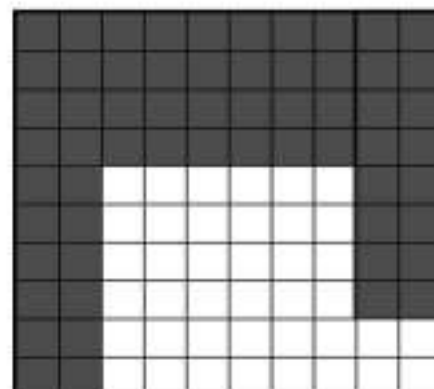
4) Fraction



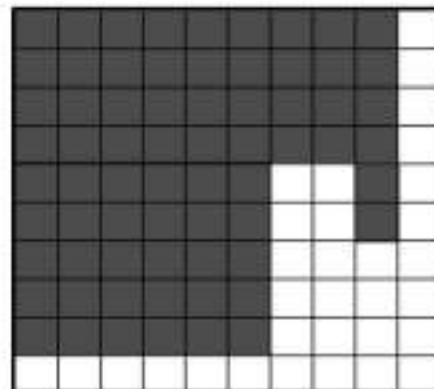
5) Fraction



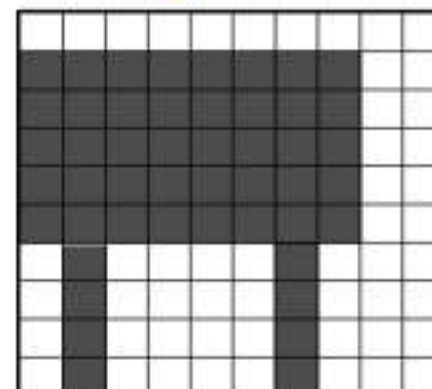
6) Fraction



7) Fraction



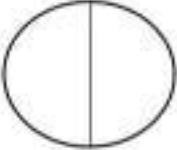
8) Fraction

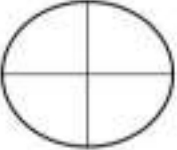


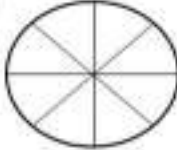
9) Fraction

Probability - Finding Halves

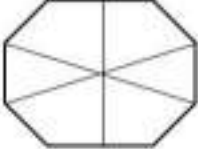
Part 1 Shade in half of the shapes. Write the fraction of shaded in shapes to total shapes

a)  

b)  

c)  

d)  

e)  

f)  

Part 2 Shade half of the numbers below? Write the fraction

#	Number	Half	Fraction	#	Number	Half	Fraction
1	20	10	$\frac{10}{20}$	5	50		
2	18			6	60		
3	24			10	88		
4	42			11	94		
5	48			12	76		
6	64			13	62		
7	82			14	98		

Probability - Quarters

Part 1 Shade in one quarter of the shapes. Write the fraction of shaded shapes to total shapes

a)  

b)  

c)  

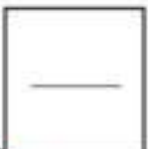
d)  

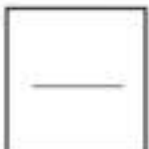
e)  

f)  

Part 2 Shade in 5 quarters of the shapes. Write the fraction of shaded in shapes

a)  

b)  

c)  

Part 3 Fill in the tables below

	#	One Quarter	Fraction
1	20	5	$\frac{5}{20}$
2	40		
3	80		
4	16		
5	8		
6	12		
7	44		

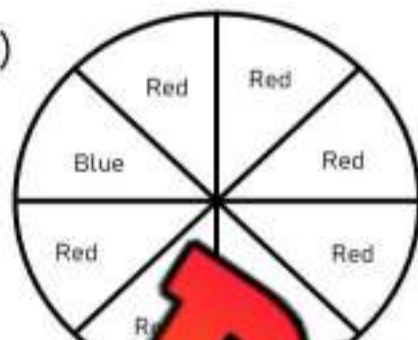
	#	Quarters	Fraction
1			$\frac{45}{60}$
2	88		
3	52		
4	68		
5	100		
6	36		
7	76		

Representing Probability Using Fractions - Spinner

Questions

Read the spinner and represent the probability using a fraction

1)



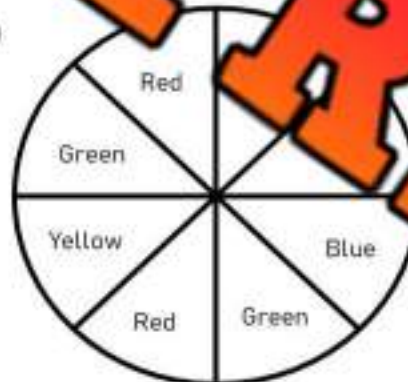
a) Spinning a red

Fraction

b) Spinning a blue

c) Spinning a blue or red

2)



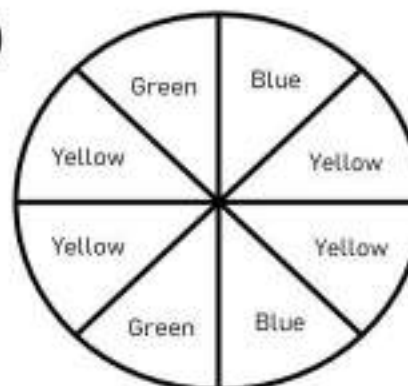
a) Spinning a blue

Fraction

b) Spinning a red

c) Spinning a yellow or red

3)



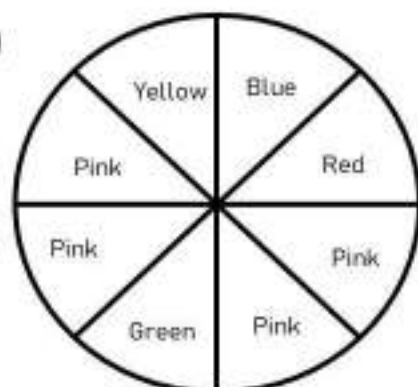
a) Spinning a green or blue

Fraction

b) Spinning a yellow

c) Spinning a yellow, green or blue

4)



a) Spinning a blue or green

Fraction

b) Spinning a blue or yellow

c) Spinning a pink

Describing the Likelihood of Events

Cookie Jar

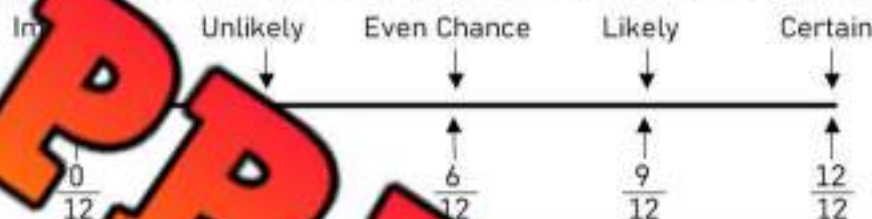
There were 12 cookies in a cookie jar. 7 of the cookies were chocolate chip (cc), 2 were oatmeal raisin (or), and 3 were double chocolate (dc).



Questions

Circle the probability term and write the fraction

1. What is the likelihood of you picking out a double chocolate cookie?



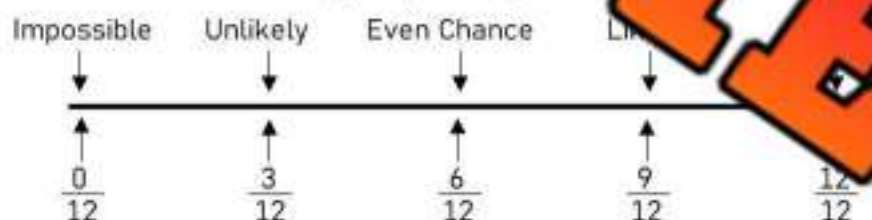
Fraction

2. What is the likelihood of you picking out a chocolate chip cookie?



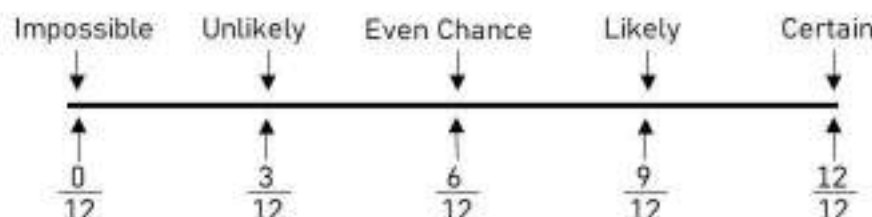
Fraction

3. What is the likelihood of you picking out an oatmeal raisin cookie?



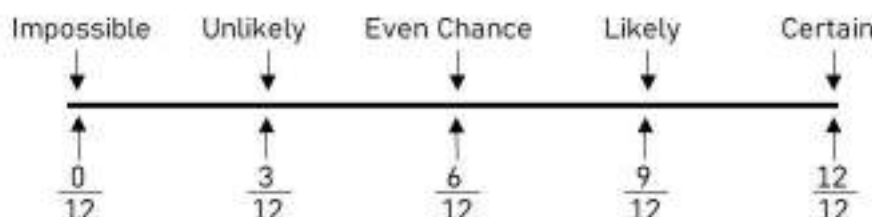
Fraction

4. What is the likelihood of you picking out a chocolate chip cookie or an oatmeal raisin cookie?



Fraction

5. What is the likelihood of you picking out an oatmeal raisin cookie or a double chocolate cookie?

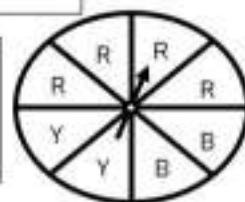


Fraction

Describing the Likelihood of Events

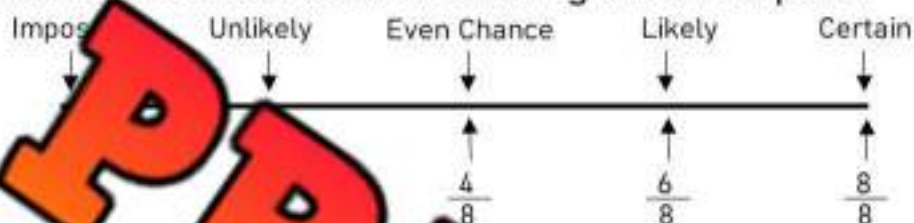
Spinner

The spinner has different coloured parts on it. When you spin the arrow, it will land on one of the colours.



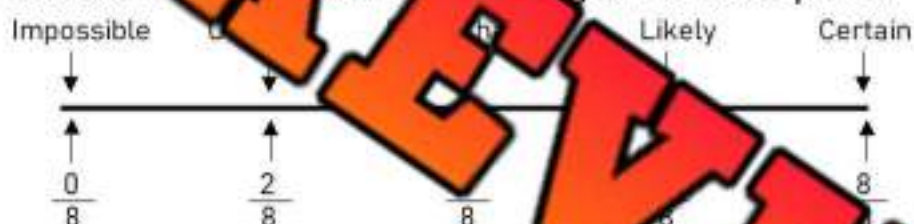
Questions Write the fraction for each of the situations below. Then circle the probability

1. What is the likelihood of landing on a red part?



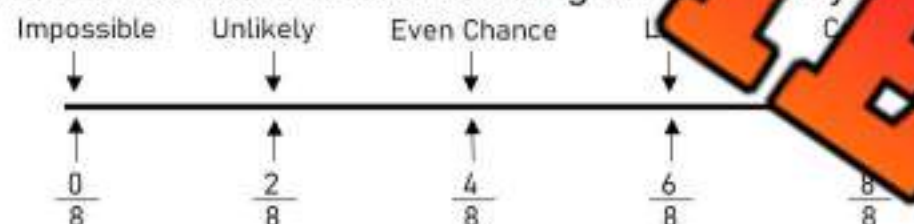
Fraction

2. What is the likelihood of landing on a blue part?



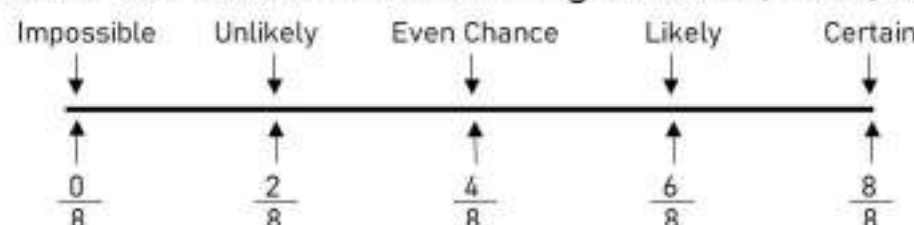
Fraction

3. What is the likelihood of landing on a red or yellow part?



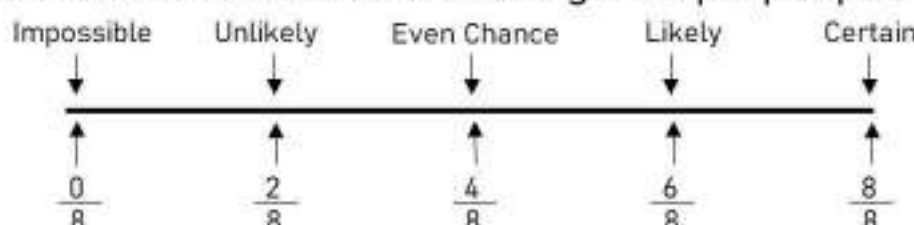
Fraction

4. What is the likelihood of landing on a red, blue, or yellow part?



Fraction

5. What is the likelihood of landing on a purple part?



Fraction

Describing the Likelihood of Events

Marbles

There are 20 marbles in a bag. What is the likelihood of you pulling out a white, grey, or black marble?



Frequency Table Fill in the frequency table below

Marble Color	Frequency
Black	
Grey	
White	

Questions Represent the probability of pulling out a marble as a fraction

1. What is the likelihood of pulling out a black marble?

Fraction

2. What is the likelihood of pulling out a grey marble?

Fraction

3. What is the likelihood of pulling out a white marble?

Fraction

4. What is the likelihood of pulling out a black, white, or grey marble?

Fraction

5. What is the likelihood of pulling out a black or white marble?

Fraction

6. What is the likelihood of pulling out a green marble?

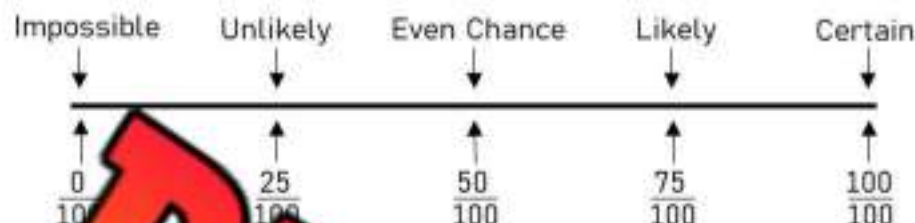
Fraction

Describing the Likelihood of Events - Probability Line

Questions

Circle the probability term and write the fraction

1) It has rained 13 out of the last 50 days. What is the probability it will rain tomorrow?



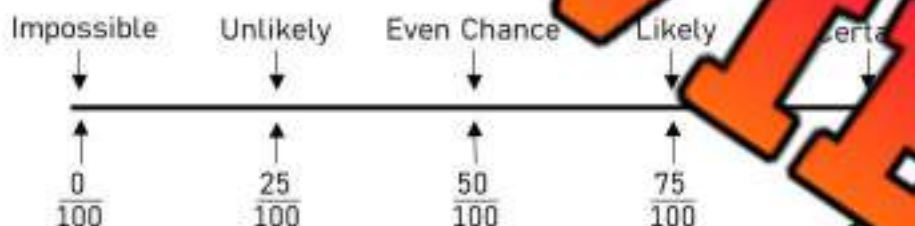
Fraction

2) Steve has made 18 out of 25. What is the probability he will make his next shot?



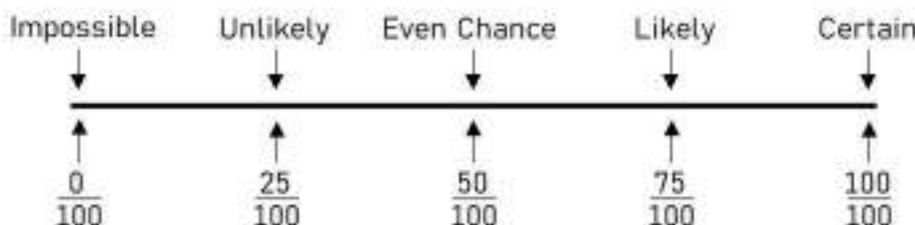
Fraction

3) Heather hits 4 out of 10 balls in a basket. What is the probability she will hit the next ball?



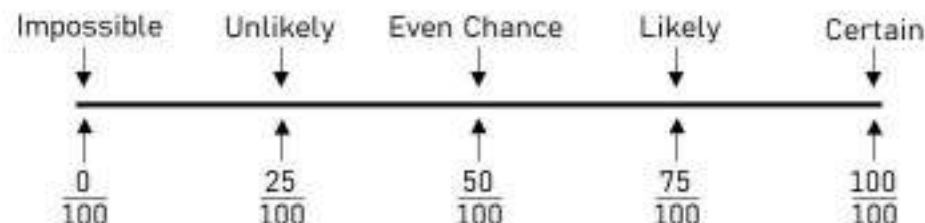
Fraction

4) Sam scores 42 out of 100 three-point shots. What is the chance he will make his next shot?



Fraction

5) In a box of 12 chocolates, 3 are caramel. What is the probability you will get a caramel?



Fraction

Theoretical vs Experimental Probability

Theoretical Probability

What should happen

Example - The theoretical probability of flipping a heads is 1 time out of 2 or $\frac{1}{2}$.

Experiment Probability

What did happen after the event (experiment)

Example - You flipped a coin 10 times and got 7 heads. The experimental probability is $\frac{7}{10}$.

Part 1

Write the theoretical probability of the events happening below

Question	Fraction
1) What is the theoretical probability of flipping a heads?	
2) What is the theoretical probability of flipping a tails?	
3) What is the theoretical probability of flipping a heads if you flipped the coin 20 times?	

Part 2

Experimental Probability - Flip a coin 20 times and record your results

- 1) How many heads and tails do you think you will flip 20 times?
- | | |
|-------|-------|
| Heads | Tails |
| | 20 |
- 2) Perform the experiment by flipping a coin 20 times. Record how many heads and tails you get

	Tallies	Total
Heads		
Tails		

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

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 or Experimental
1) If your batting average is 0.300, you should get a hit 3 out of 10 times	Theoretical Experimental
2) You flipped a coin 10 times and got heads 4 times	Theoretical Experimental
3) You made 4 out of 10 free throws in a basketball game	Theoretical Experimental
4) You won a 50/50 draw after buying 1 ticket out of 100 sold.	Theoretical Experimental
5) There is a 40% chance that it will rain today	Theoretical Experimental
6) You have a $1/4$ chance of pulling out a spade from a deck of cards	Theoretical Experimental

Part 2

Is the example theoretical or experimental probability? Write the fraction

Example	Theoretical or Experimental	Fraction
1) You should get a hit in baseball twice in every 5 at bats.		
2) The Weather Network says there is a 75% chance of it snowing today.		
3) You pulled a diamond card 7 out of 20 times from a deck of cards		

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	18	8	14	4	6

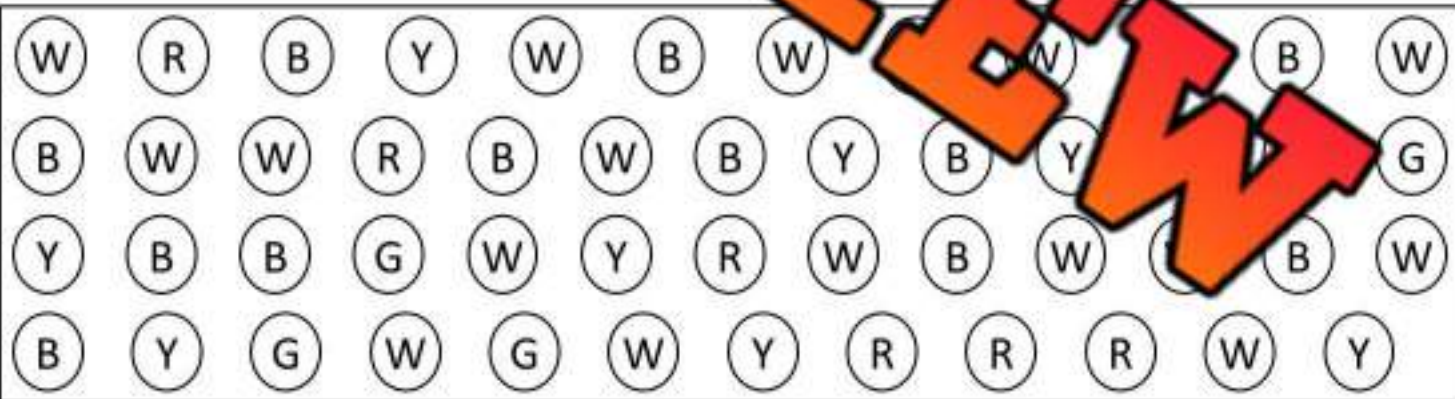
1) If you reach into the drawer 50 times without looking, what is the theoretical probability that you will pull out each of the colours below.

Colour of Sock	White	Yellow	Black	Green	Red
Fraction					

Part 2

Complete the experiment to find experimental probability

2) Close your eyes and point to a random spot in the below with your eraser. Repeat this for 50 trials and tally your results below.



Colour of Sock	White	Yellow	Black	Green	Red
Tally					

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

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 $\frac{2}{2}$. However, if you flipped the coin 100 times, it is almost impossible to get 100 heads in a row.

Part 1 Write the theoretical probability of the events happening below

Theoretical Probability	Fraction
1) Rolling a 1 on a 6-sided die	
2) Rolling a 3 on a 6-sided die	
3) Rolling a 2 or a 5 on a 6-sided die	
4) Rolling a 6 on a 6-sided die	

Part 2 Follow the instructions below to complete the experiments

1) Roll the dice 6 times. Tally your results

1	2	3	4	5	6

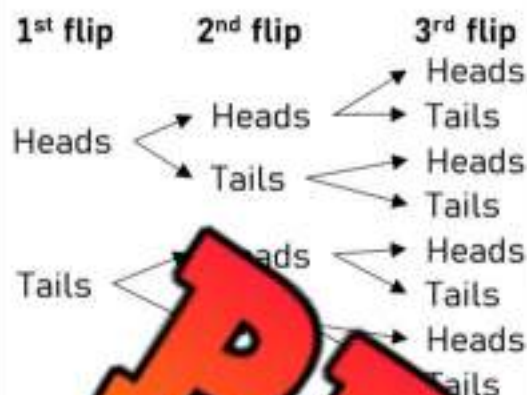
2) Roll the dice 60 times. Record how many of each number you get.

	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.

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



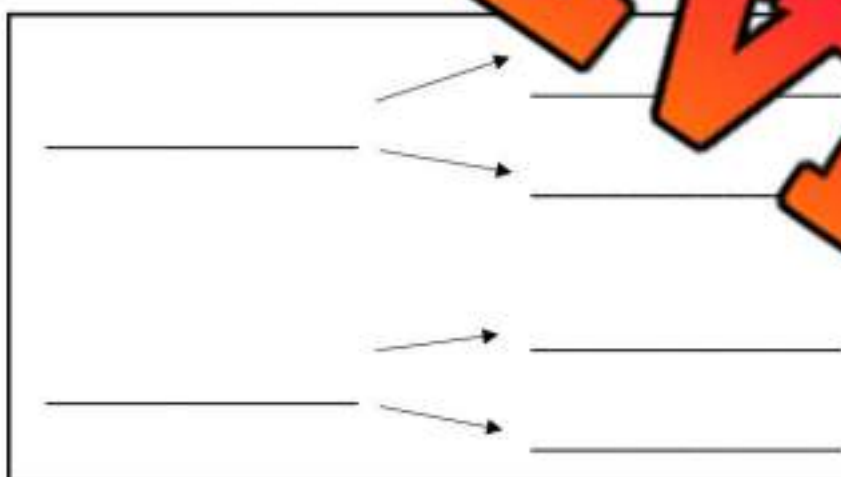
If you flip a coin three times, you could have 8 different combinations of outcomes.

HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

This means you have a $\frac{1}{8}$ probability of flipping three heads or tails in a row.

Questions Draw a tree diagram to show how many different combinations you could have

An ice cream shop sells 2 flavors of ice cream and two different cones. Show the combinations of ice cream you could have in a tree diagram below.



Combinations

Menu

- Waffle cone (W)
- Sugar cone (S)
- Chocolate (C)
- Vanilla (V)



1) How many combinations of ice cream could you have? _____

Combinations	Fraction
a) Waffle cone with chocolate:	
b) Waffle cone with vanilla:	
c) Sugar cone with chocolate:	
d) Sugar cone with vanilla:	

Theoretical Probability of Two Events - Tree Diagrams

Questions Draw a tree diagram to show how many different combinations you could have

A pizza shop sells thin and thick 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

- Thin crust (THIN)
- Thick crust (THICK)
- Mozza cheese (MC)
- Cheddar cheese (CC)
- Pepperoni (P)
- Mushrooms (M)



		Combinations
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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

What is the probability of a customer ordering a...	Fraction
2) Thin crust with mozza cheese and pepperoni	
3) Thin crust with cheddar cheese and mushrooms	
4) Thick or thin crust with mozza and pepperoni	
5) Thick crust with mozza or cheddar cheese and mushrooms	
6) Thin crust with cheddar or mozza cheese and mushrooms or pepperoni.	
7) Thin or thick crust with cheddar or mozza cheese and pepperoni	

Drawing Tree Diagrams

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)	Pickles (P)	Mustard (M)
Cheeseburger (C)		

PREVIEW

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

What is the probability of a customer ordering a...	Fraction
2) Hot dog with onion and ketchup	
3) Cheeseburger with pickles and mustard	
4) Hot dog or sausage with onion and ketchup	
5) Hot dog or sausage with onion or pickles and mustard	
6) Cheeseburger with onion or pickles and ketchup or mustard	

Drawing Tree Diagrams

Questions

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

You are having a surprise dessert at a party you are having. Your parents said it is either cookies or brownies. They also told you the options for the treats and icing. What is the probability of them choosing a specific combination of baked good, treat, and icing.



Baked Goods	Treats	Icing
Cookies (C)	Chocolate Chips (CC)	Vanilla (V)
Brownies (B)	Smarties (S)	Chocolate (CH)
	Raisins (R)	Caramel (CA)

PREVIEW

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

What is the probability of your parents choosing...	Fraction
2) Cookies with chocolate chips and vanilla icing	
3) Brownies with raisins and caramel icing	
4) Cookies or brownies with smarties and vanilla icing	
5) Cookies or brownies with raisins or smarties and vanilla or chocolate icing	
6) Cookies with chocolate chips, smarties or raisins and vanilla or caramel icing	

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) Repeat 30 times
- 3) Record results in the frequency table



Results	Frequency
HH	
HT	
TT	
TH	

- 1) Fill in the table below to find experimental probability as a fraction.

Results	Fraction
HT	
TT	
TH	

- 2) Fill in the table below with the theoretical probability as a fraction.

Results	Fraction
HH	
HT	
TT	
TH	

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



Google Slides Lessons Preview





Manitoba Math Curriculum Shape & Space – Grade 6

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!

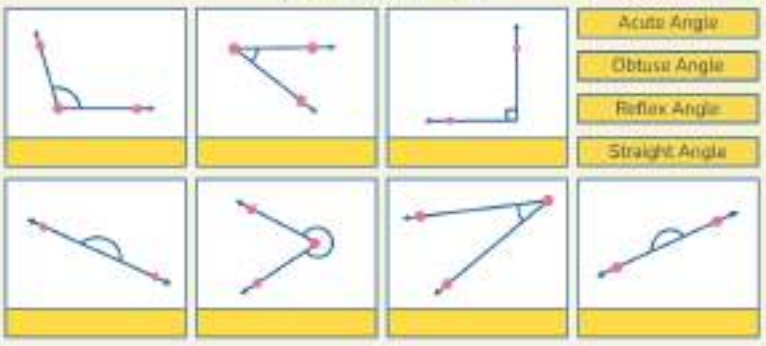
Learning Goal

We are learning to use a protractor to measure and draw angles up to 360° so we can understand how angles work when measured clockwise and counterclockwise.



Angles

Drag and label the angles.



Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

Interior Angles – Triangles - Word Problems

- 1) Riley is making paper party hats in the shape of isosceles triangles. Each hat has two angles measuring 58° . What is the third angle?

- 2) a) Two angles of a triangle measure 92° and 38° . What is the measure of the third angle?

- b) Based on your answer, is the triangle acute, right, or obtuse?



Manitoba Math Curriculum Shape & Space – Grade 6

Interior Angles - Quadrilaterals

1 2 3 4 5
6 7 8 9 0

Drag the numbers to fill in the values of the unknown angle measurements.

1) $\angle A = \underline{\hspace{2cm}}$	2) $\angle B = \underline{\hspace{2cm}}$	3) $\angle C = \underline{\hspace{2cm}}$	4) $\angle D = \underline{\hspace{2cm}}$	5) $\angle E = \underline{\hspace{2cm}}$
6) $\angle F = \underline{\hspace{2cm}}$	7) $\angle G = \underline{\hspace{2cm}}$	8) $\angle H = \underline{\hspace{2cm}}$	9) $\angle I = \underline{\hspace{2cm}}$	10) $\angle J = \underline{\hspace{2cm}}$

 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{ cm}$	 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{ cm}$	 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{ cm}$
 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{ cm}$	 $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{ cm}$	

Use the formula to find the area of the shape to complete the equations.

 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$	 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$	 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$
 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$	 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$	 $A = l \times w$ $A = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$ $A = \underline{\hspace{2cm}} \text{ units}^2$



Manitoba Math Curriculum Shape & Space – Grade 6

Finding the Missing Information - Visuals

Find the missing piece of information.

cm		1	2	3	4	5	6	7	8	9	0
$A = 12\text{cm}^2$ 8cm	Base = _____ Height = _____ Area = _____	$A = 60\text{cm}^2$ 3cm	Base = _____ Height = _____ Area = _____	$A = 15\text{cm}^2$ 7cm	Base = _____ Height = _____ Area = _____						
$A = 18\text{cm}^2$ 7cm	Base = _____ Height = _____ Area = _____	$A = 40\text{cm}^2$ 5cm	Base = _____ Height = _____ Area = _____	$A = 60\text{cm}^2$ 6cm	Base = _____ Height = _____ Area = _____						

Calculating Area and Volume

Fill in the blanks to investigate the area of the base and the height. Drag the numbers to answer.

1)	2)	3)
Area of Base _____ Height _____ Volume _____	Area of Base _____ Height _____ Volume _____	Area of Base _____ Height _____ Volume _____
4)	5)	6)
Area of Base _____ Height _____ Volume _____	Area of Base _____ Height _____ Volume _____	Area of Base _____ Height _____ Volume _____

Angles

Use _____ Straight _____

Letters	Name of Angle
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	



Workbook Preview



Grade 6

SHAPE AND SPACE

General Outcome (SS.1 – SS.3)

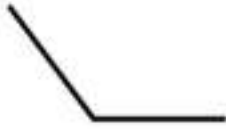
Use direct or indirect measurement to solve problems.

	Curriculum Expectations	Pages That Cover the Expectations
SS.1	• Demonstrate an understanding of angles by: • identifying examples of angles in the environment • classifying angles according to their measure • estimating the measure of angles, using 45°, 90°	3 – 28
Preview of 50 pages from this product that contains 227 pages total.		
SS.2	• 180° in a triangle • 360° in a quadrilateral.	29 – 33
SS.3	Develop and apply a formula for determining the: • perimeter of polygons • area of rectangles • volume of right rectangular prisms	36 – 57

Name: _____

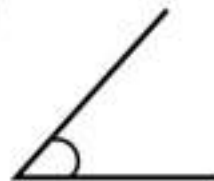
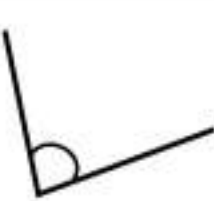
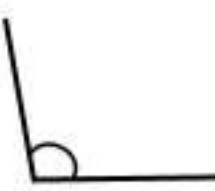
4

Curriculum Connection
SS.1**Naming Angles - Right, Obtuse, Acute, Straight, and Reflex**

Right Angle - 90°	Acute Angle - smaller than 90°	Obtuse Angle - larger than 90°	Straight Angle - 180°	Reflex Angle - larger than 180°
				

Question

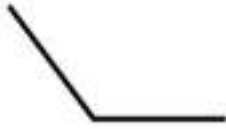
Label the angle - straight, acute, obtuse, right, or reflex

1) 	2) 	3) 	4) 
5) 	6) 	7) 	8) 
9) 	10) 	11) 	12) 
13) 	14) 	15) 	16) 

Name: _____

6

Curriculum Connection
SS.1**Drawing Angles - Right, Obtuse, Acute, and Reflex**

Right Angle - 90°	Acute Angle - smaller than 90°	Obtuse Angle - larger than 90°	Straight Angle - 180°	Reflex Angle - larger than 180°
				

Question

Draw acute, obtuse, right, and reflex angles below

1)		3)	4)
Acute	Obtuse	Right	Reflex
5)	6)	7)	8)
Reflex	Obtuse	Acute	Straight
9)	10)	11)	12)
Right	Acute	Obtuse	Reflex

Name: _____

7

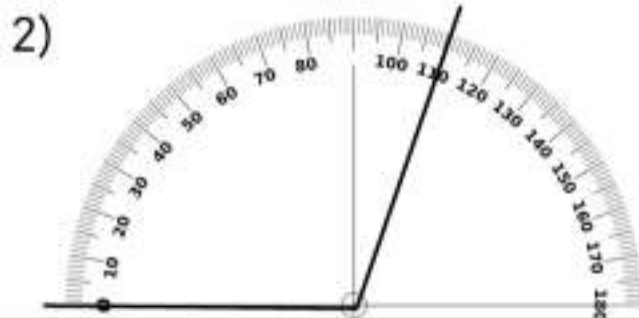
Curriculum Connection
SS.1

Measuring Angles - Printed Protractor

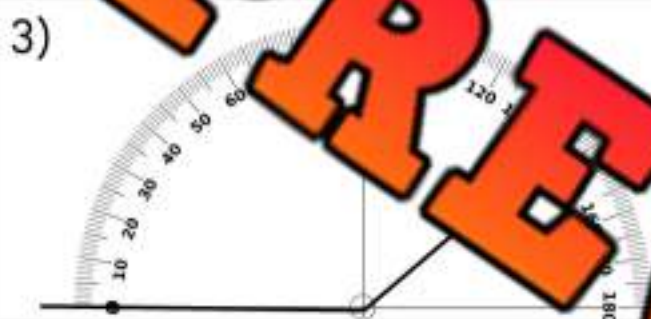
Questions Measure the angles and label them acute, right or obtuse



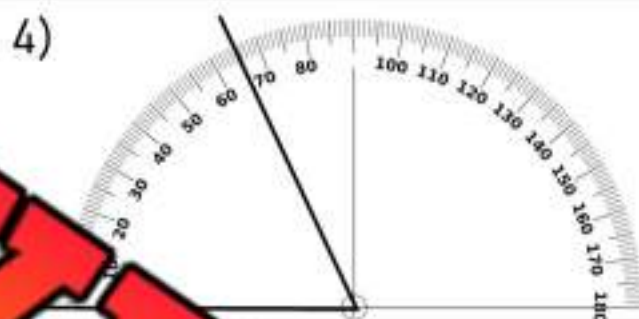
Angle = _____ Type of Angle = _____



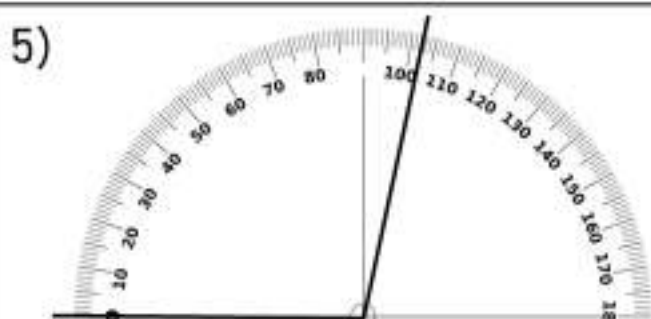
Angle = _____ Type of Angle = _____



Angle = _____ Type of Angle = _____



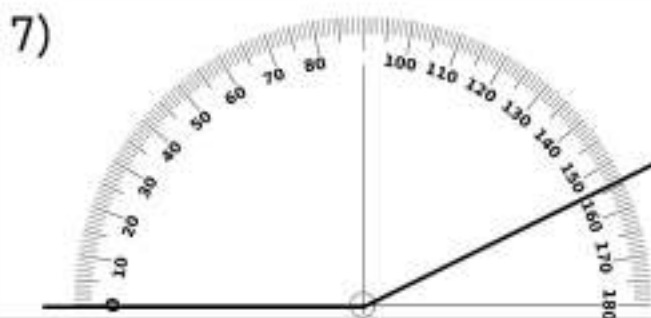
Angle = _____ Type of Angle = _____



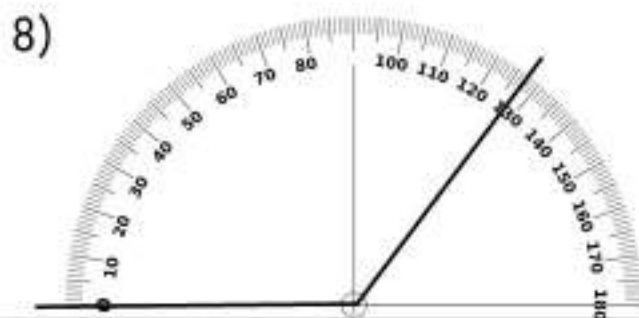
Angle = _____ Type of Angle = _____



Angle = _____ Type of Angle = _____



Angle = _____ Type of Angle = _____



Angle = _____ Type of Angle = _____

Name: _____

9

Curriculum Connection
SS.1

Measuring Angles Up To 180°

Questions

Measure the angles and label them acute, right, or obtuse

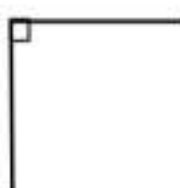
1)



2)



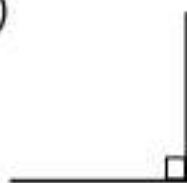
3)



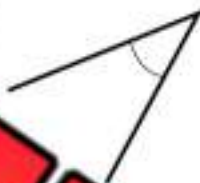
4)



5)



7)



8)



9)



10)



11)



13)



14)



15)



16)



Constructing Angles - Estimating - Multiple Choice**Questions**

Circle which angle you think it is. Do not use a protractor.

1)

a) $\angle = 90^\circ$ c) $\angle = 155^\circ$ d) $\angle =$

2)

a) $\angle = 95^\circ$ b) $\angle = 100^\circ$ c) $\angle = 80^\circ$ d) $\angle = 120^\circ$

3)

a) $\angle = 168^\circ$ b) $\angle = 50^\circ$ c) $\angle = 120^\circ$ d) $\angle = 12^\circ$

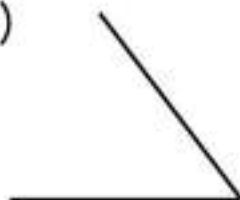
4)

a) $\angle = 74^\circ$ b) $\angle = 170^\circ$ c) $\angle = 30^\circ$ d) $\angle = 106^\circ$

6)

a) $\angle =$ b) $\angle = 30^\circ$ c) $\angle = 143^\circ$ d) $\angle = 170^\circ$ a) $\angle = 50^\circ$ b) $\angle = 157^\circ$

7)

a) $\angle = 95^\circ$ b) $\angle = 54^\circ$ c) $\angle = 110^\circ$ d) $\angle = 160^\circ$

8)

a) $\angle = 60^\circ$ b) $\angle = 120^\circ$ c) $\angle = 10^\circ$ d) $\angle = 160^\circ$

9)

a) $\angle = 171^\circ$ b) $\angle = 9^\circ$ c) $\angle = 50^\circ$ d) $\angle = 85^\circ$

Measuring Angles



Acute Triangle – All angles are acute

Obtuse Triangle – One angle is obtuse

Right Triangle – One right angle



Questions

Measure the angles and label the triangles Acute, Obtuse, or Right

1) 	2) 	3) 	4)
$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$
$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$
$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$
Obtuse Triangle			
5) 	6) 	7) 	
$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$
$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$
$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$

Measuring Angles



Equilateral Triangle – All sides lengths are equal

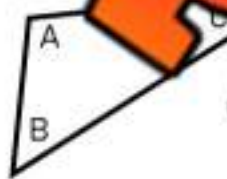
Isosceles Triangle – Two side lengths are equal

Scalene Triangle – All three side lengths are different



Questions Measure the angles and label the triangles equilateral, isosceles, or scalene

1)

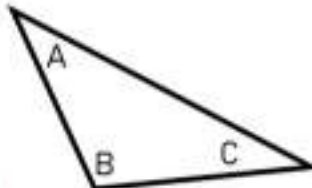
 $\angle A =$ $\angle B =$ $\angle C =$

Scalene

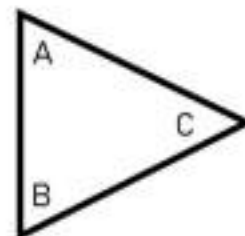
2)

 $\angle A =$ $\angle B =$ $\angle C =$

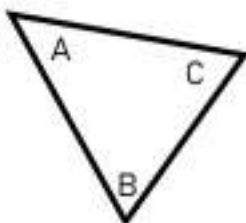
3)

 $\angle B =$

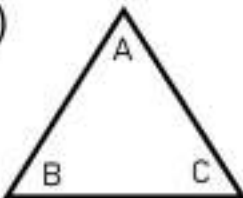
4)

 $\angle A =$ $\angle B =$ $\angle C =$

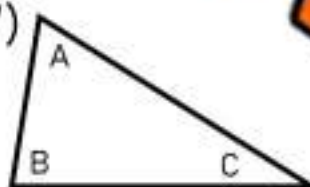
5)

 $\angle A =$ $\angle B =$ $\angle C =$

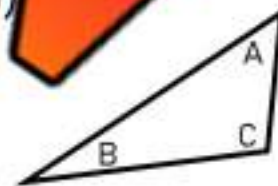
6)

 $\angle A =$ $\angle B =$ $\angle C =$

7)

 $\angle A =$ $\angle B =$ $\angle C =$

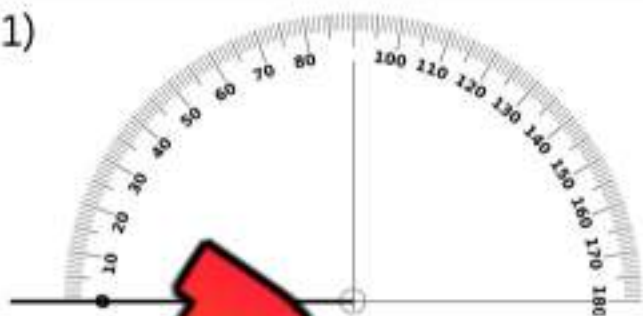
8)

 $\angle A =$ $\angle B =$ $\angle C =$

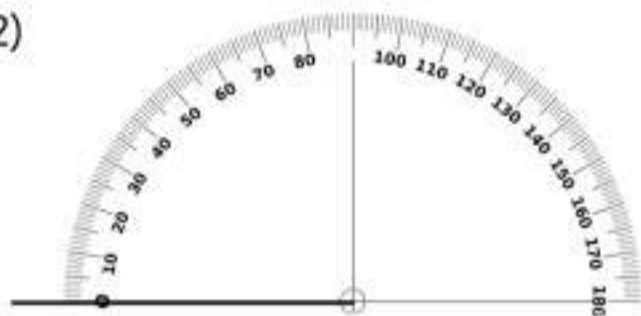
Construction Angles Up To 180°**Questions**

Construct the angles and label them acute, right or obtuse

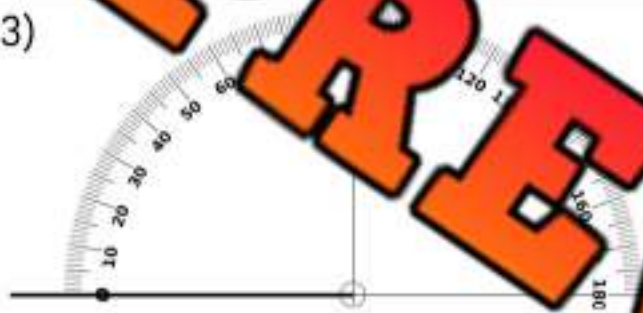
1)

 $\angle = 75^\circ$ Type of Angle = _____

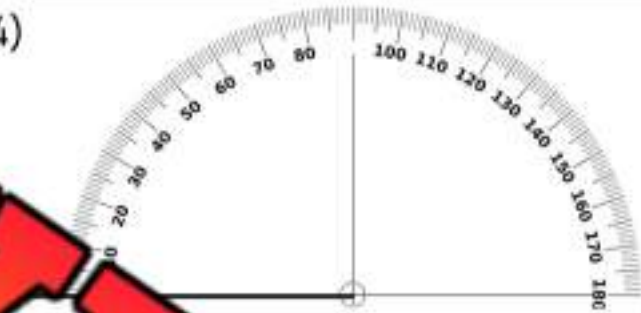
2)

 $\angle = 130^\circ$ Type of Angle = _____

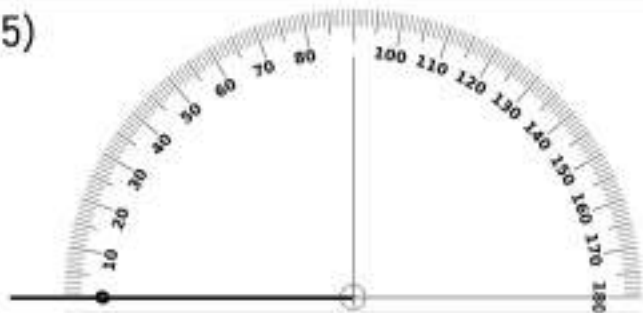
3)

 $\angle = 126^\circ$ Type of Angle = _____

4)

 $\angle = 178^\circ$ Type of Angle = _____

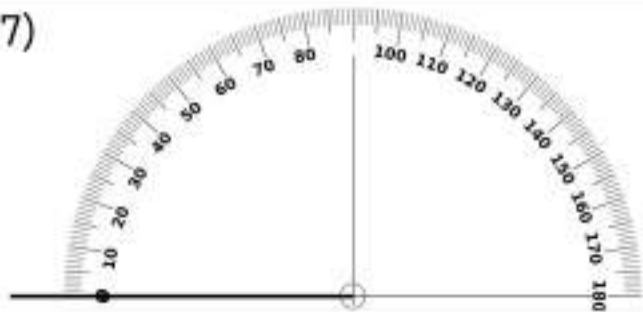
5)

 $\angle = 101^\circ$ Type of Angle = _____

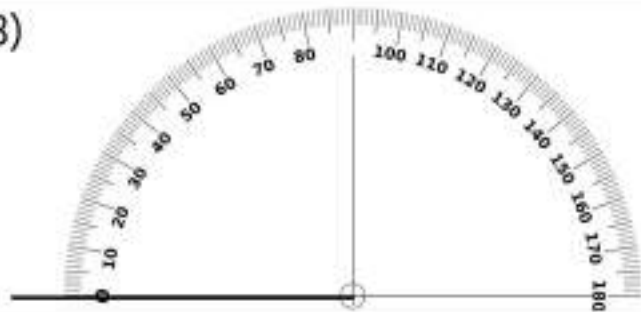
6)

 $\angle = 178^\circ$ Type of Angle = _____

7)

 $\angle = 156^\circ$ Type of Angle = _____

8)

 $\angle = 71^\circ$ Type of Angle = _____

Name: _____

15

Curriculum Connection
SS.1

Constructing Angles

Part 1

Use a protractor to draw the angles below using the line provided

1)

 $\angle = 45^\circ$

2)

 $\angle = 70^\circ$

3)

 $\angle = 120^\circ$

Part 2

Use a protractor to draw the angles below

1)

 $\angle = 95^\circ$

2)

 $\angle = 115^\circ$

3)

4)

 $\angle = 60^\circ$

5)

 $\angle = 25^\circ$

6)

 $\angle = 170^\circ$

Constructing Angles - Estimating

Use your knowledge of obtuse, acute, and right angles to help you estimate the angle measurements below. You can also use these angles to assist you with your estimations.

 45° 90° 140° 180° 

Part 1 Draw the angles below using the line provided

1)

 $\angle = 50^\circ$

2)

3)

 $\angle = 130^\circ$

Part 2

Draw the angles below

1)

2)

 $\angle = 80^\circ$ $\angle = 70^\circ$ $\angle = 165^\circ$

4)

5)

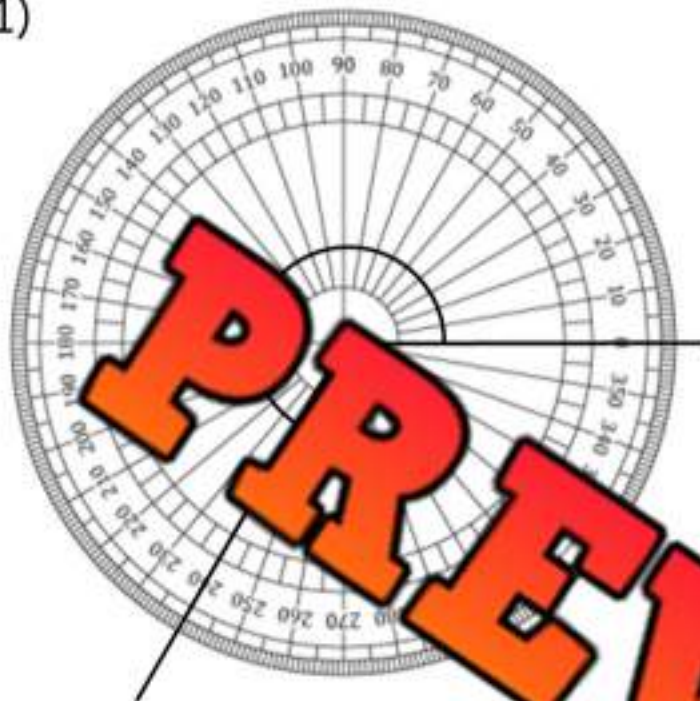
6)

 $\angle = 120^\circ$ $\angle = 30^\circ$ $\angle = 140^\circ$

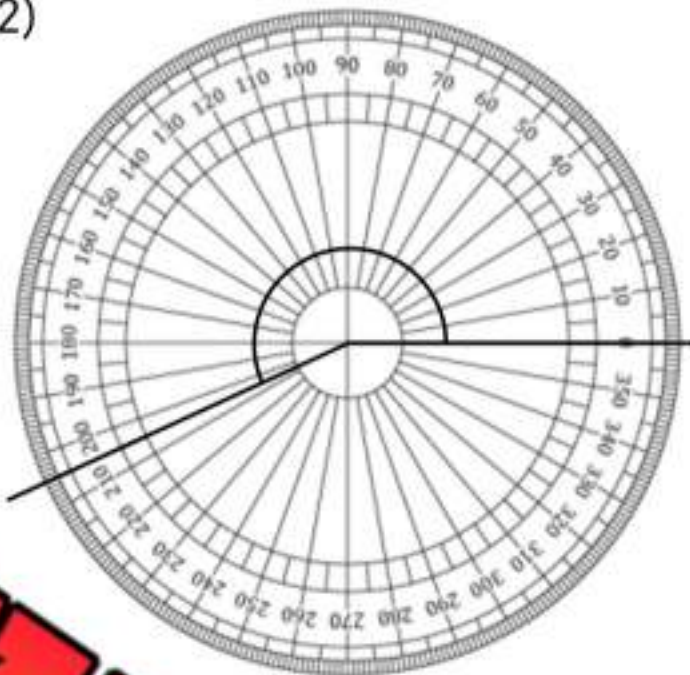
Using Printed Protractor - Angles Up To 360°**Questions**

Measure the angles below using the circular protractor

1)



2)



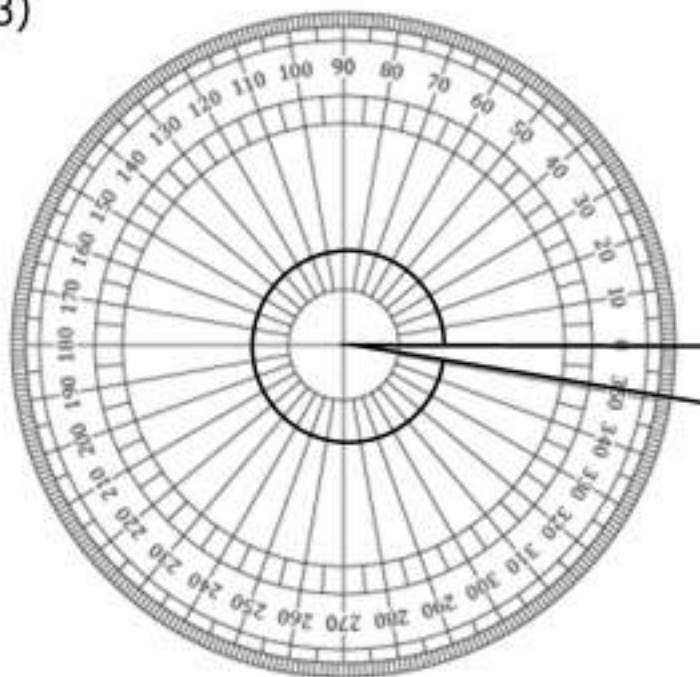
Angle =

Type of Angle =

Angle =

Type of Angle =

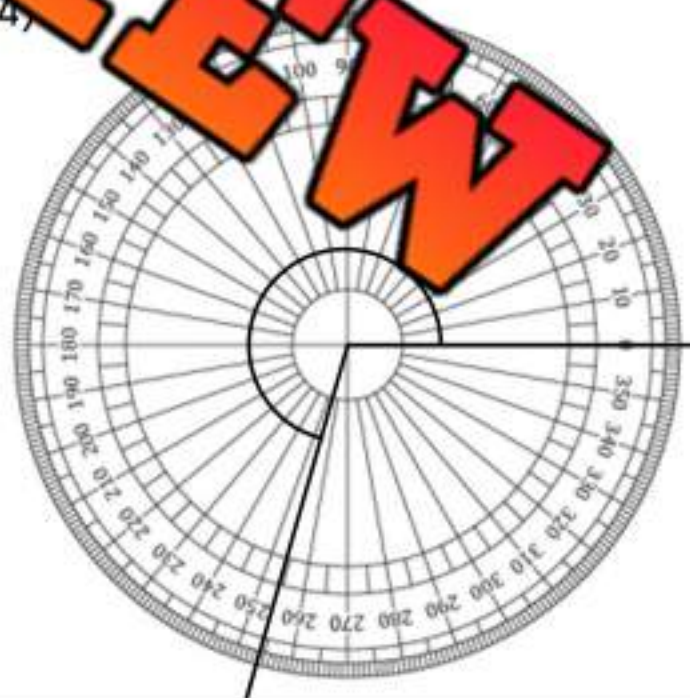
3)



Angle =

Type of Angle =

4)



Angle =

Type of Angle =

Constructing Angles - Estimating - Multiple Choice**Questions**

Circle which angle you think it is. Do not use a protractor.

1)

a) $\angle = 45^\circ$ b) $\angle = 110^\circ$ c) $\angle = 90^\circ$ d) $\angle = 225^\circ$

2)

a) $\angle = 95^\circ$ b) $\angle = 100^\circ$ c) $\angle = 225^\circ$ d) $\angle = 290^\circ$

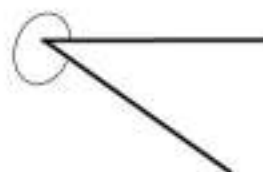
3)

a) $\angle = 171^\circ$ b) $\angle = 9^\circ$ c) $\angle = 50^\circ$ d) $\angle = 85^\circ$

4)

a) $\angle = 168^\circ$ b) $\angle = 50^\circ$ c) $\angle = 120^\circ$ d) $\angle = 10^\circ$

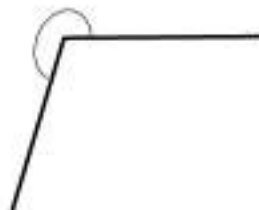
6)

a) $\angle = 90^\circ$ b) $\angle = 120^\circ$ c) $\angle = 10^\circ$ d) $\angle = 160^\circ$ a) $\angle = 90^\circ$ b) $\angle = 180^\circ$ c) $\angle = 10^\circ$ d) $\angle = 160^\circ$

7)

a) $\angle = 50^\circ$ b) $\angle = 160^\circ$ c) $\angle = 20^\circ$ d) $\angle = 100^\circ$

8)

a) $\angle = 75^\circ$ b) $\angle = 190^\circ$ c) $\angle = 255^\circ$ d) $\angle = 355^\circ$

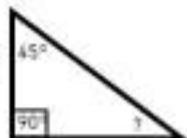
9)

a) $\angle = 40^\circ$ b) $\angle = 30^\circ$ c) $\angle = 140^\circ$ d) $\angle = 170^\circ$

Finding Missing Angles in Triangles

When we add up all the angles inside a triangle, they will always add up to 180. Therefore, we can use this information to determine the missing angle inside a triangle.

Example:



Solution: $90 + 45 + ? = 180$

$$135 + ? = 180$$

$$135 + 45 = 180$$

or $180 - 90 - 45 = 45$

therefore, the missing angle is 45°

Part 1

Find the missing angle in the triangles below

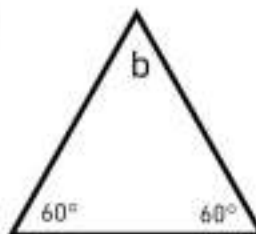
1)



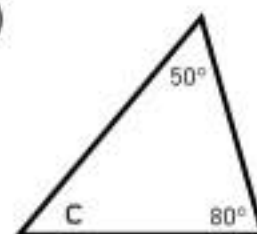
c =

a =

3)

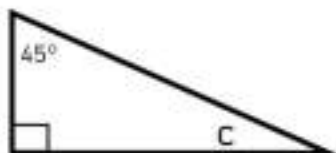


4)



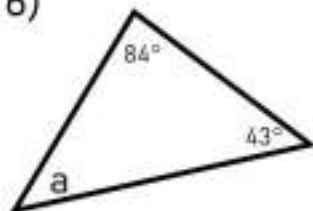
c =

5)



c =

6)



a =

7)



b =

c =

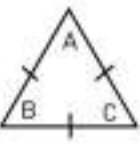
Part 2

Draw the triangle below and find the missing angle

Two of the angles in the triangle are acute, measuring at 35° . What is the measurement of the third angle? What type of angle is it?

Interior Angles - Triangles

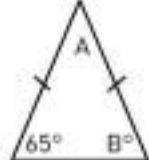
Interior angles are the angles inside a shape. The interior angles of a triangle will always equal 180° . We can use this information to solve for unknown angle measurements.



All angles are the same. Therefore, all angles = 60°

$$60 + 60 + 60 = 180$$

Equilateral Triangle

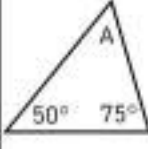


Two angles are the same. Therefore, angle A = 50°

$$65 + 65 + A = 180$$

$$A = 50^\circ$$

Isosceles Triangle



All angles are different. Therefore, angle A = 55°

$$50 + 75 + A = 180$$

$$A = 55^\circ$$

Scalene Triangle

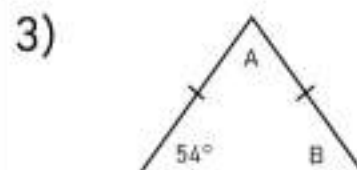
Questions: Find the values of the unknown angle measurements



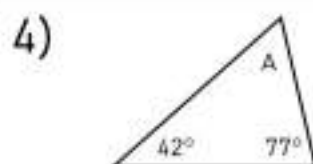
A =



A =



A =



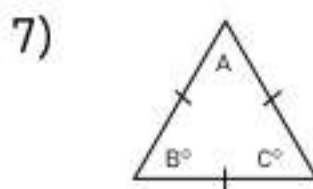
A =



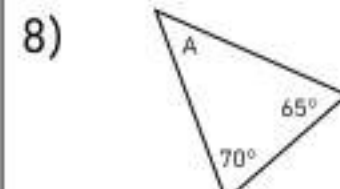
A =



A =



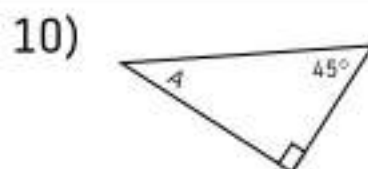
A =



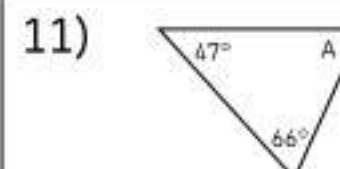
A =



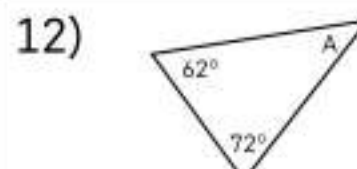
A =



A =



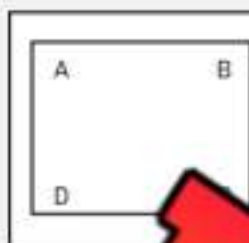
A =



A =

Interior Angles - Quadrilaterals

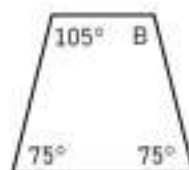
Interior angles are the angles inside a shape. The interior angles of a quadrilateral will always equal 360° . We can use this information to solve for unknown angle measurements.



A rectangle has 4 equal angles that are 90° .

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = 360$$

$$90 + 90 + 90 + 90 = 360$$



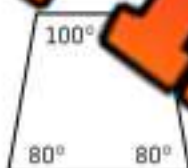
The trapezoid has 2 pairs of equal angles.

$$75 + 75 + 105 + B = 360$$

$$B = 105$$

Questions: Find the values of the unknown angle measurements

1)



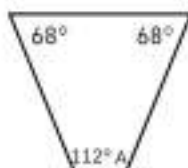
A =

3)



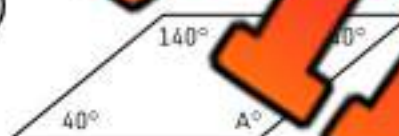
A =

4)



A =

5)



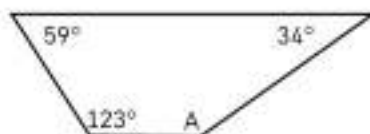
A =

6)



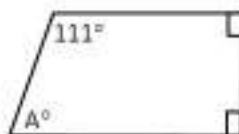
A =

7)



A =

8)



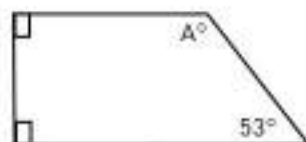
A =

9)



A =

10)



A =

11)

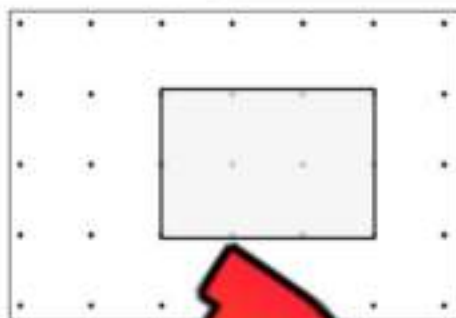


A =

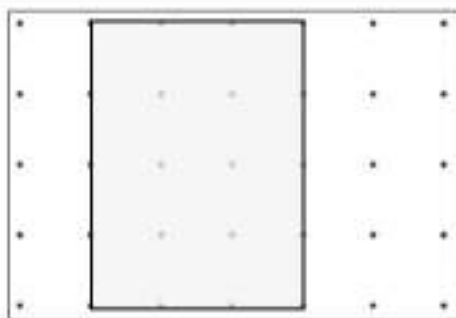
12)



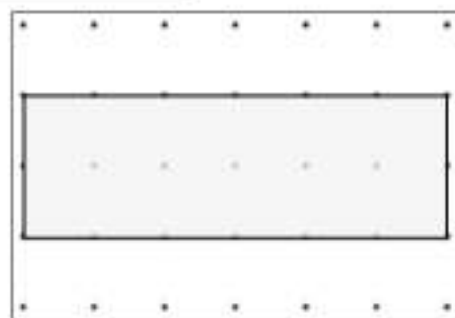
A =

Perimeter of Regular and Irregular Polygons**Part 1** Find the perimeter of the rectangles below

1) Perimeter= _____



2) Perimeter= _____



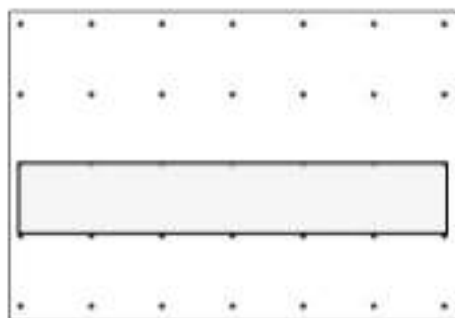
3) Perimeter= _____



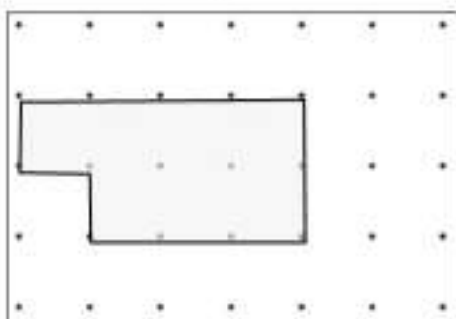
4) Perimeter= _____



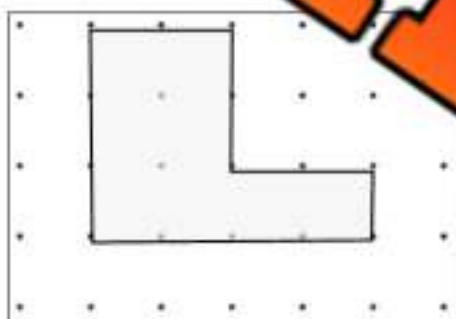
5) Perimeter= _____



6) Perimeter= _____

Part 2 Find the perimeter of the polygons below

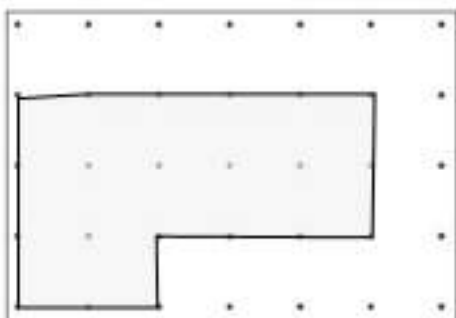
1) Perimeter= _____



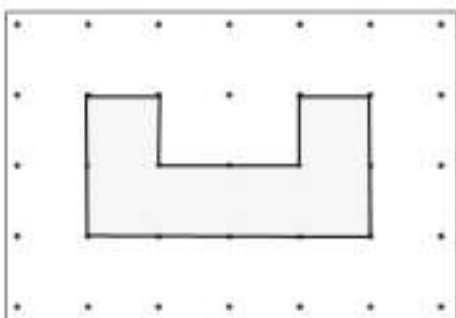
2) Perimeter= _____



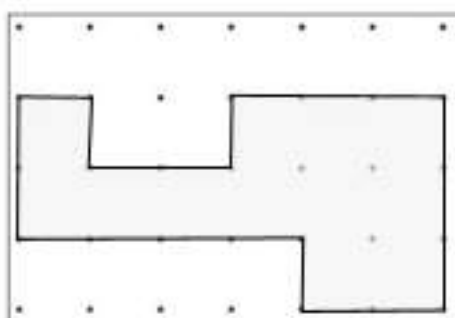
3) Perimeter= _____



4) Perimeter= _____



5) Perimeter= _____



6) Perimeter= _____

Perimeter Formulas

Mathematicians use formulas to help them solve questions faster and easier. When finding the perimeter of a quadrilateral, we can use the following formulas.

Formula 1

$$a + b + a + b$$

$$9 + 3 + 9 + 3 = 24\text{cm}$$



9cm

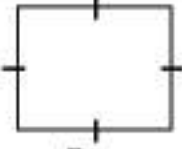
3cm

Formula 2

$$a + b \times 2$$

$$9 + 3 \times 2 = 24\text{cm}$$

Question Use both formulas to calculate the perimeter of the quadrilaterals

	Formula 1	Formula 2
1) 		
2) 		
3) 		
4) 		
5) 		
6) 		

Regular and Irregular Polygons - Word Problems**Questions**

Draw a picture of the problem and then find the perimeter

1) Henry built a fence using stones in his yard. The fence was shaped like a regular pentagon. The regular pentagon had side lengths of 13m. What is the perimeter of the shape?



2) Detective Carter found a crime scene in an irregular shape. The irregular shape had 6 sides with the following measurements: 9m, 28m, 16m, 35m, 12m, and 47m. What is the total length of the perimeter?



3) Jayden ran a perimeter around his neighbourhood. The perimeter he ran around was a regular hexagon. Each side was 415m long. What is the distance Jayden ran?

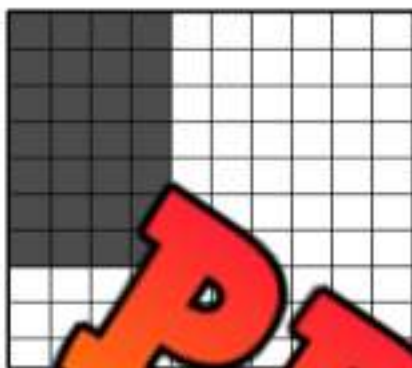


Area - CM Squared

Questions

Calculate the area using cm as your units

1)

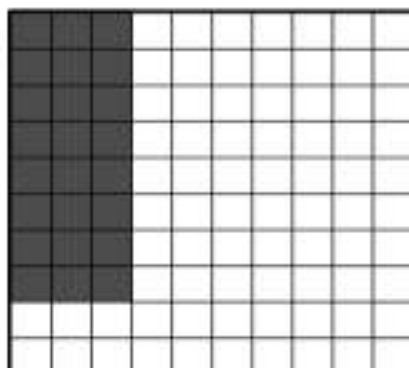


$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

2)



$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

3)



$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

4)

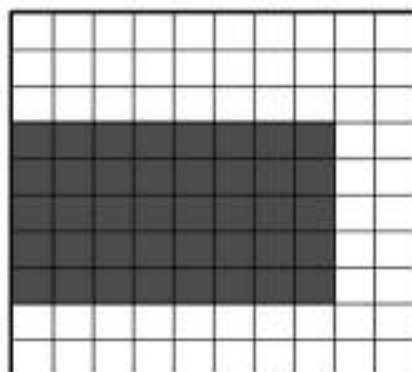


$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

5)



$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

6)

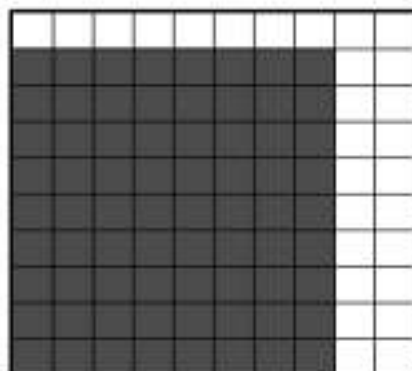


$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

7)

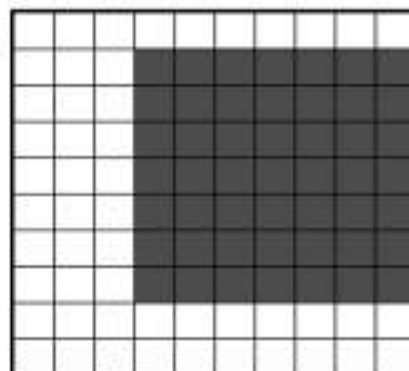


$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

8)



$$A = b \times h$$

$$A = \underline{\quad} \times \underline{\quad}$$

$$A = \underline{\quad} \text{ cm}^2$$

Area Word Problems

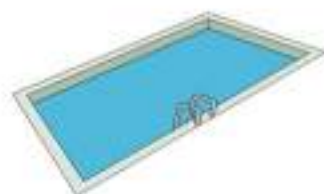
Questions

Draw a picture of the problem and then find the area

1) A phone is 11cm by 60mm. What is the area of the phone?



2) A pool is 10m by 9cm. What is the area of the pool?



4) A candy wrapper is 40mm wide and 10cm long. What is the area of the wrapper in cm?



4) The front of a square box is 12cm wide. What is the area of the box?



5) A door is 3m by 150cm. What is the area of the door?



Finding the Missing Information

Questions

Find the missing value ($A = b \times h$)

1)

$A = 30\text{cm}^2$

5cm

Base = _____

Height = _____

Area = _____

2)

3cm

$A = 21\text{cm}^2$

Base = _____

Height = _____

Area = _____

3)

$A = 48\text{cm}^2$

8cm

Base = _____

Height = _____

Area = _____

4)

11m

$A = 33\text{m}^2$

Base = _____

Height = _____

Area = _____

5)

4m

$A = 28\text{m}^2$

Base = _____

Height = _____

Area = _____

6)

12m

$A = 36\text{m}^2$

Base = _____

Height = _____

Area = _____

7)

$A = 64\text{cm}^2$

8cm

Base = _____

Height = _____

Area = _____

8)

1m

$A = 12\text{m}^2$

Base = _____

Height = _____

Area = _____

9)

$A = 77\text{cm}^2$

11cm

Base = _____

Height = _____

Area = _____

10)

7cm

$A = 56\text{cm}^2$

Base = _____

Height = _____

Area = _____

Finding the Missing Information - Word Problems**Questions** Use the information you have to find the missing height or base

1) A piece of paper has an area of 63cm^2 . The base of the paper is 7cm . What is the height of the paper?



2) Hudson is a regular quadrilateral. It has an area of 81m^2 . What are the side lengths?



3) A bus has an area of 24m^2 . Its height is 2m . What is the base?



4) A poster shaped like an irregular quadrilateral has a base of 9cm and an area of 126cm^2 . What is the height of the poster?



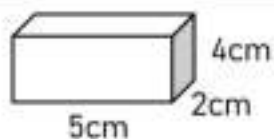
5) A cookie sheet has an area of 104cm^2 . The base of the sheet is 8cm . What is the height of the cookie sheet?



Calculating Volume - Blocks

Rectangular Prism - Calculating Volume

To find the volume of a rectangular prism, multiply the length by the width by the height.



$$\begin{aligned}v &= l \times w \times h \\v &= 5\text{cm} \times 2\text{cm} \times 4\text{cm} \\v &= 40\text{cm}^3\end{aligned}$$

Questions

Label the rectangular prisms and then calculate the volume

1)



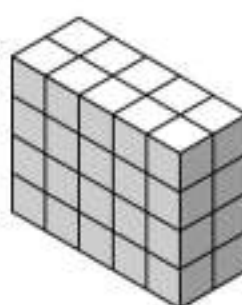
l = _____

w = _____

h = _____

v = _____

2)



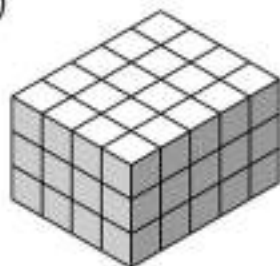
l = _____

w = _____

h = _____

v = _____

3)



l = _____

w = _____

h = _____

v = _____

6)



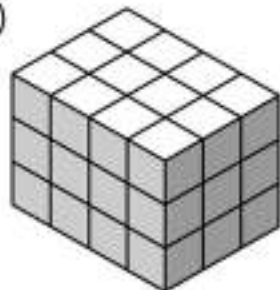
l = _____

w = _____

h = _____

v = _____

5)



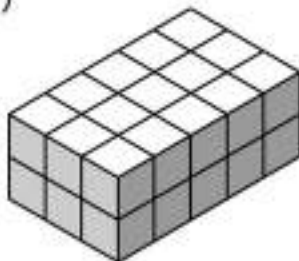
l = _____

w = _____

h = _____

v = _____

7)



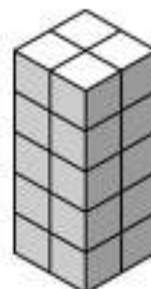
l = _____

w = _____

h = _____

v = _____

8)



l = _____

w = _____

h = _____

v = _____

Calculating Volume of Rectangular Prisms

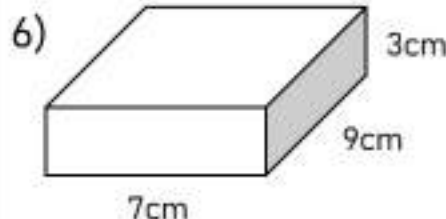
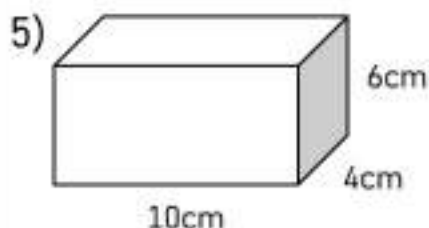
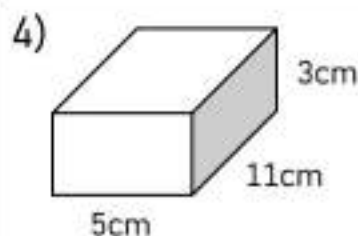
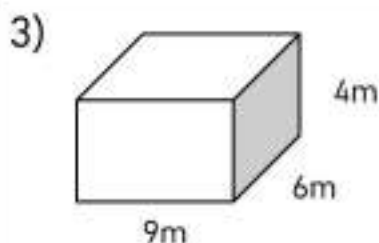
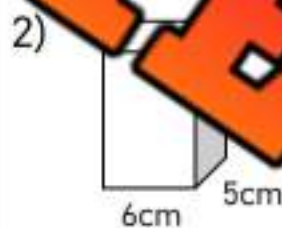
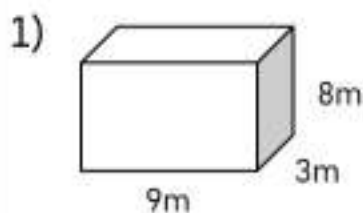
Part 1

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	4cm	9cm	3cm	
Box 5	6cm	8cm	6cm	
Box 6	5cm	7cm	8cm	
Box 7	7cm	5cm	4cm	

Part 2

Calculate the volume of the rectangular prisms



Calculating Volume of Rectangular Prisms

Questions

Solve the word problems below

1) A classroom has a width of 12m, height of 2m, and a length of 10m. What is the volume of the classroom?



2) A swimming pool is 11m wide, 2m deep, and 4m long. What is the volume of the pool?



3) A block has a height of 7cm, width of 5cm, and a length of 10cm. What is the volume of the block?



4) A pool is 9m long, 6m wide, and 3m deep. What is the volume of the pool?



5) A lunchbox is 12cm wide, 7cm tall, and 10cm deep. What is the volume of the lunchbox?



Regular vs Irregular Polygons

Regular

Regular Polygons

- All sides are the same length
- All angles are the same

Irregular

Part 1Label the polygons regular or irregular

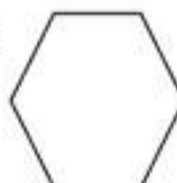
1.



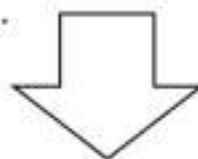
3.



4.



5.



6.



7.



8.



9.



10.

**Part 2**

Draw regular and irregular polygons

1)

2)

3)

4)

Regular

Regular

Regular

Regular

Regular

6)

7)

8)

9)

10)

Irregular

Irregular

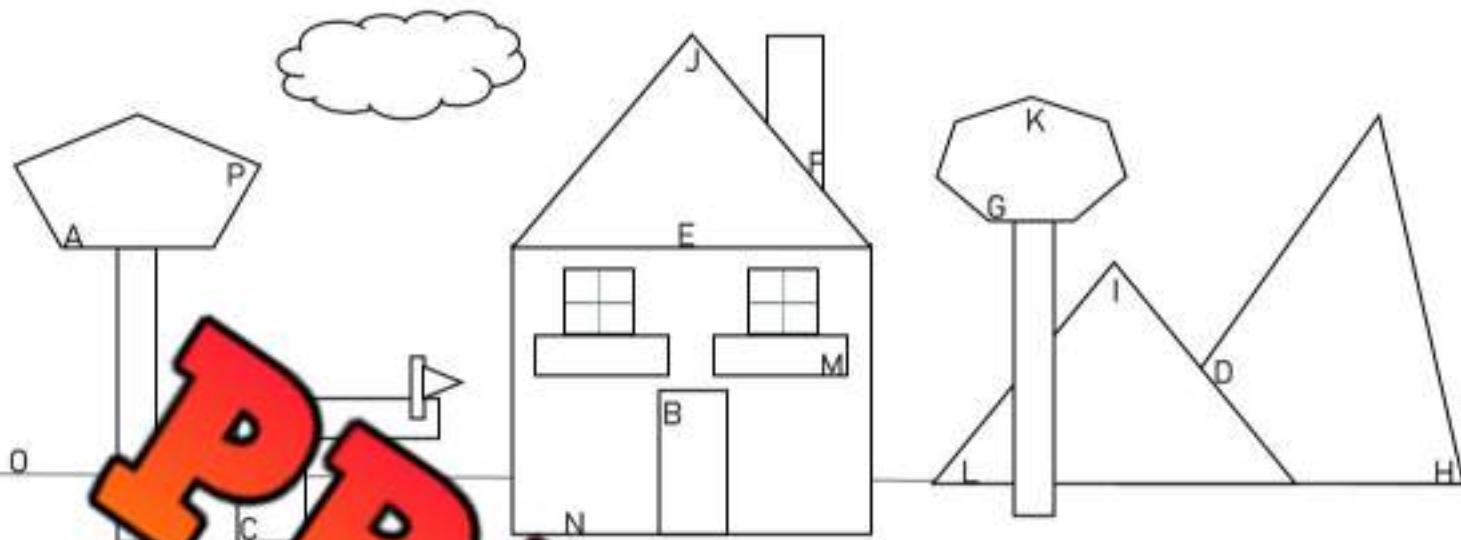
Irregular

Irregular

Irregular

Name: _____

62

Curriculum Connection
SS.4**Finding Obtuse, Acute, Straight, and Right Angles****Questions** What are the angles labeled with a letter – Straight, Acute, Obtuse, or Right

Letters	Name of Angle	Letters	Name of Angle
A			
B			
C		K	
D		L	
E		M	
F		N	
G		O	
H		P	

Angles in Triangles and Rectangles

Part 1

How many right angles are there? Use a square to label them

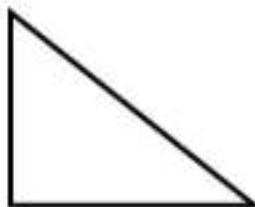
1)



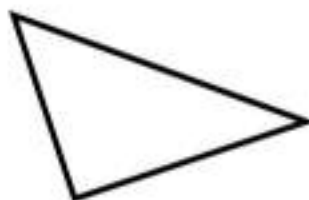
2)



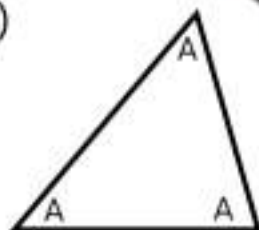
3)



4)



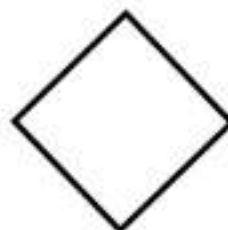
5)



7)



8)



Acute = 3

Acute =

Acute =

Acute =

Obtuse = 0

Obtuse =

Obtuse =

Obtuse =

Right = 0

Right =

Right =

Part 3

Draw a picture of a shape with the number of angles it shows

9)

Triangle

Acute = 2

Obtuse = 1

Right = 0

10)

Triangle

Acute = 3

Obtuse = 0

Right = 0

11)

Rectangle

Acute = 0

Obtuse = 0

Right = 4

12)

Triangle

Acute = 2

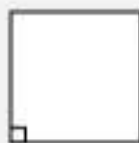
Obtuse = 0

Right = 1

Naming Angles in Quadrilaterals



Obtuse
Larger than right angle



right angle
90°



Reflex
Larger than 180°

Part 1 Draw the inside angle that is circled. Then label it an acute, obtuse, right, or reflex angle

1)



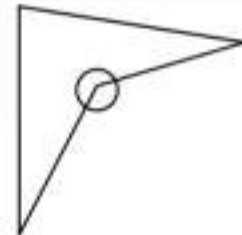
2)



3)

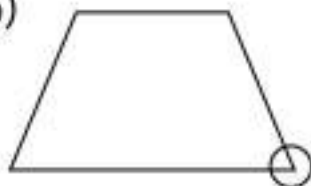


4)

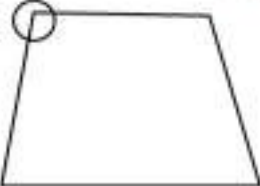


Right Angle

5)



6)



7)



8)



Part 2 Circle the angles below on the shapes

9)



2 Acute Angles

10)



2 Obtuse Angles

11)



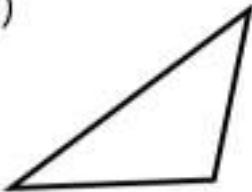
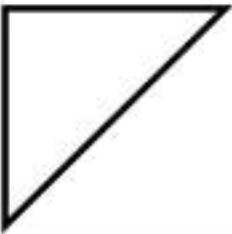
1 Reflex Angle

Acute, Obtuse, and Right Triangles

Acute Triangle	Right Triangle	Obtuse Triangle
		
All Angles Are Less Than 90°	1 Angle Is 90°	1 Angle Is Greater Than 90°

Part 1

Classify the triangles acute, obtuse or right

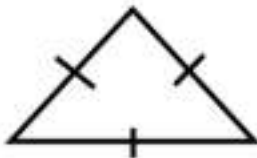
1) 	3) 	4) 
5) 	6) 	7) 
8) 		

Part 2

Draw a picture of the three different types of triangle

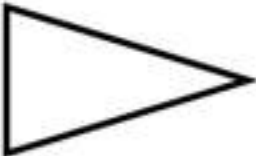
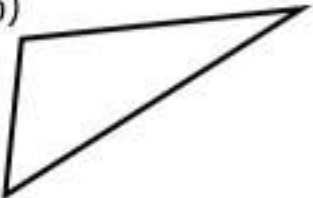
9) 	10) 	11)
Acute Triangle	Obtuse Triangle	Right Triangle

Types of Triangles - Equilateral, Scalene, Isosceles

Equilateral Triangle	Isosceles Triangle	Scalene Triangle
		
3 Equal Sides 3 Equal Angles	2 Equal Sides 2 Equal Angles	No Equal Sides No Equal Angles

Part 1

Label the triangles equilateral, isosceles, or scalene

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

Part 2

Draw a picture of the three different types of triangle

9)	10)	11)
Equilateral Triangle	Isosceles Triangle	Scalene Triangle

Constructing Triangles

Questions

Draw triangles below that fit the description

1)

2)

3)

1 angle at 60° 1 angle at 90° 1 angle at 100° 1 angle at 60° 1 angle at 90° 1 angle at 35° 1 angle at 60° 1 angle at 45° 1 angle at 45°

4)

5)

1 angle at 80° 1 angle at 40° 1 angle at 55° 1 angle at 80° 1 angle at 30° 1 angle at 75° 1 angle at 20° 1 angle at 110° 1 angle at 50°

Sorting Angles in Polygons

Part 1

Sort the inside angles into the categories below



Angles	Right Angle	Obtuse	Acute	Reflex
Letters				

Part 2

Sort the angles into the categories below



Angles	Right Angle	Obtuse	Acute	Reflex
Letters				

Part 3

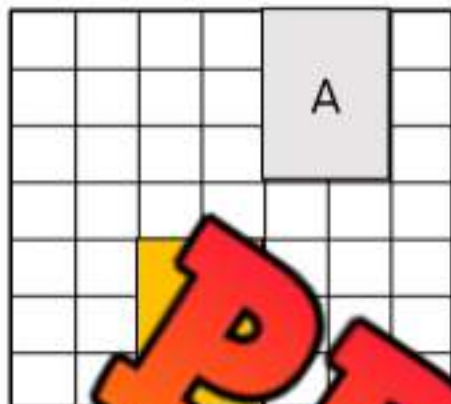
Circle the angles below

Drawings				
Angles	Right Angle	Obtuse	Acute	Reflex

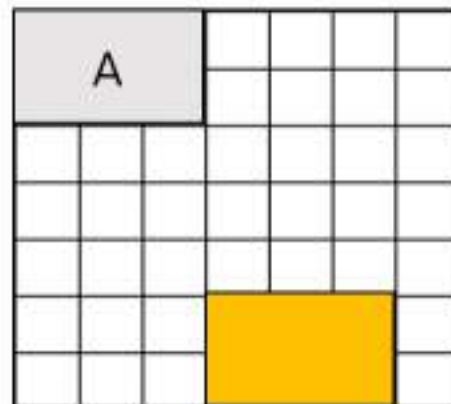
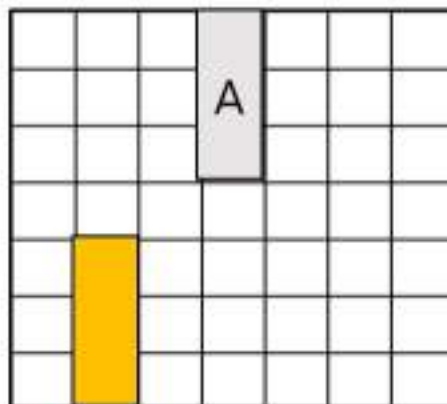
Describing Translations

Questions

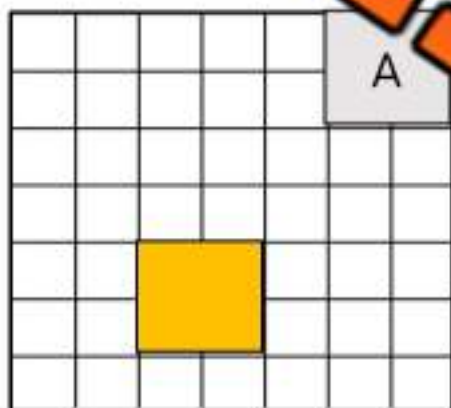
Describe the translations below using arrows. Shape A is the original object



1) 4 ↓



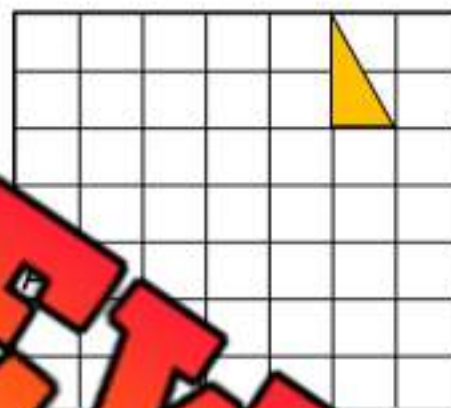
3) _____



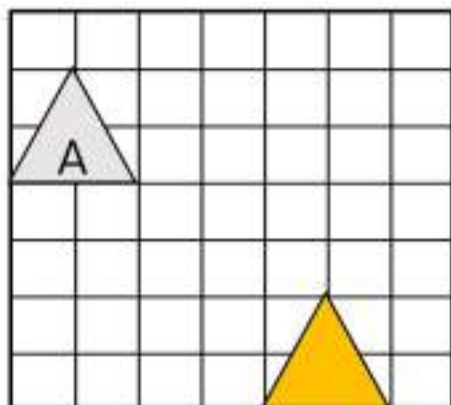
4) _____



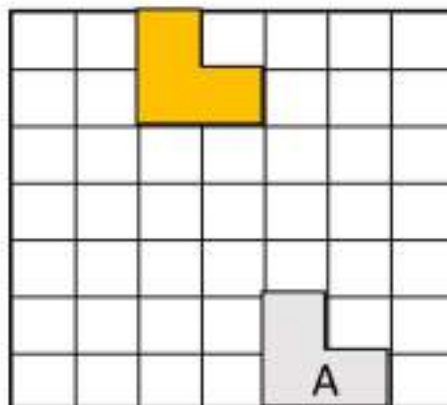
5) _____



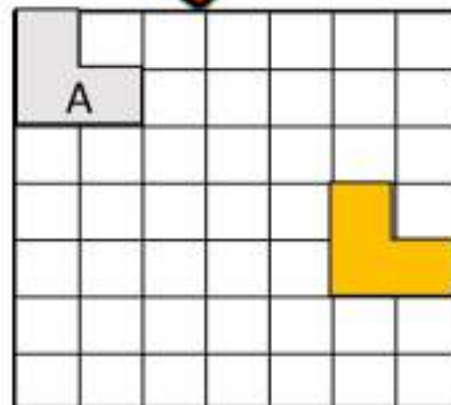
6) _____



7) _____



8) _____

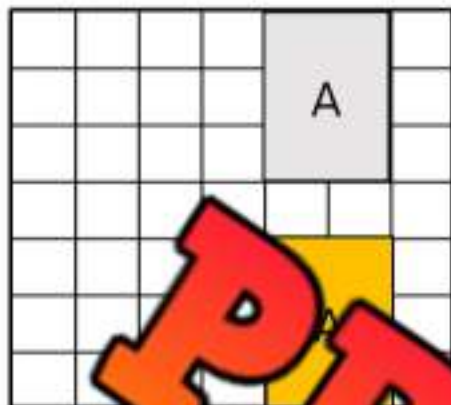
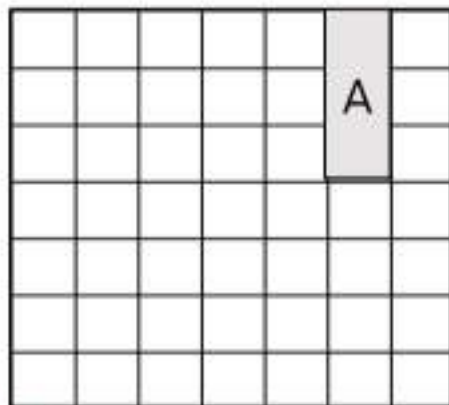
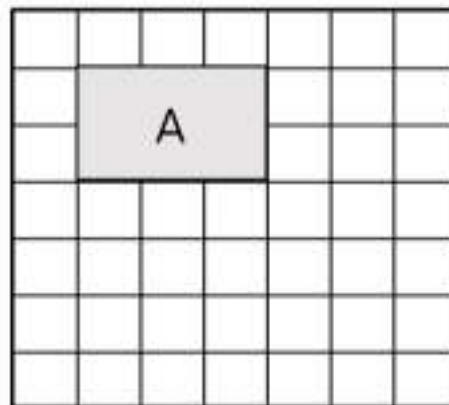
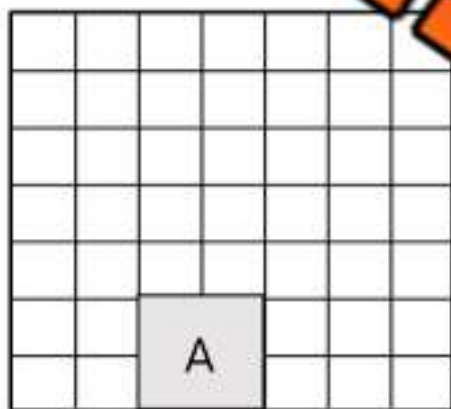
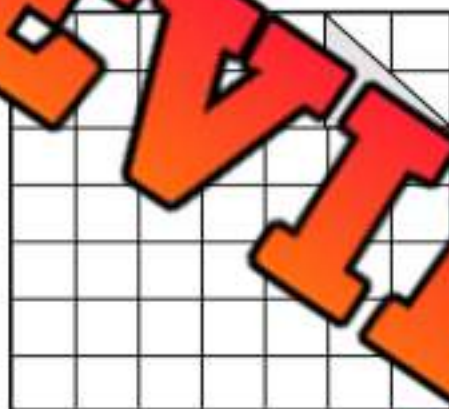
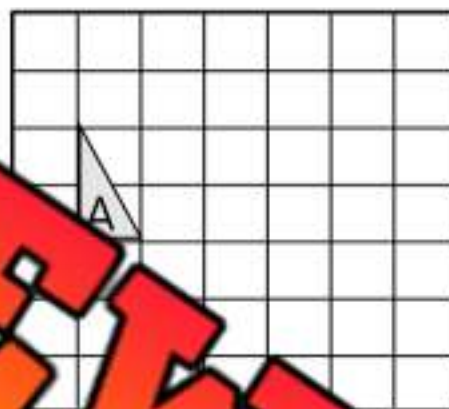
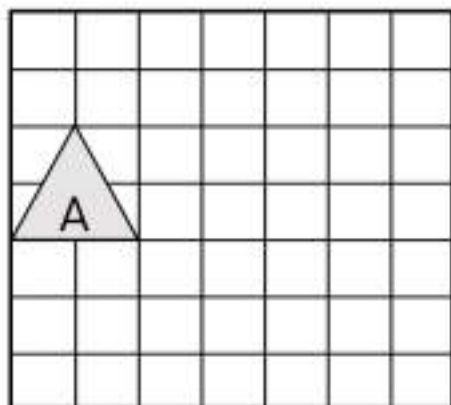
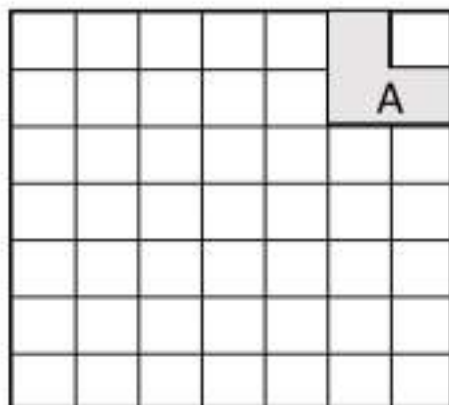
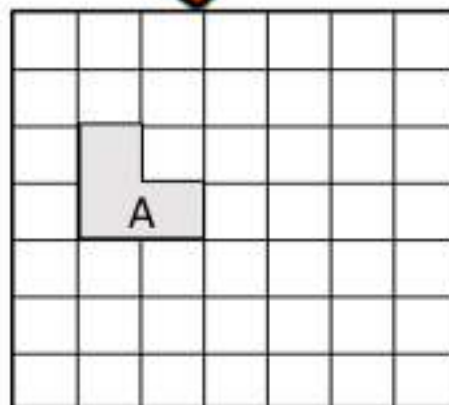


9) _____

Performing Translations

Questions

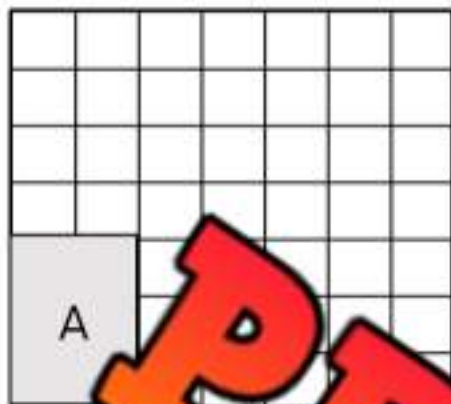
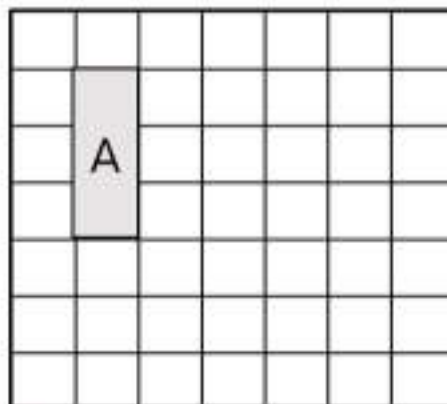
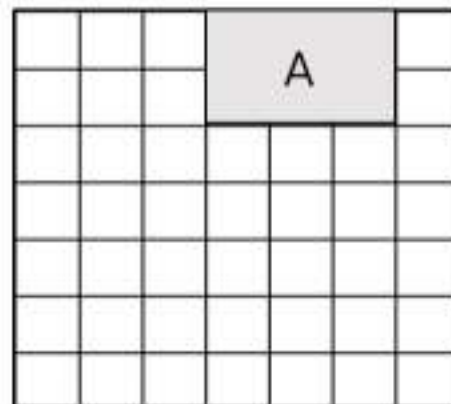
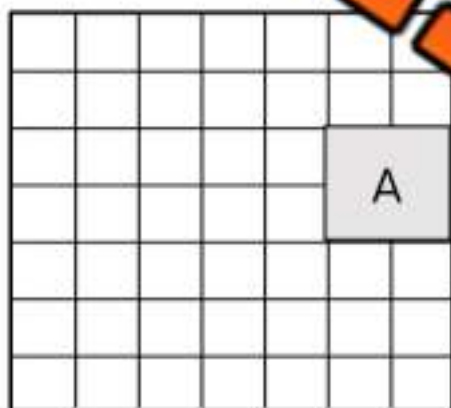
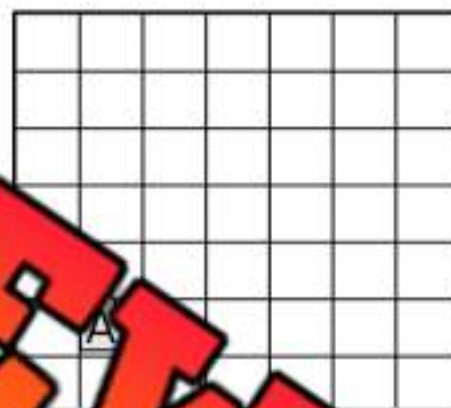
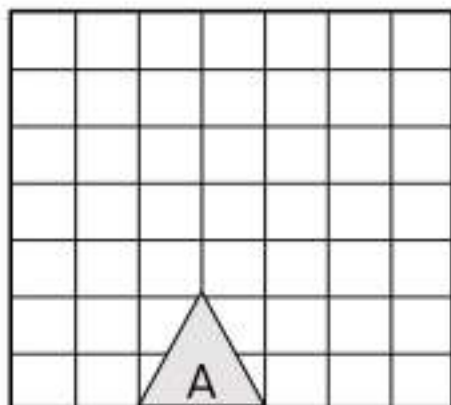
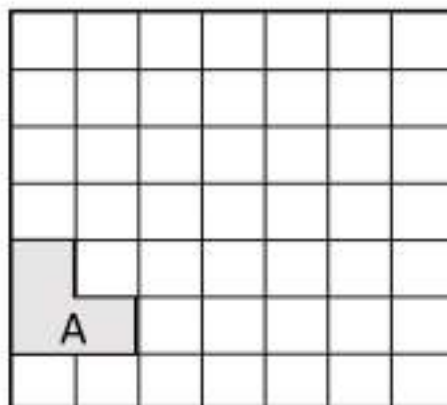
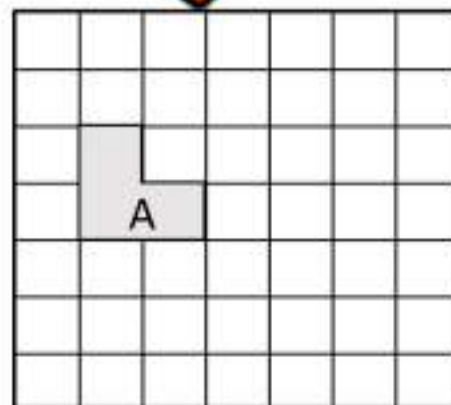
Draw the translations below. Shape A is the original object

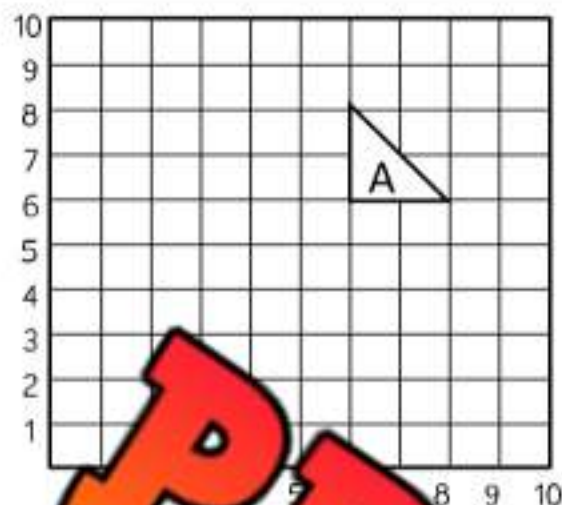
1) 42) 2 ↓, 4 ←3) 4 ↓, 3 →4) 4 ↑, 2 →5) 5 ↓, 4 ←6) 07) 3 ↓, 5 →8) 5 ↓, 4 ←9) 1 ↑, 4 →

Performing Translations

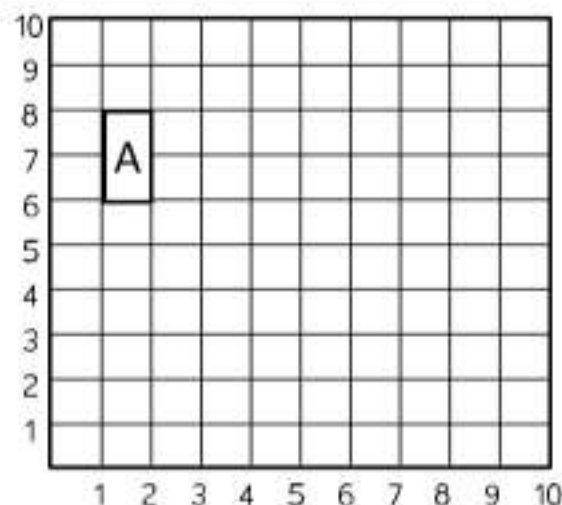
Questions

Draw the new shape after reading the 3 steps

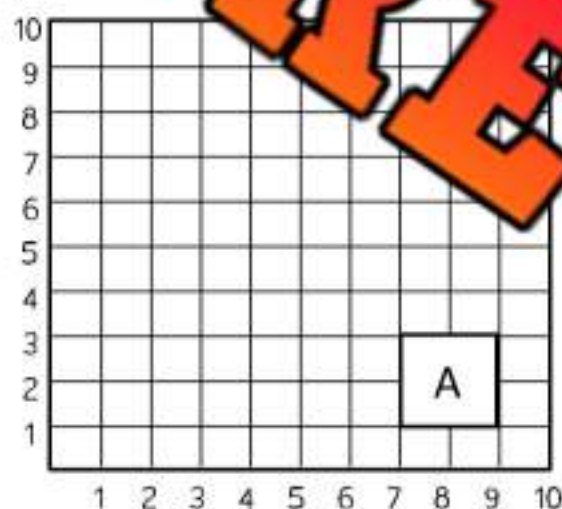
1) 3 ↑, 4 →2) 2 ↓, 4 →, 1 ↓3) 3 ↓, 2 ←, 2 ↓4) 3 ↓, 4 ←, 1 ↑5) 2 ↓, 4 →, 3 ↑6) 3 ↓, 2 ←, 2 ↓7) 4 ↑, 2 →, 3 ←8) 4 ↑, 4 →, 5 ↓9) 3 ↓, 3 →, 2 ↑

Translating Shapes - Cartesian Plane

1) Left



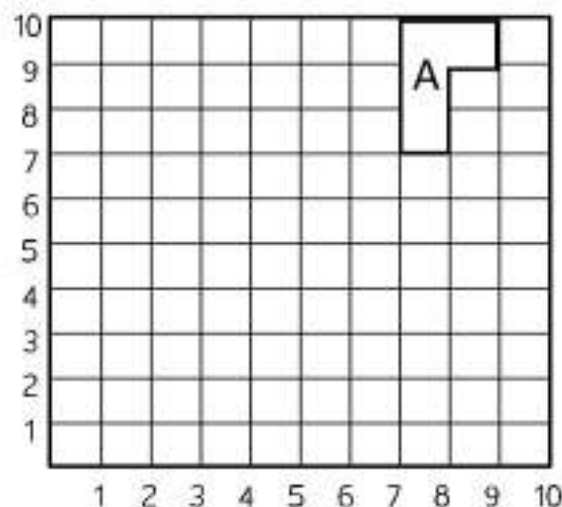
2) Right 5, down 4



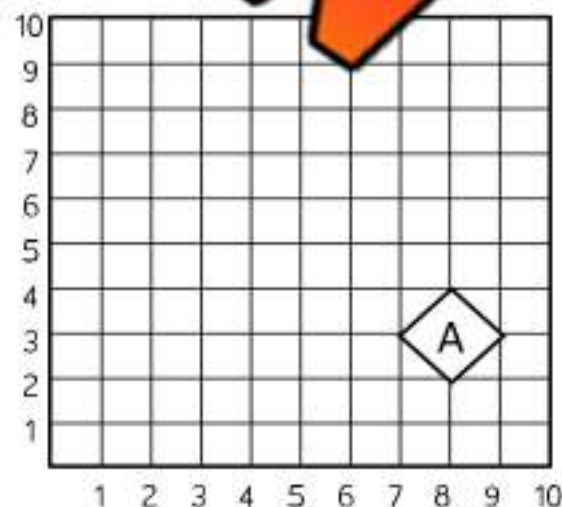
3) Left 6, up 2



4) Right



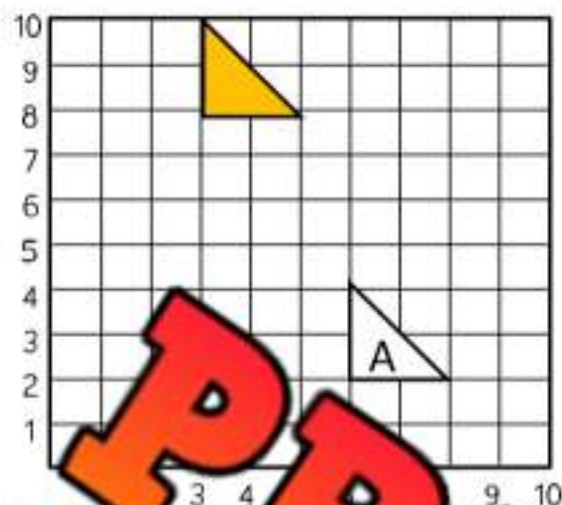
5) Left 3, down 6



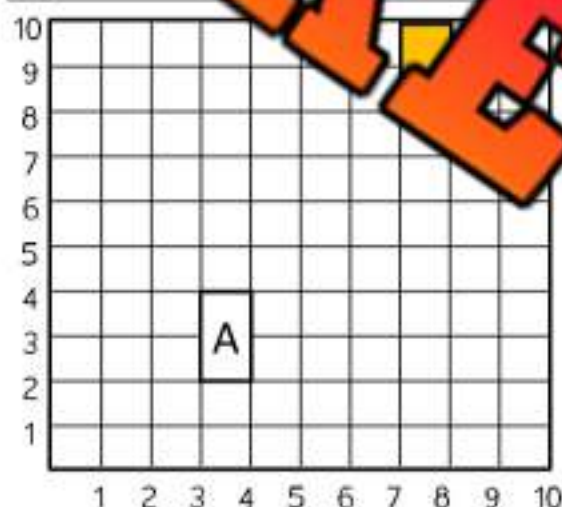
6) Left 2, up 4

Describing Translations - Cartesian Plane

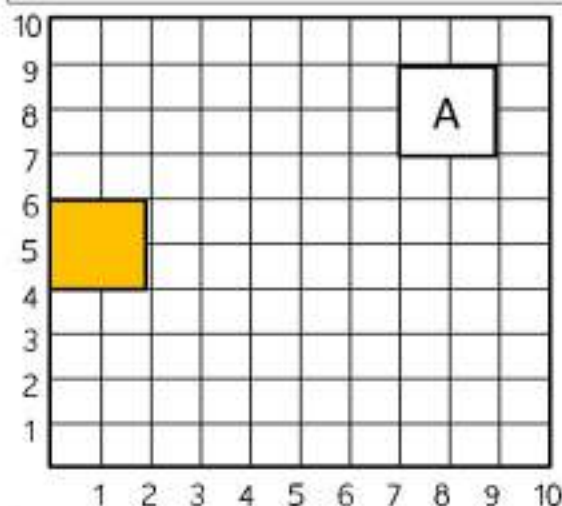
Instructions: Describe the translations below. Shape A is the original shape.



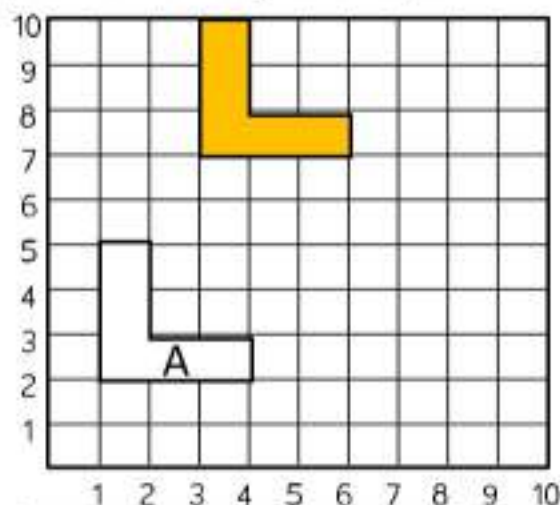
1) _____



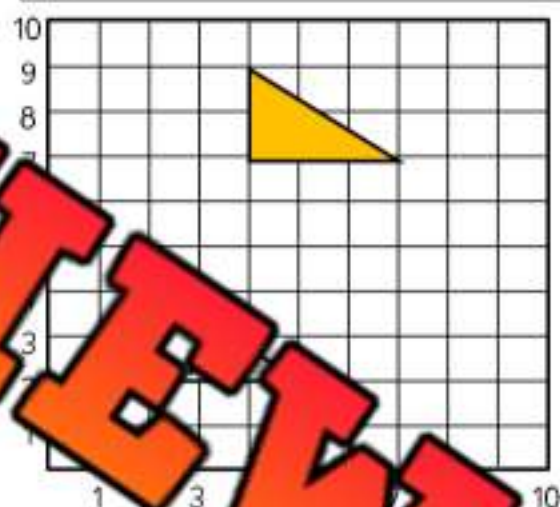
3) _____



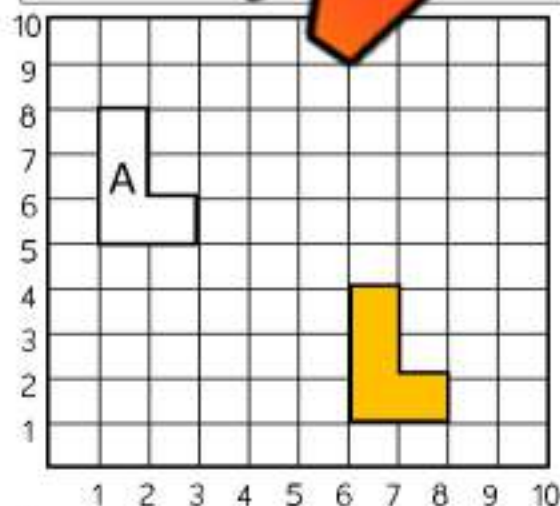
5) _____



2) _____



4) _____

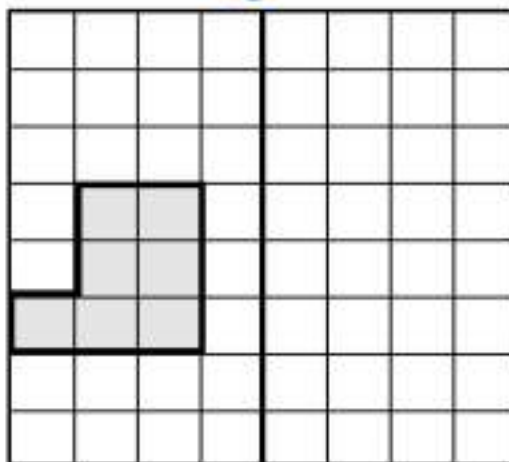
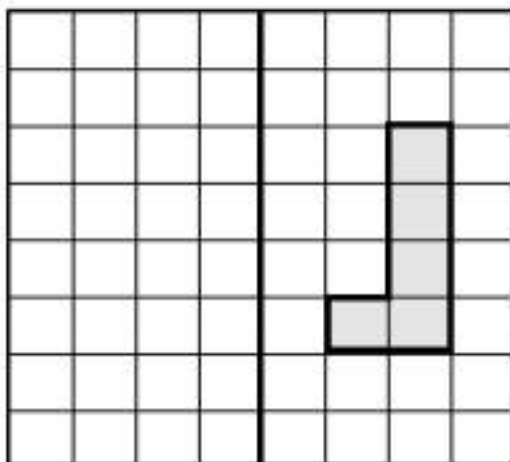
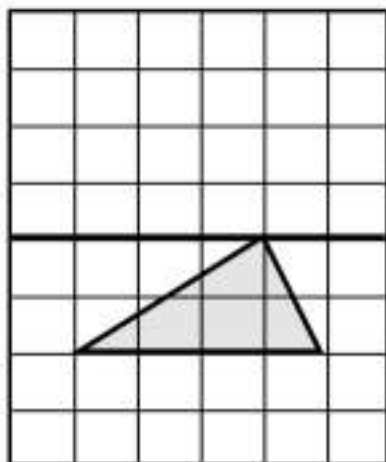
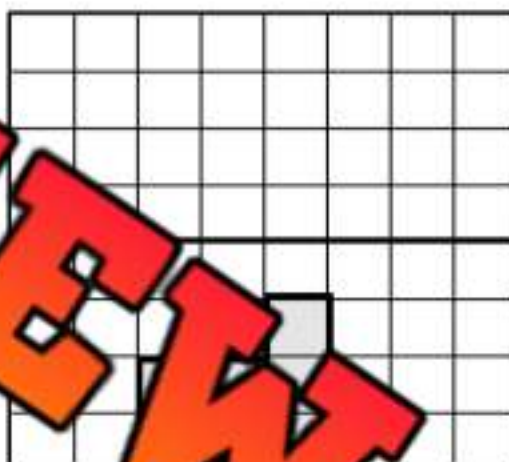
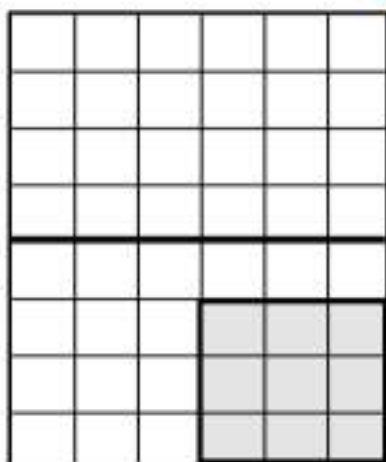
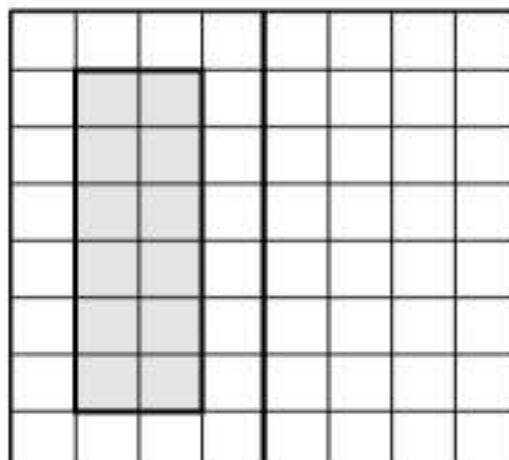
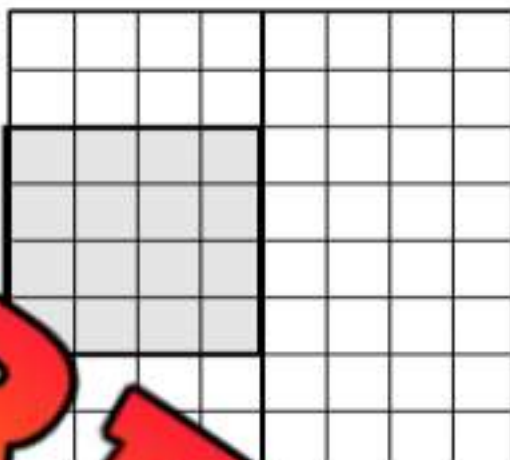
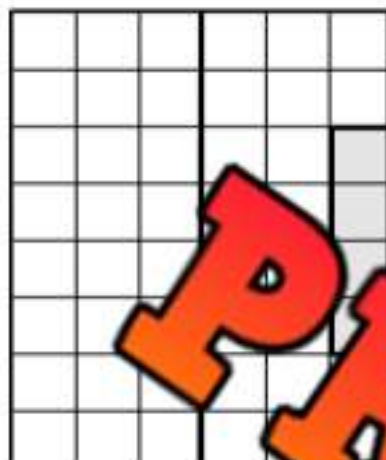


6) _____

Drawing Reflections

Questions

Reflect the shapes across the mirror line

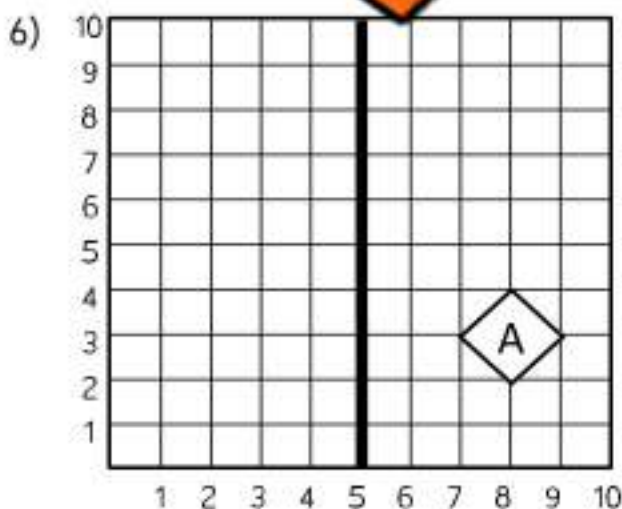
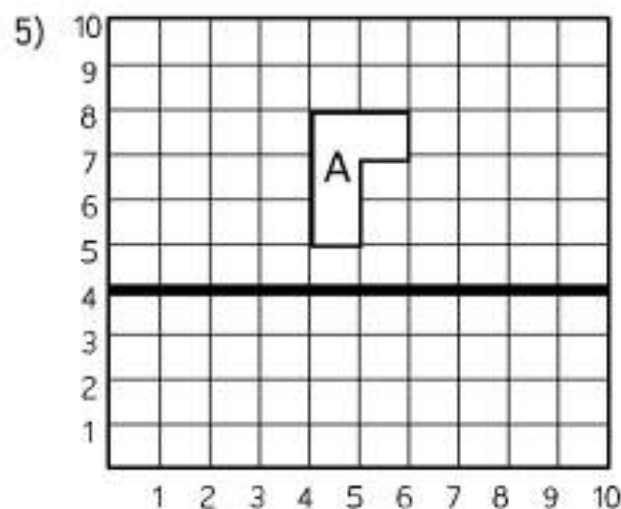
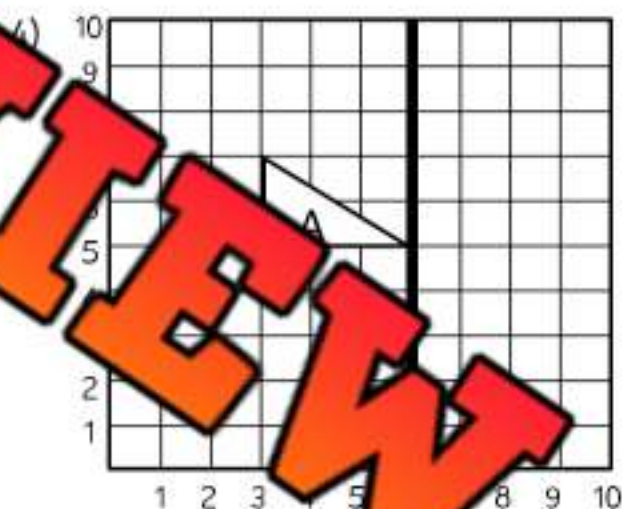
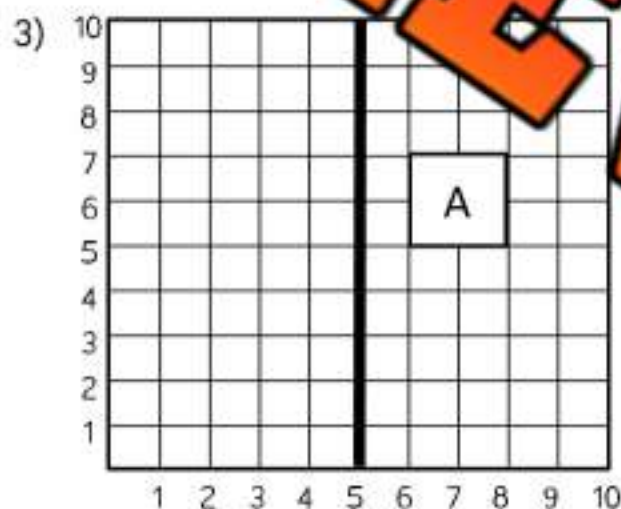
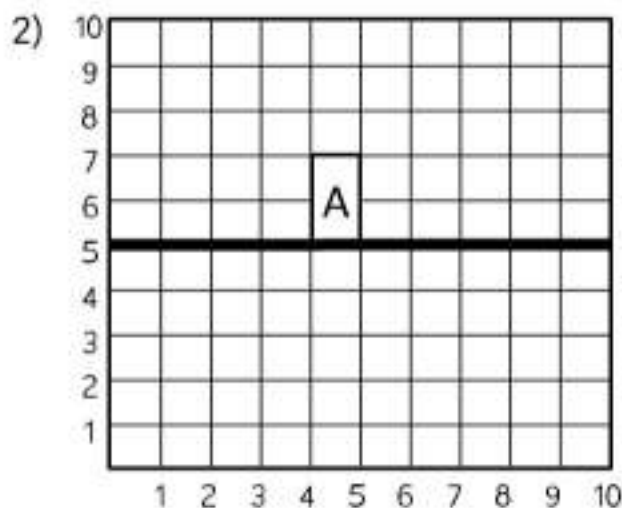
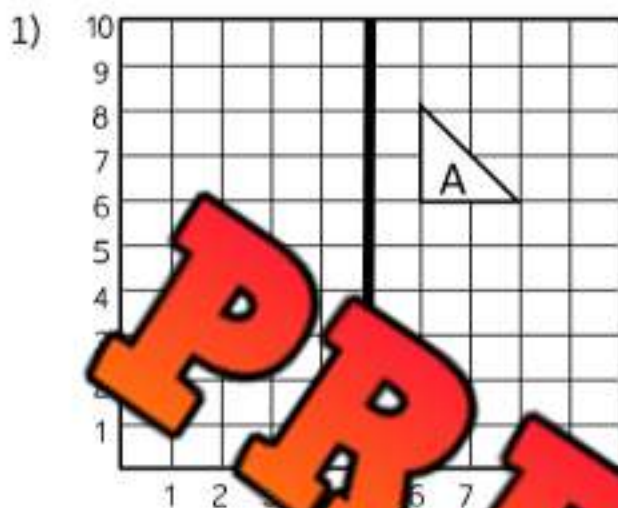


PREVIEW

Reflecting Shapes - Cartesian Plane

Questions

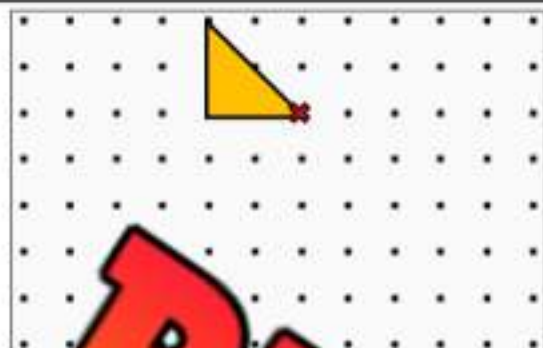
Reflect the shapes across the mirror line



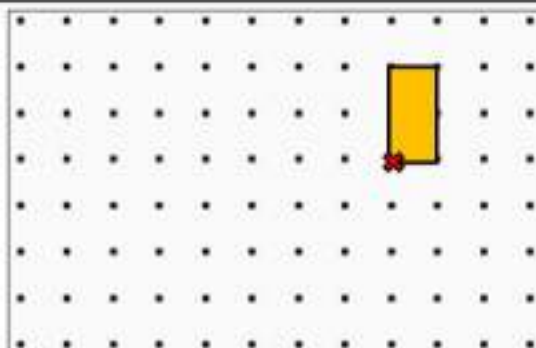
Drawing Rotations

Questions

Rotate the shapes around the point marked ✖



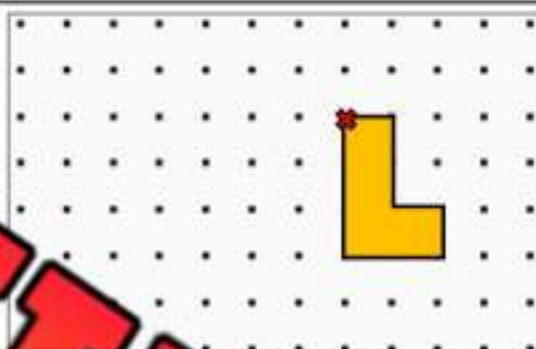
1) 90° clockwise rotation



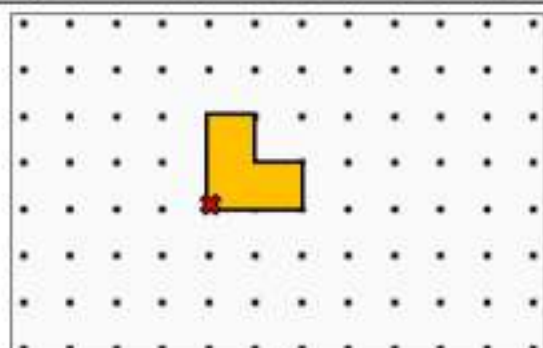
2) 180° clockwise rotation



3) 90° counter-clockwise rotation



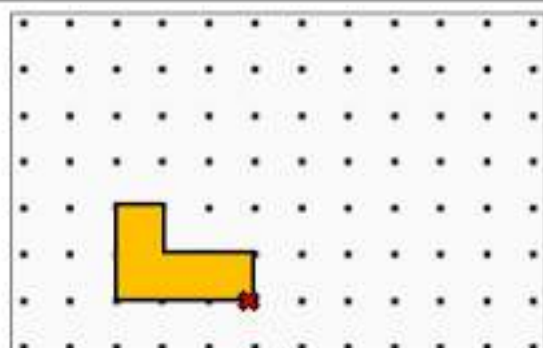
4) 360° clockwise rotation



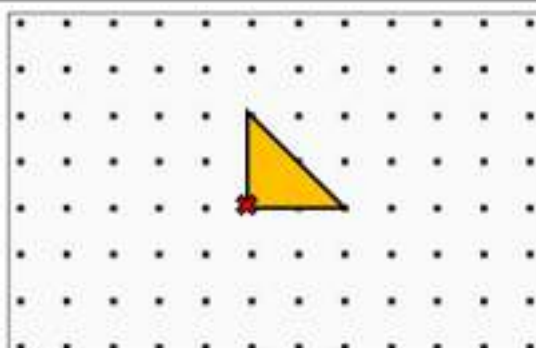
5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



8) 180° counter-clockwise rotation

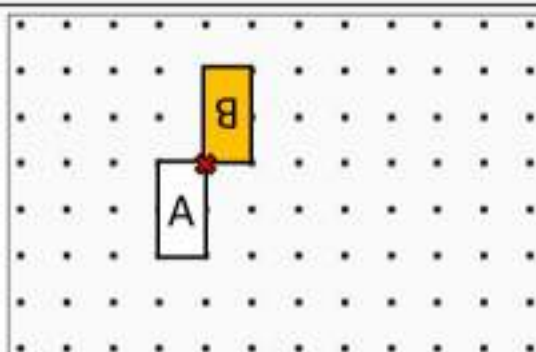
Describing Rotations

Questions

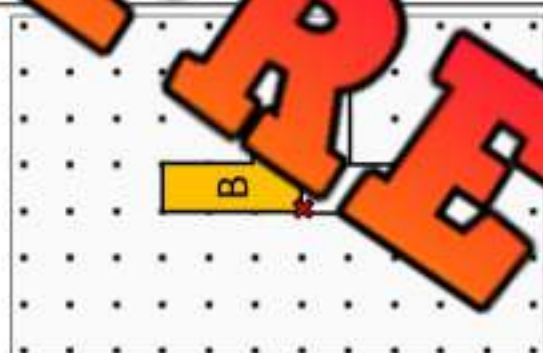
Describe the rotations. Shape A is the original shape



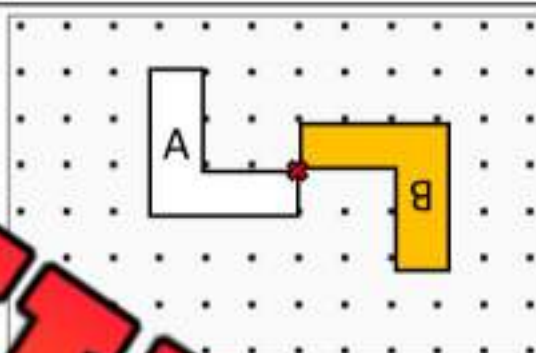
1) _____



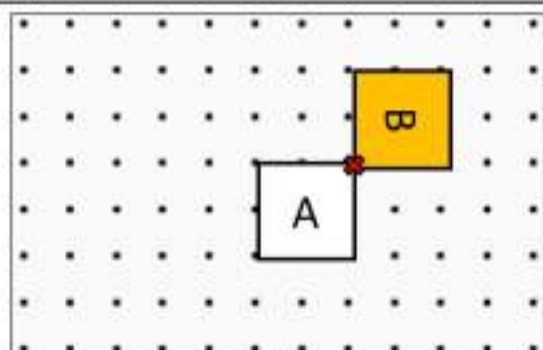
2) _____



3) _____



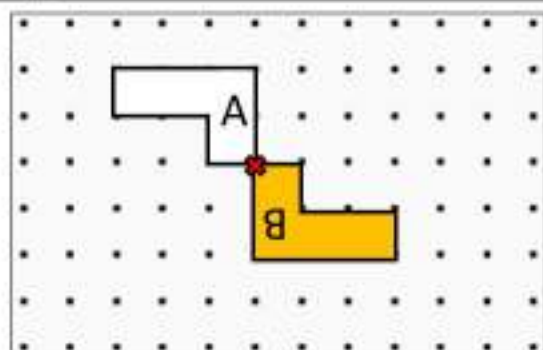
4) _____



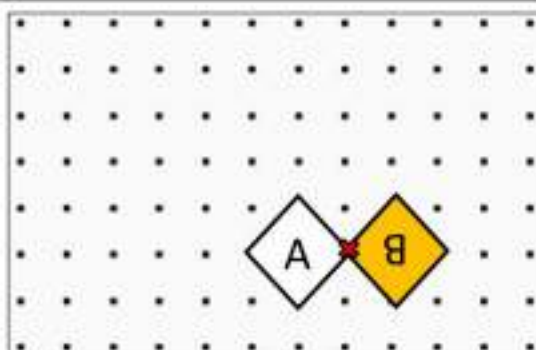
5) _____



6) _____

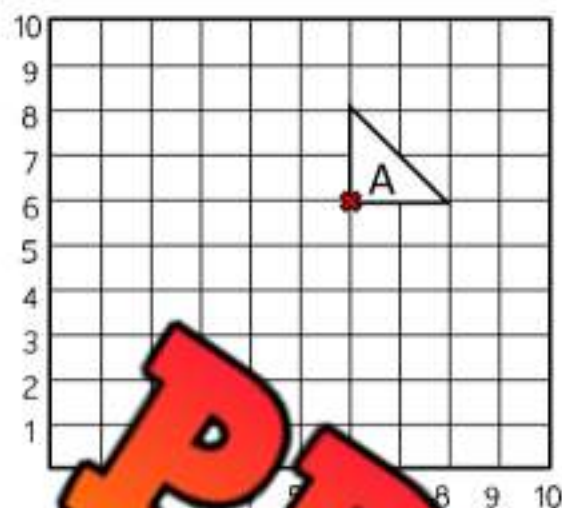


7) _____

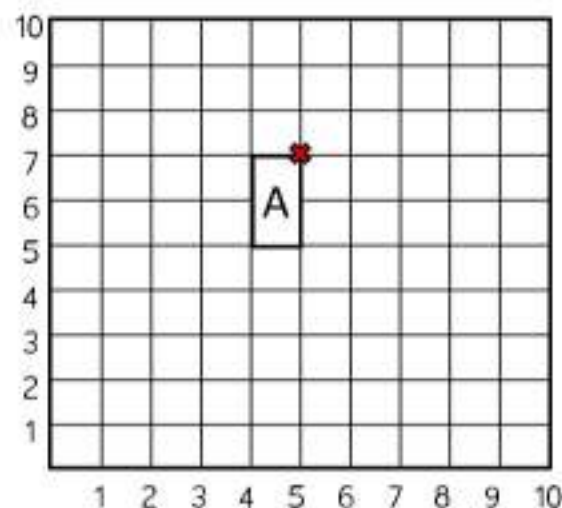


8) _____

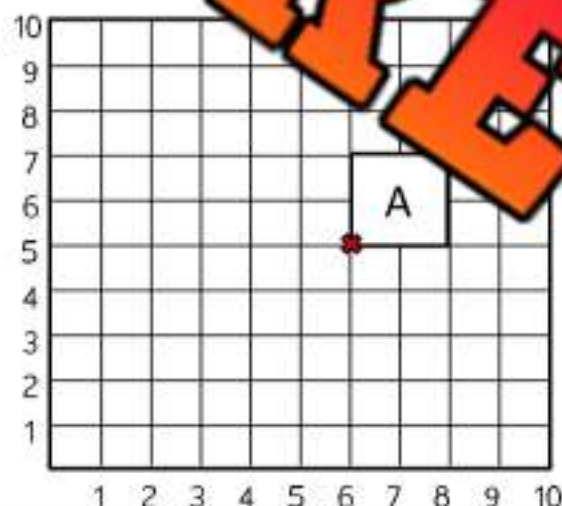
Rotating Shapes - Cartesian Plane



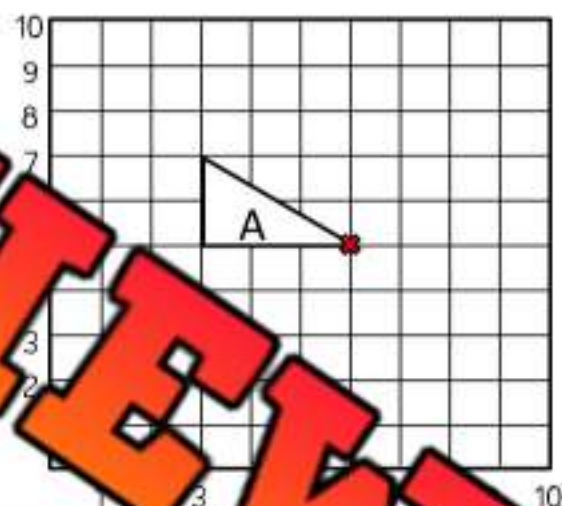
1) 180°



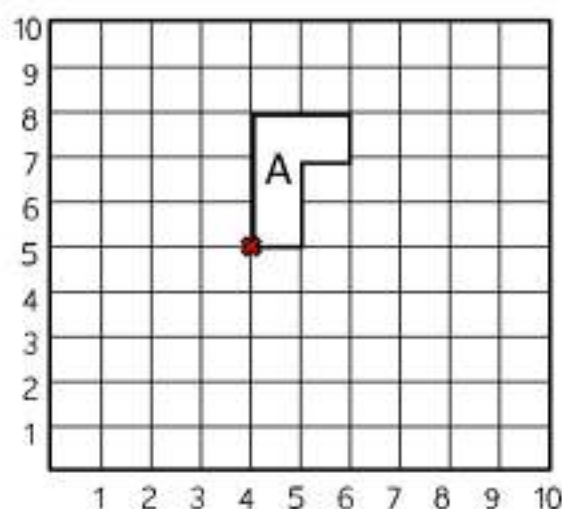
2) 90° counter-clockwise rotation



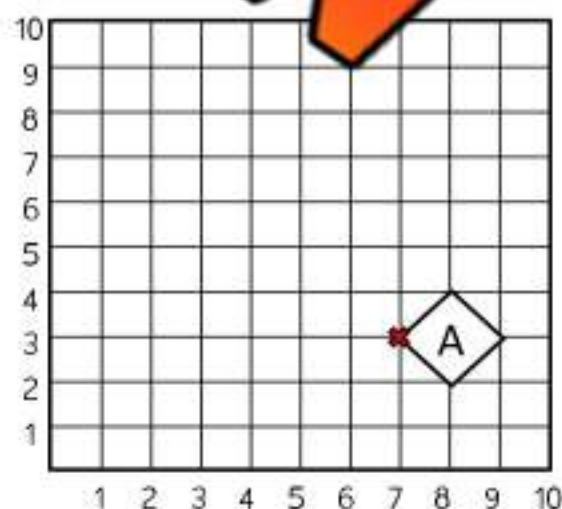
3) 90° clock-wise rotation



4) 90° clockwise rotation



5) 180° rotation



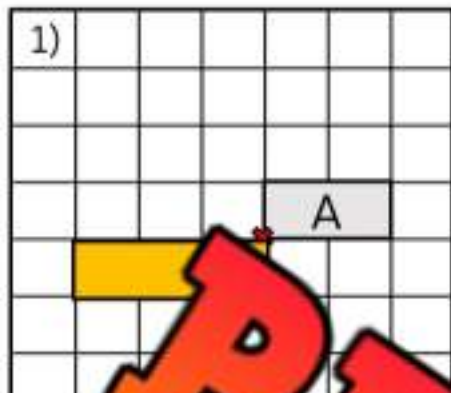
6) 90° counter-clockwise rotation

Transformations - Congruency

Questions

Are the shapes congruent? Which transformation is it?

1)



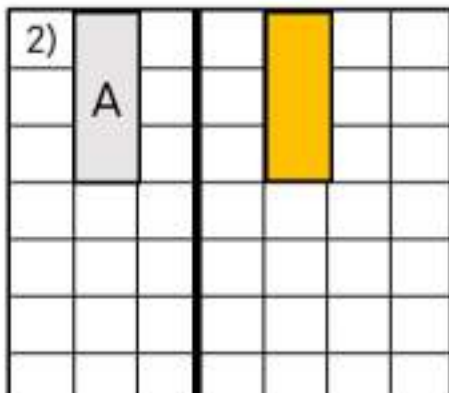
Congruent

Yes

No

Type

2)



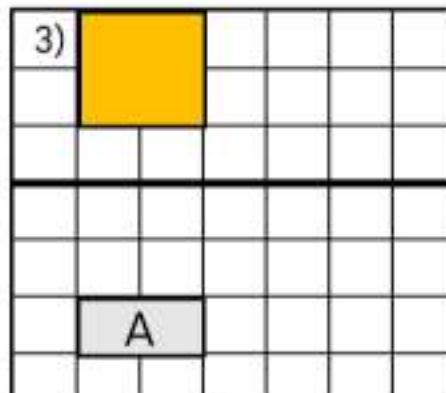
Congruent

Yes

No

Type

3)



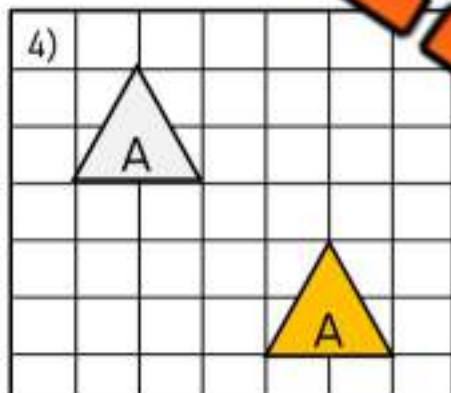
Congruent

Yes

No

Type

4)



Congruent

Yes

No

Type

5)



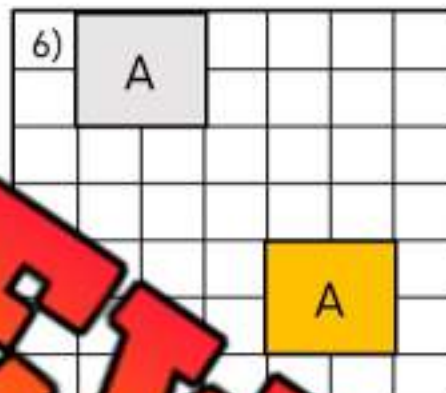
Congruent

Yes

No

Type

6)



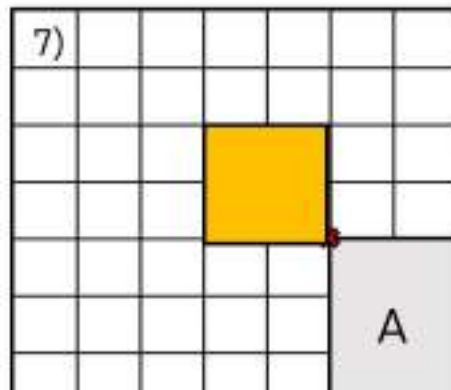
Congruent

Yes

No

Type

7)



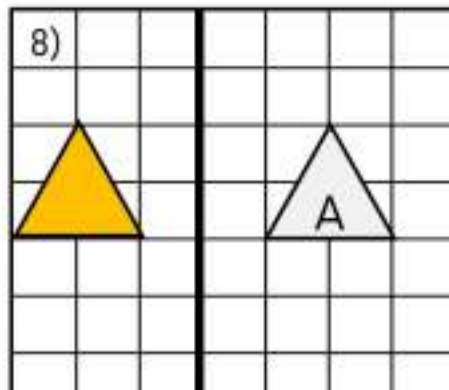
Congruent

Yes

No

Type

8)



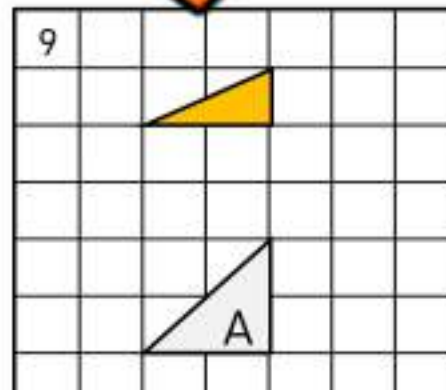
Congruent

Yes

No

Type

9)



Congruent

Yes

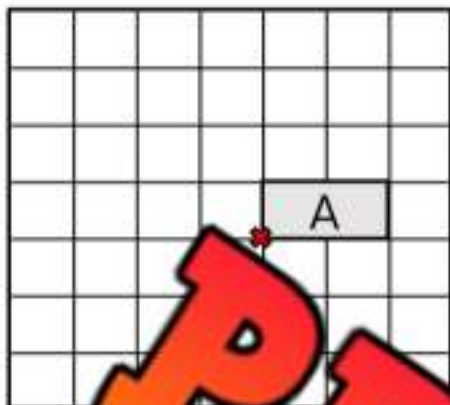
No

Type

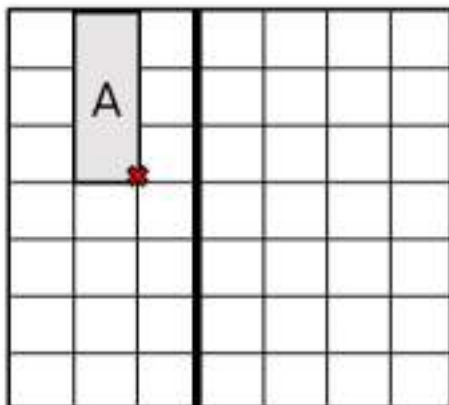
Performing Multiple Transformations

Questions

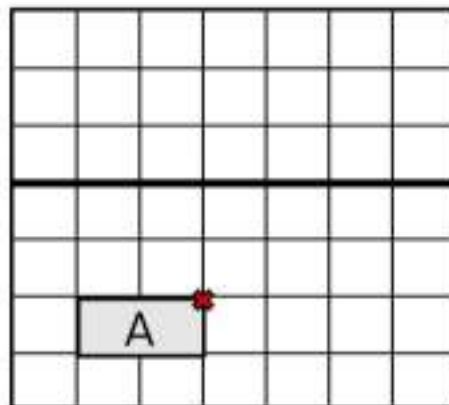
Complete the following combination of transformations



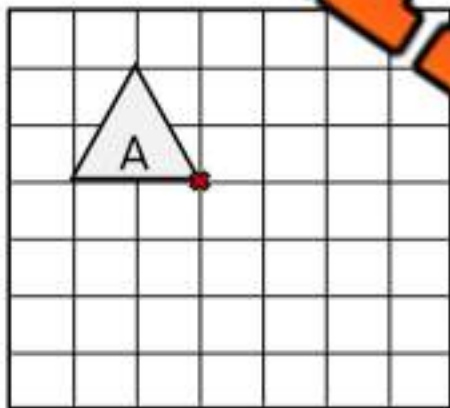
- 1) 180° rotation,
translate up



- 2) Reflect,
translate 180°



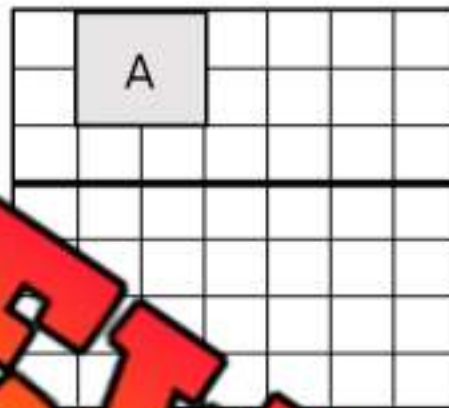
- 3) rotate 90° clockwise,
reflect



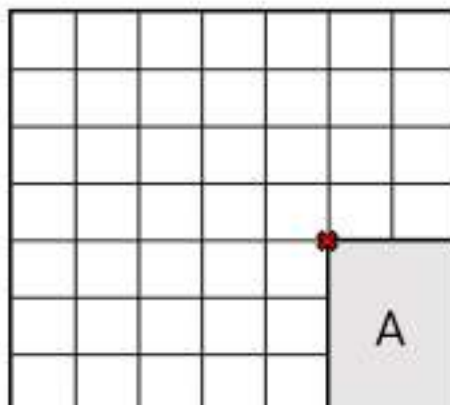
- 4) 90° counterclockwise
rotation, translate right 3



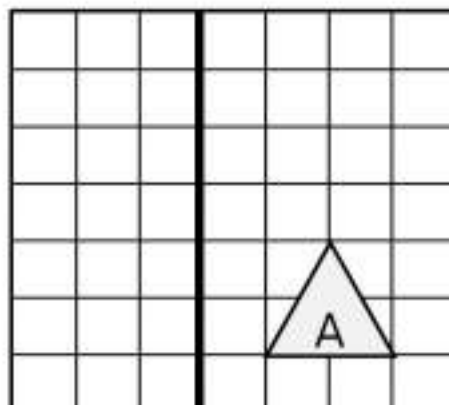
- 5) Translate down 3,
reflect



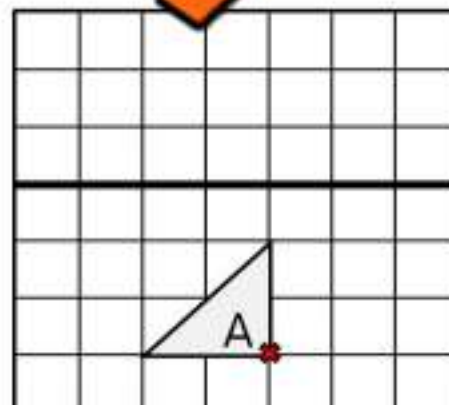
- 6) Reflect



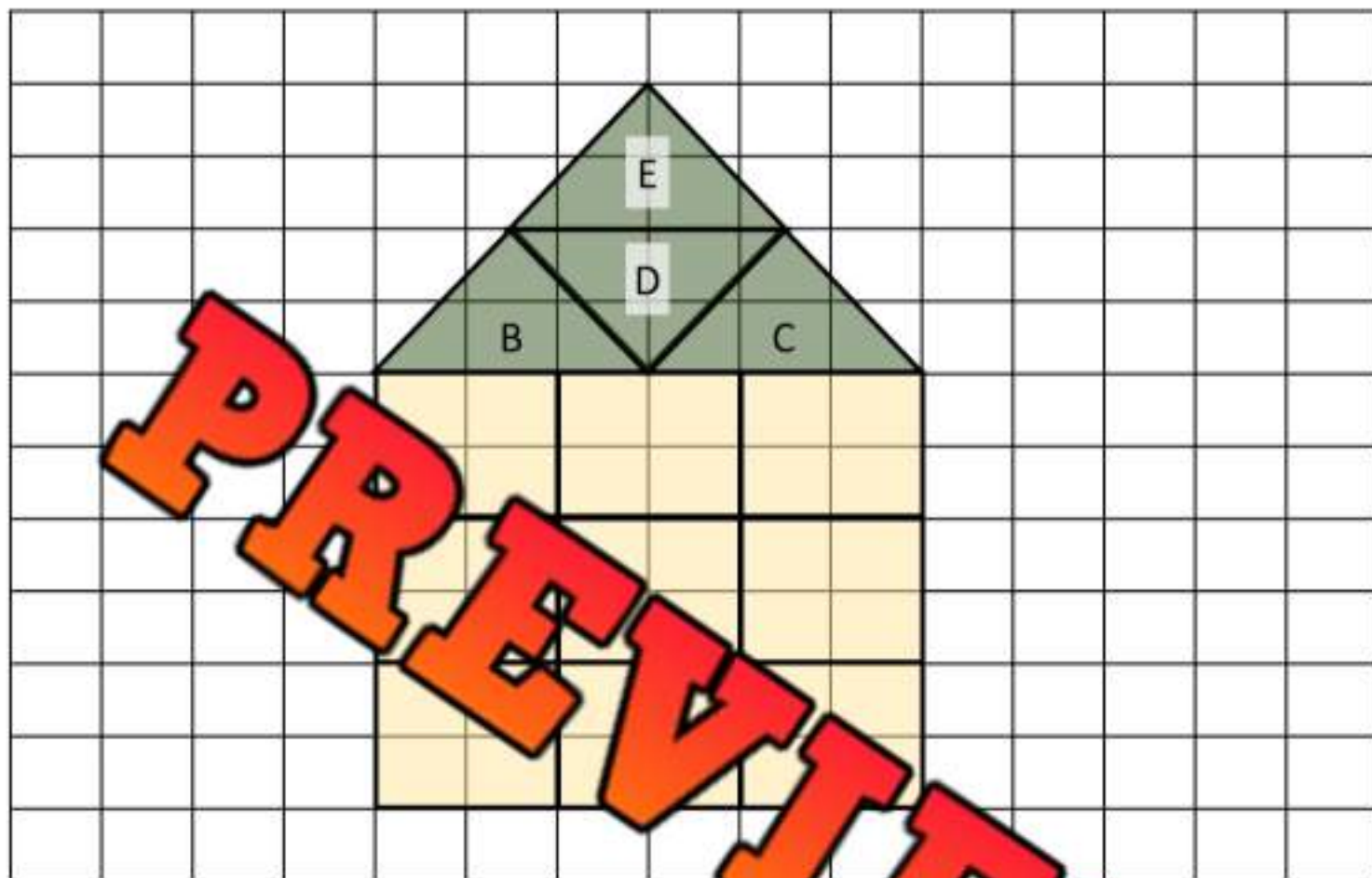
- 7) 180° rotation, translate
left 3



- 8) Reflect,
translate up 2



- 9) Rotate 90° clockwise,
reflect

Describing Transformations in a Design**Questions**

Answer the questions below

- 1) Which shape is A?
- 2) Which transformation was used with shape A?
- 3) Which shape is B, C, D, and E?
- 3) Which transformation was used to move shape B to C?
- 4) Which two transformations were used to move shape C to D?
- 5) Which transformation was used to move shape D to E?

1) _____

2) _____

Using a Coordinate System



Questions Label the objects on the grid by using the coordinates on the x and y axis

Symbol	Coordinates (x, y)	Symbol	Coordinates (x, y)
	(9, 9)		(____, ____)
	(____, ____)		(____, ____)
	(____, ____)		(____, ____)
	(____, ____)		(____, ____)
	(____, ____)		(____, ____)

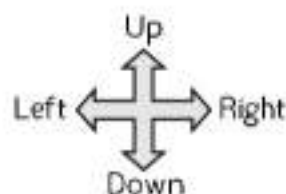
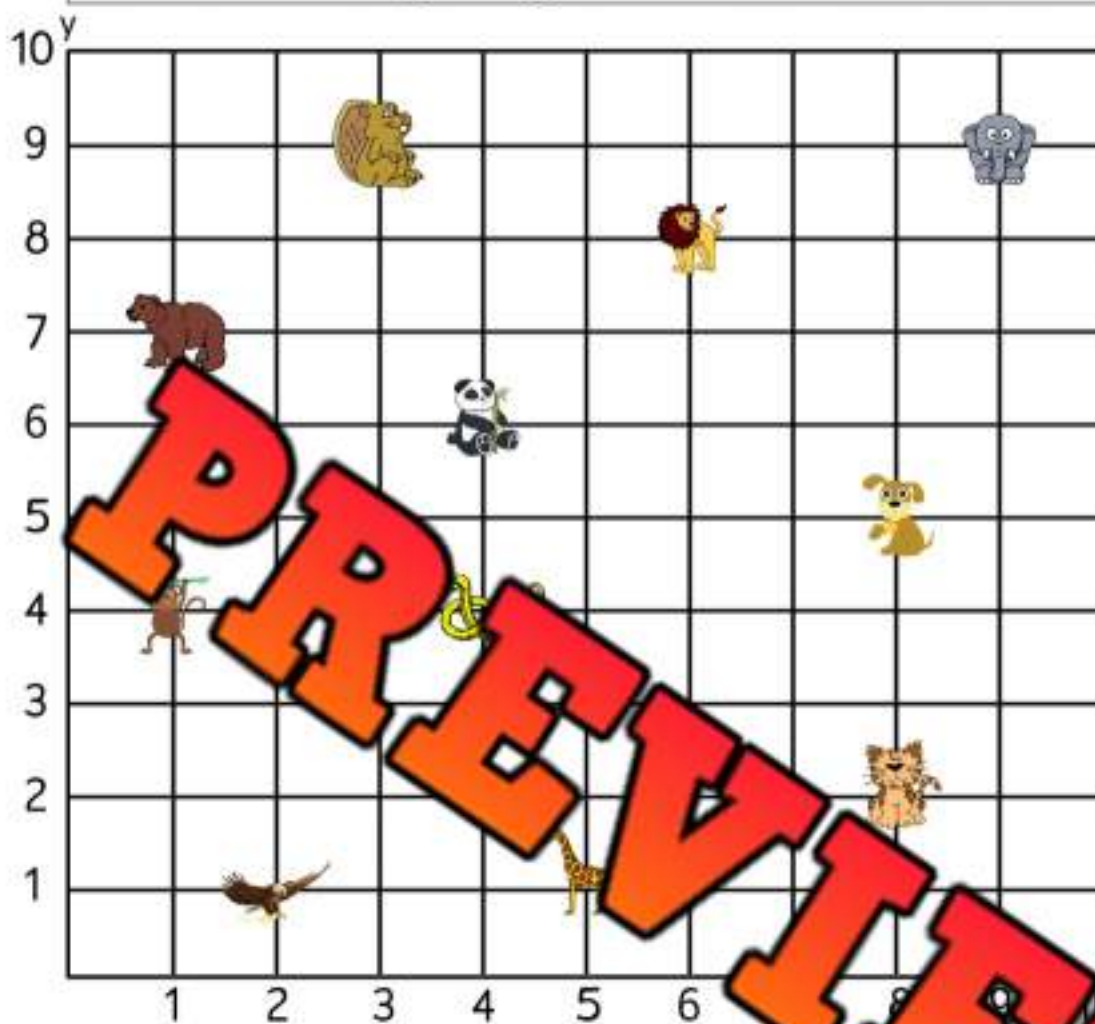
Using A Coordinate Grid - Challenge**Questions**

Write the letters on the grid according to the coordinates

Letter	Coordinates (x, y)
A	(25, 55)
B	(65, 25)
C	(35, 80)
D	(15, 30)
E	(80, 30)

Letter	Coordinates (x, y)
F	(85, 45)
G	(65, 65)
H	(95, 10)
J	(40, 85)
K	(90, 65)

Translating Objects on a Coordinate Grid



Questions

Explain the directions to get from the first symbol to the second

Symbols	Directions
 → 	Go right 1 and down 5
 → 	
 → 	
 → 	
 → 	
 → 	



Google Slides Lessons Preview





Manitoba Math Curriculum Number Unit – Grade 6

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!

Learning Goal

We are learning to identify the place value of digits in whole numbers so we can read, write, and understand large numbers accurately.

Why Are We Learning This?

Imagine you're saving up for a new bike that costs \$1489. If you don't understand place value, you might think it's only \$148 and show up at the store with way too little money! Knowing place value helps you understand big numbers, so you can save, spend, and count your money like a pro!

Place Value - How Many...

#	Number	# of Millions	# of Thousands	# of Hundreds	# of Tens	# of Ones
1.	657 529					
2.	2 443 469					
3.	3 809 362					
4.	8 128 758					
5.	7 541 846					
6.	10 000 000					

Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

Solve...

My number has 9 hundred thousands, 7 ten thousands, 8 thousands, 5 less hundreds than thousands, 2 ones, and 3 more tens than ones. What is my number?

Drag the base ten blocks below

Write the Number:



Manitoba Math Curriculum

Number Unit – Grade 6

Place Value - Matching

Draw a line from the base ten blocks to the number they represent.

12 074

11 169

9 433

16 210

3) 6 136 786

4) 7 892 005

5) 8 920 567

6) 9 459 378

Number Breakdown

3 784 217

M	HTh	TTh	Th	H	T	O

1) 3 784 217 = _____

2) 3 784 217 = _____

3) 3 784 217 = _____

Fill in the blanks by writing the expanded form below:

_____ + _____ + _____ + _____ + _____ + _____ + _____

Fill in the pattern below:

3 784 217 , _____ , 3 814 217 , _____ , 3 834 217

Fill in the pattern below:

3 784 217 , 3 984 217 , _____ , _____ , 4 284 217

Place Value Chart:

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones



Manitoba Math Curriculum Number Unit – Grade 6

Comparing Numbers

Drag the correct sign between the numbers.



#	Number 1	Sign	Number 2
1	112 713		112 726
2	326 132		426 118
3	3 435 324		3 332 617
4	4 543 882		4 543 882
5	2 048 354		2 048 314
6	3 510 893		3 510 893

#	Number 1	Sign	Number 2
7	551 632		552 610
8	3 761 844		3 762 745
9	5 467 315		5 467 315
10	7 872 991		7 872 543
11	886 475		886 692
12	9 193 721		9 193 463

Drag the blocks into the respective boxes to show the factor.

Factor blocks and target numbers:

Target numbers: 8, 17, 18, 49, 45, 17, 24

Factor blocks (rows):

- Row 1: 12, 1, 49, 1
- Row 2: 4, 9, 2, 1
- Row 3: 3, 9, 7, 6
- Row 4: 6, 4, 3, 4
- Row 5: 8, 5, 18, 1
- Row 6: 24, 15
- Row 7: 1, 2, 1, 2
- Row 8: 5, 45, 9, 8

cupcakes for \$32

- b) 12 cupcakes for \$24
- c) 10 cupcakes for \$22
- d) 8 cupcakes for \$20



3) 15 litres of milk from 3 cows

- a) 21 litres from 5 cows
- b) 30 litres from 6 cows
- c) 42 litres from 7 cows
- d) 40 litres from 8 cows



4) 6 pages in 2 minutes

- a) 18 pages in 6 minutes
- b) 24 pages in 8 minutes
- c) 50 pages in 10 minutes
- d) 28 pages in 12 minutes



4) 8 km in 32 minutes

- a) 16 km in 56 minutes
- b) 20 km in 60 minutes
- c) 24 km in 96 minutes
- d) 28 km in 80 minutes





Workbook Preview



Grade 6

Strand: Number

	Curriculum Expectations	Pages That Cover the Expectations
N.1	Demonstrate an understanding of place value, including numbers that are: • greater than one million • less than one thousandth.	5 – 20, 69 – 79, 89 – 90, 109 – 118
N.2	Solve problems involving large numbers, using technology.	21 – 25
N.3	Demonstrate an understanding of factors and multiples by: • determining multiples and factors of numbers less than 100	26 – 30
N.4		31 – 35
N.5		36 – 40
N.6	Demonstrate an understanding of percent (limited to whole numbers), concretely, pictorially and symbolically.	80 – 88, 109 – 118
N.7	Demonstrate an understanding of integers, concretely, pictorially and symbolically.	91 – 118
N.8	Demonstrate an understanding of multiplication and division of decimals (involving 1-digit whole-number multipliers, 1-digit natural number divisors, and multipliers and divisors that are multiples of 10), concretely, pictorially, and symbolically, by • using personal strategies • using the standard algorithms • using estimation • solving problems	121 – 173
N.9	Explain and apply the order of operations, excluding exponents (limited to whole numbers).	174 – 181

Preview of 100 pages from
this product that contains
345 pages total.

Name: _____

6

Curriculum Connection
N.1

Place Value – How Many ...

Number	# of Millions	# of Thousands	# of Hundreds	# of Tens	# of Ones
3 322 457	3	322	4	5	7

Part 1

Fill in the table below

	Number	# of Millions	# of Thousands	# of Hundreds	# of Tens	# of Ones
1	2 000 000					
2	8 000 020					
3	7 584 251					
4	1 945 328					
5	3 854 198					
6	2 050 187					
7	8 756 054					
8	7 681 362					
9	4 685 114					
10	6 820 047					

Part 2

Fill in the blanks with the missing number

- 1) $4\,624\,323 = 4\,000\,000 + 600\,000 + 20\,000 + \underline{\hspace{2cm}} + 300 + 20 + 3$
- 2) $3\,641\,781 = \underline{\hspace{2cm}} + 600\,000 + \underline{\hspace{2cm}} + 1\,000 + 700 + 80 + 1$
- 3) $2\,379\,458 = \underline{\hspace{2cm}} + 300\,000 + \underline{\hspace{2cm}} + 9\,000 + 400 + 50 + 8$
- 4) $6\,217\,523 = 6\,000\,000 + 200\,000 + 10\,000 + \underline{\hspace{2cm}} + 500 + \underline{\hspace{2cm}} + 3$
- 5) $8\,602\,489 = \underline{\hspace{2cm}} + 600\,000 + 0 + 2\,000 + \underline{\hspace{2cm}} + 80 + 9$

Name: _____

8

Curriculum Connection
N.1

Expanded Form

2 328 372

Standard Form

2 000 000 + 300 000 + 20 000 + 8 000 + 300 + 70 + 2

Expanded Form

Part 1

What is the standard form of the numbers below?

1) 7 000 000 + 30 000 + 1 000 + 400 + 80 + 2

2) 2 000 000 + 700 000 + 6 000 + 300 + 70 + 6

3) 8 000 000 + 50 000 + 400 + 80 + 9

4) 4 000 000 + 300 000 + 1 000 + 70 + 5

5) 6 000 000 + 400 000 + 10 000 + 3 000 + 1

Part 2

What is the expanded form of the numbers below?

1) 5 262 847

2) 2 465 447

3) 9 758 682

4) 7 158 318

5) 9 427 207

Exit Cards

Cut Out

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

Name: _____

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

$3000000 + 700000 + 60000 + 1000 + 200 + 40 + 1$

b) What is the expanded form of the number below?

7 591 349

Name: _____

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

$3000000 + 700000 + 60000 + 1000 + 200 + 40 + 1$

b) What is the expanded form of the number below?

7 591 349

Name: _____

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

$3000000 + 700000 + 60000 + 1000 + 200 + 40 + 1$

b) What is the expanded form of the number below?

7 591 349

Name: _____

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

$3000000 + 700000 + 60000 + 1000 + 200 + 40 + 1$

b) What is the expanded form of the number below?

7 591 349

Written Form

1 - One	5 - Five	9 - Nine	13 - Thirteen	17 - Seventeen	30 - Thirty	70 - Seventy
2 - Two	6 - Six	10 - Ten	14 - Fourteen	18 - Eighteen	40 - Forty	80 - Eighty
3 - Three	7 - Seven	11 - Eleven	15 - Fifteen	19 - Nineteen	50 - Fifty	90 - Ninety
4 - Four	8 - Eight	12 - Twelve	16 - Sixteen	20 - Twenty	60 - Sixty	100 - Hundred
						1000 - Thousand
						1000000 - Million

Part 1 Write the standard form of the written words below

1) One hundred thirty-two thousand, five hundred fifty-eight	2) Five million, seven hundred sixty-three thousand, three hundred twelve
3) Two million, four hundred seventy-two thousand, nine hundred	4) Nine million, eight hundred thirty-two thousand, one hundred thirty-nine
5) Seven million, five hundred eighty-four thousand, one hundred ninety-nine	6) Six million, three hundred twelve thousand, one hundred sixty-two

Part 2 Write the written form of the number

1) 1 345 142
2) 4 527 351
3) 6 512 257
4) 2 464 495
5) 7 450 246

Standard Form

Words

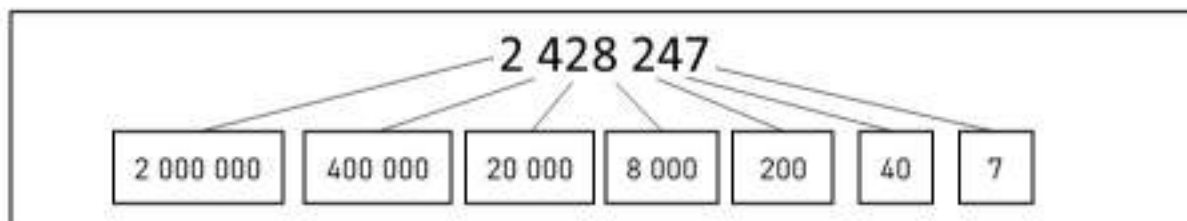
Expanded Form

Place Value Chart

Millions	H. Thousands	T. Thousands	Thousands	Hundreds	Tens	Ones

Pictures

Decomposing Numbers



Questions

Decompose the numbers below

1)

2 8

2)

3 247 521

3)

4 734 419

4 138 243

5)

6 821 757

6)

95

7)

8 947 446

8)

6 325 891

9)

9 743 589

10)

3 294 215

Exit Cards

Cut Out

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

Name: _____

- 1) Compose the numbers below.

6000 30000 5000 100 50 6

- 2) Decompose the numbers below.

232

Name: _____

- 1) Compose the numbers below.

600000 30000 5000 100 50 6

- 2) Decompose the numbers below.

232 857

Name: _____

- 1) Compose the numbers below.

600000 30000 5000 100 50 6

- 2) Decompose the numbers below.

232 857

Name: _____

- 1) Compose the numbers below.

600000 30000 5000 100 50 6

- 2) Decompose the numbers below.

232 857

Place Value - Number Breakdown

Questions

Fill in the blanks below

Number Breakdown

3 846 853

Write the value of the underlined digit

1) 3 8 46 853 = _____

2) 3 8 4 6 853 = _____

3) 3 84 6 853 = _____

4) 3 846 8 53 = _____

M	H	Th	H	T	O

Fill in the blanks using the expanded form below

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

Fill in the pattern below

$$\underline{3\ 846\ 853} + \underline{\hspace{2cm}} + \underline{3\ 846\ 855} + \underline{\hspace{2cm}} + \underline{3\ 846\ 858}$$

Fill in the pattern below

$$\underline{3\ 846\ 853} + \underline{3\ 856\ 853} + \underline{\hspace{2cm}} + \underline{3\ 876\ 853} + \underline{\hspace{2cm}}$$

Fill in the pattern below

$$\underline{3\ 846\ 853}, \underline{4\ 846\ 853}, \underline{\hspace{2cm}}, \underline{\hspace{2cm}}, \underline{7\ 846\ 853}, \underline{\hspace{2cm}}$$

Compare using <, >, or =

3 846 853 3 846 795

3 825 455 3 846 853

3 846 853 3 837 246

3 836 457 3 846 853

3 846 853 3 846 482

3 846 853	+ 1000	
3 846 853	+ 10 000	
3 846 853	+ 1 000 000	
3 846 853	- 100 000	
3 846 853	- 1 000 000	

Comparing Numbers

1 626 335  1 923 6153 834 351  3 236 2896 132 683  6 132 683

Part 1

Compare the following numbers

1)
2 663 180  2 663 0102)
3 263 447 3 313 3503)
5 631 203 5 631 2944)
1 135 437 1 135 4375)
4 742 753 4 742 7536)
7 362 149 7 365 0007)
4 532 842 5 532 3128)
3 834 351 3 834 3519)
2 544 879 1 544 87910)
6 235 441 6 237 39111)
8 923 383 8 923 38312)
6 274 371 6 274 371

Part 2

Write - Greater than, Equal to, Less than

1)
4 173 365 is ___ 4 141 537

Greater than

2)
2 162 116 is ___ 2 162 116

Equal to

3)
3 438 406 is ___ 3 453 293

Less than

4)
7 154 361 is ___ 7 154 361

Equal to

5)
7 874 335 is ___ 7 843 432

Less than

6)
4 335 114 is ___ 4 345 115

Less than

Comparing Numbers

3 218 625, 4 335 251, 3 118 323, 3 734 482

Least to Greatest

3 118 323, 3 218 625, 3 734 482, 4 335 251

3 245 871, 3 189 784, 4 324 845, 2 189 218

Greatest to Least

4 324 845, 3 245 871, 3 189 784, 2 189 218

Part 1 Order the numbers below from least to greatest

4 175, 1 148 982, 1 151 658

2 694 152, 2 451 874

4 945 254, 3 955 452, 3 775 775

Part 2 Order the numbers below from greatest to least

5 314 854, 5 341 785, 5 341 235, 5 314 824

7 264 872, 7 298 412, 7 299 452, 6 278 258

8 581 775, 8 538 785, 7 581 655, 8 538 999

Name: _____

26

Place Value Quiz

Part 1

Fill in the place value charts below

1) 1 363 635

2) 3 352 399

M	H Th	T Th	Th	H	T	O

M	H Th	T Th	Th	H	T	O

Part 2

What place value is the underlined number?

1) 2 132 <u>5</u> 16	2) <u>4</u> 2 668	3) <u>4</u> 342 658
4) 3 <u>5</u> 14 248	5) 42 <u>4</u> 2	6) 4 762 1 <u>3</u> 4

Part 3

Fill in the table below

	Number	# of Millions	# of Thousands	# of Hundreds	# of Tens	# of Ones
1	3 194 325					
2	6 418 474					
3	9 873 126					

Part 4

What is the standard form of the numbers below?

1) 4 000 000 + 300 000 + 20 000 + 7 000 + 100 + 40 + 7	
2) 8 000 000 + 900 000 + 80 000 + 4 000 + 500 + 30 + 8	

Part 5

What is the expanded form of the numbers below?

1) 3 372 285

2) 7 512 383

3) 8 784 178

Part 6

Write the standard form of the written words below

1) Four million, three hundred seventy-six thousand, two hundred eighty-four

2) Nine million, seven hundred eighty-nine thousand, two hundred seventy-four

Part 7

Write the written form of the numbers below

1) 2 337 284

2) 5 716 517

3) 8 347 628

Part 8

Solve the riddles

Amanda's number has:

- 2 ones
- Double the number of hundreds than ones
- Half as many thousands as ones
- 3 less hundred thousands than hundreds
- 6 millions
- Half as many ten thousands than millions
- The same number of tens than hundred thousands

Answer

Introduction to Factors

Instructions

List all of the factors for the numbers below

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

2) _____, _____

3) 21 _____, _____

4) 16 _____, _____, _____

5) 43 _____, _____

6) 29 _____, _____

7) 6 _____, _____, _____, _____

8) 10 _____, _____, _____, _____

9) 15 _____, _____, _____, _____

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

PREVIEW



Name: _____

29

Curriculum Connection
N.3

Find The Factors

**Instructions**

Circle all the factors of the number listed

1) 10

8 2 9 4
3 10 5

2) 8

8 2 6 4
3 1 7 5

3) 47

23 22 25
3 47 2

4) 18

1 9 6 4
8 2 3 18

5) 22

22 2 7 3
11 1 10 6

6) 25

2 2 25
13 4

7) 24

8 2 4 6
3 1 24 12

8) 58

2 30 2 3
6 1 29 58

9) 86

2 44 1 52
43 3 86 8

10) 63

3 21 2 63
9 1 15 7

Prime or Composite Number?

Instructions

1) Write the factors 2) Is the number a prime or composite number?

1) 27

Factors: _____

Prime or Composite

2) 12

Factors: _____

Prime or Composite

3) 7

Factors: _____

Prime or Composite

4) 17

Factors: _____

Prime or Composite

5) 28

Factors: _____

Prime or Composite

6) 41

Factors: _____

Prime or Composite

7) 33

Factors: _____

Prime or Composite

8) 35

Factors: _____

Prime or Composite

9) 73

Factors: _____

Prime or Composite

10) 81

Factors: _____

Prime or Composite

Finding Prime and Composite Numbers

Part 1

Follow the directions below



1) Circle the prime numbers below

11 15 7 18 3 5
12 19 33 49 52 45
67 90 81 74

2) Circle the composite numbers below

6 12 20 13 19 25
50 43 41 46 55 21
47 54 62 63

Part 2

Write the numbers from the pair under their respective category

	Pairs of Numbers	Prime	Composite
1)	22, 5		
2)	12, 17		
3)	23, 25		
4)	41, 49		
5)	59, 52		
6)	67, 16		
7)	73, 81		
8)	89, 95		

Prime vs Composite Numbers

Instructions

Colour prime numbers one colour and composite numbers a different colour



Type of Number	Colour
Composite Number	
Prime Number	

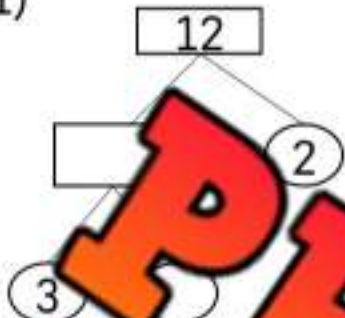


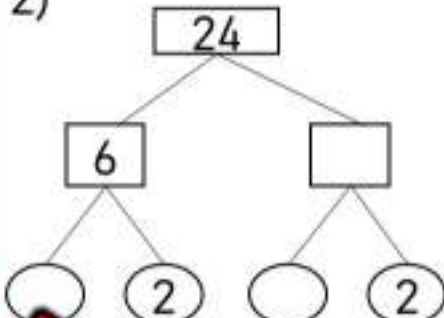
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

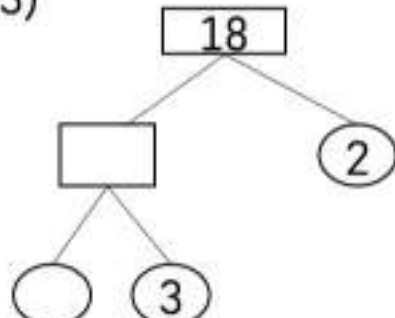
Prime Factor Trees

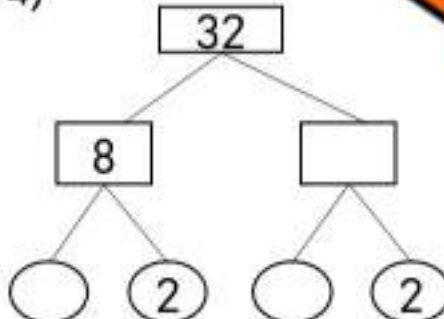
Instructions

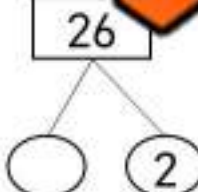
Fill in the factor trees below

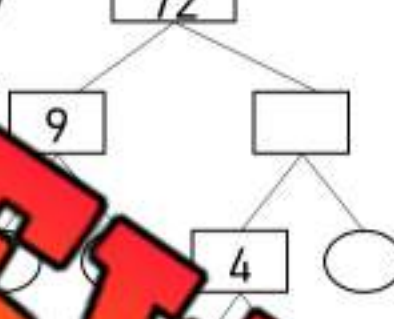
1) 

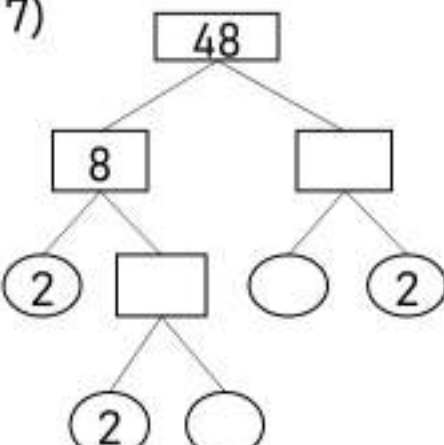
2) 

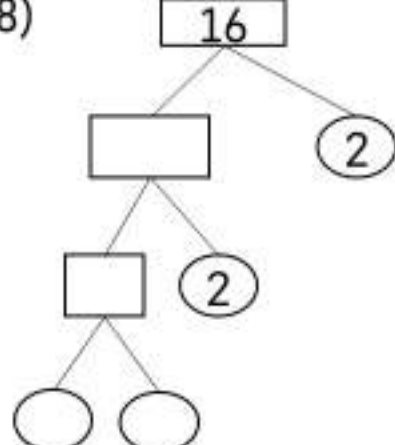
3) 

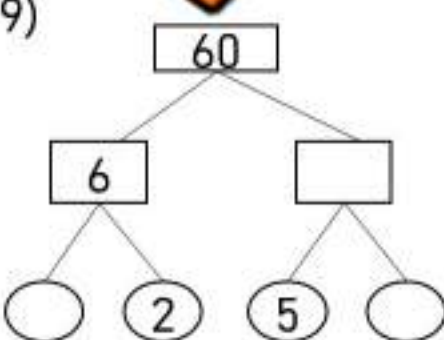
4) 

5) 

6) 

7) 

8) 

9) 

Prime Factor Trees

Instructions

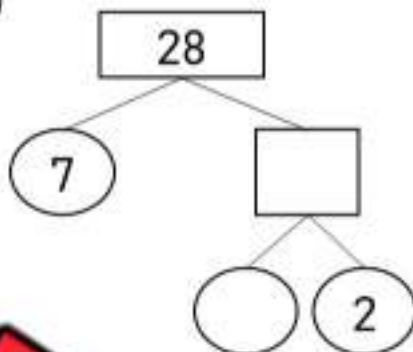
Fill in the factor trees below

1)

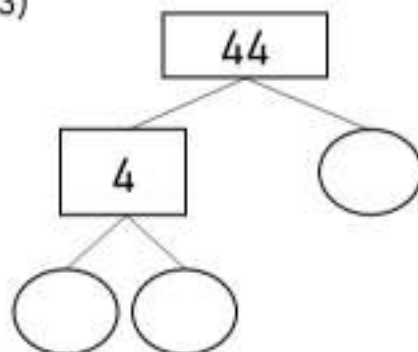


15 = $\times$  $\times$

2)

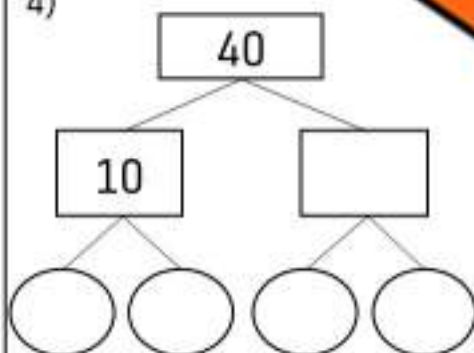


3)

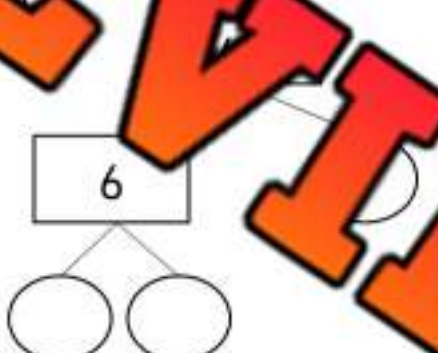


44 = x x

4)

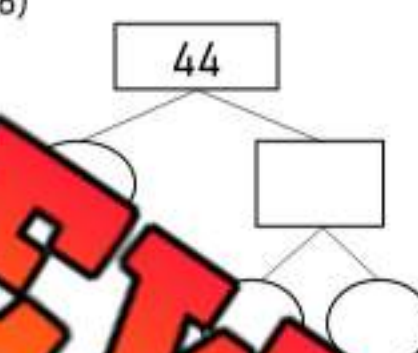


$$40 = \underline{\quad} \times \underline{\quad} \times \underline{\quad}$$



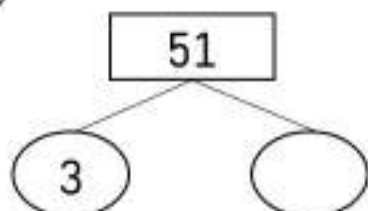
$$49 = \quad \times \quad \times$$

6)



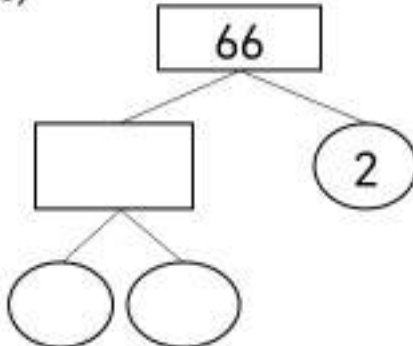
44

7)



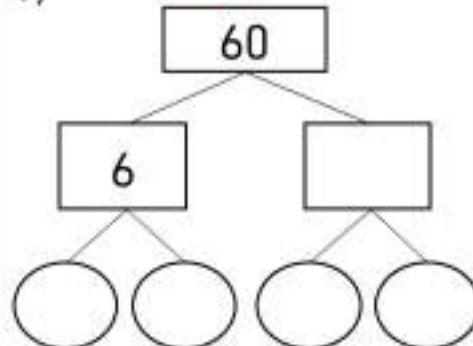
$$51 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$$

8)



$$66 = \underline{\quad} \times \underline{\quad} \times \underline{\quad}$$

9)



$$60 = \underline{\quad} \times \underline{\quad} \times \underline{\quad} \times \underline{\quad}$$

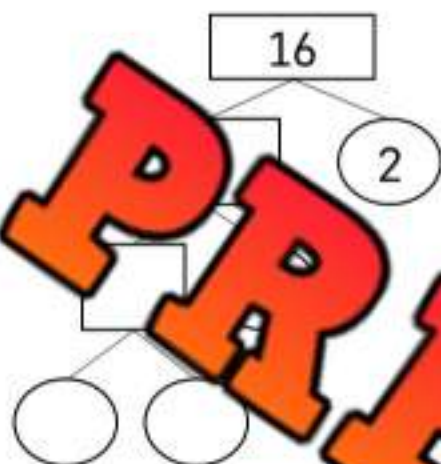
Prime Factor Trees

Instructions

Fill in the factor trees differently for the same number

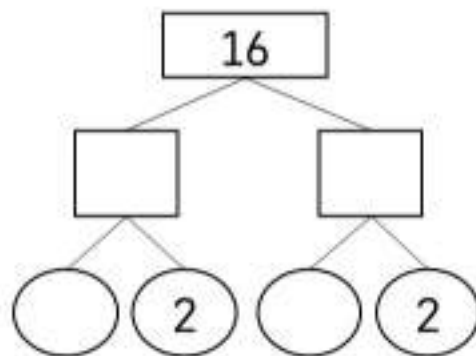


1)



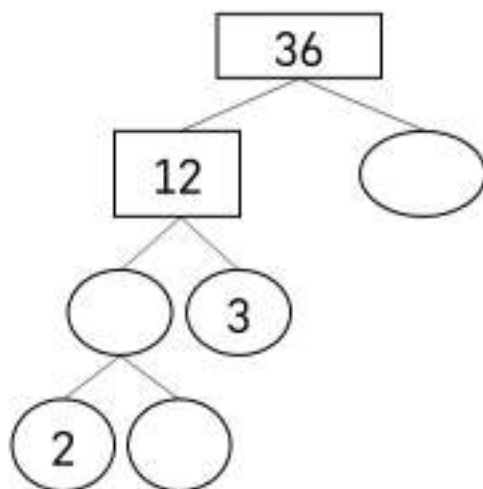
Equation

2)



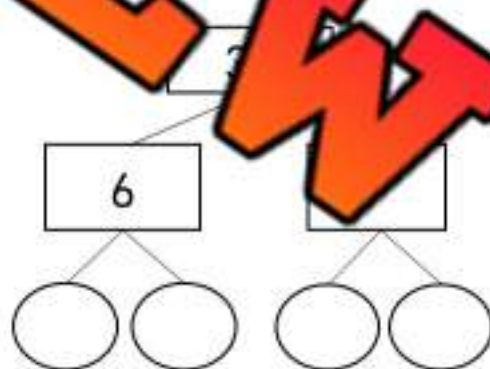
Equation

3)



Equation

4)



Equation

Name: _____

39

Curriculum Connection
N.3

Prime Factor Trees

Instructions

Draw your own factor trees below



1)

42

2)

16

3)

78

68

5)

50

6)

72

PREVIEW

Exit Cards

Cut Out

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

Name: _____

Draw your own factor trees below.

84

Name: _____

Draw your own factor trees below.

84

Name: _____

Draw your own factor trees below.

84

Name: _____

Draw your own factor trees below.

84

Mixed Numbers

A **mixed fraction** displays a whole number and a fraction to represent a value.
For example, if you have 2 full pizzas and $\frac{2}{4}$ of a pizza, the mixed fraction would be: $2\frac{2}{4}$



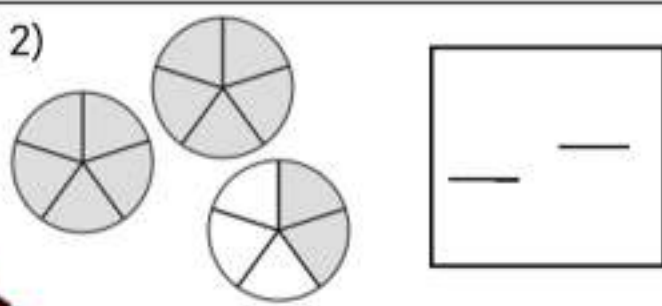
Questions

Write the fraction beside the visual fractions

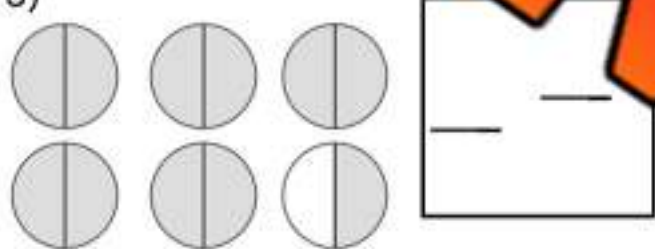
1)



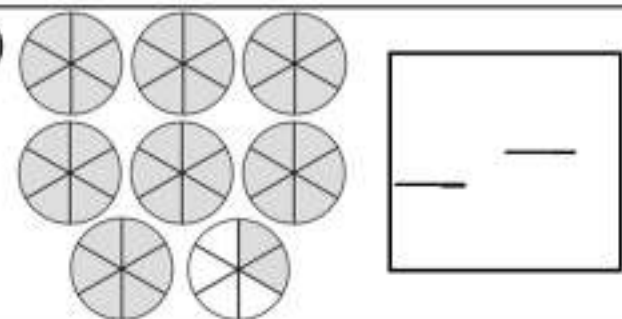
2)



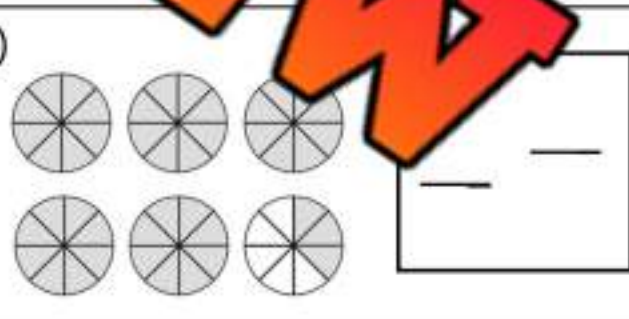
3)



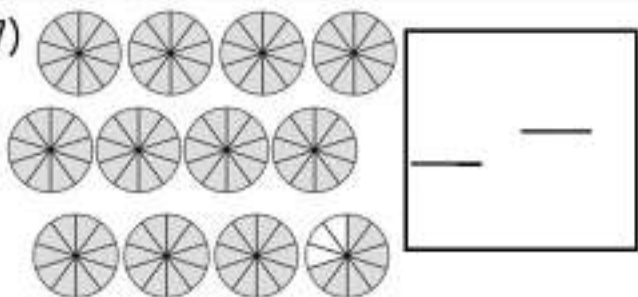
5)



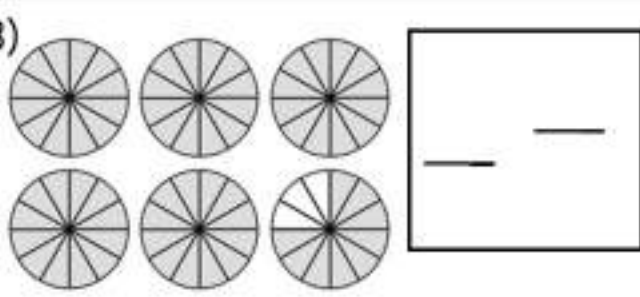
6)



7)



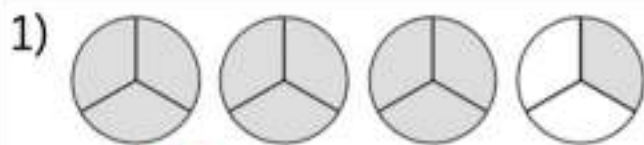
8)



Improper Fractions

Instructions

Convert the mixed numbers into improper fractions



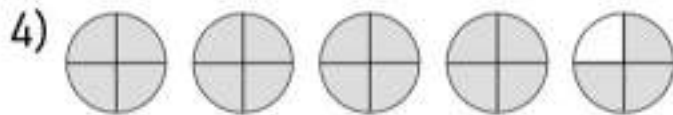
$$1 \frac{2}{3} = \underline{\hspace{2cm}}$$



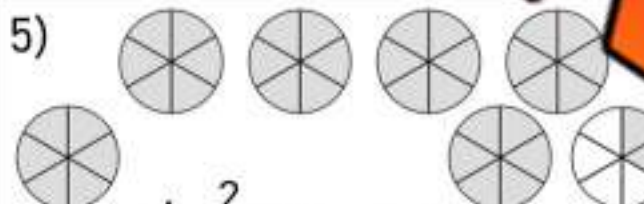
$$2 \frac{2}{5} = \underline{\hspace{2cm}}$$



$$4 \frac{1}{2} = \underline{\hspace{2cm}}$$



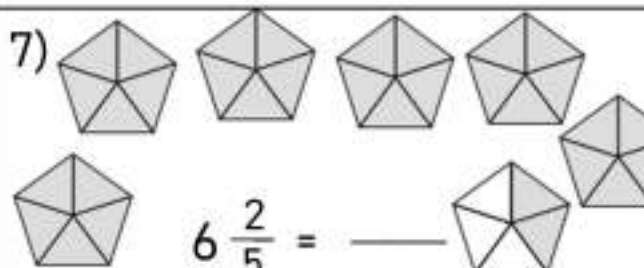
$$4 \frac{3}{4} = \underline{\hspace{2cm}}$$



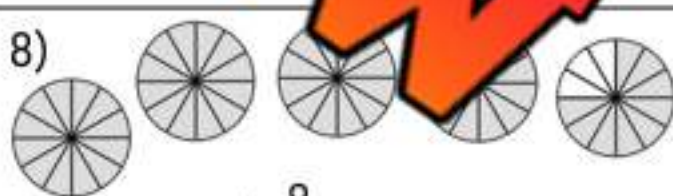
$$6 \frac{2}{6} = \underline{\hspace{2cm}}$$



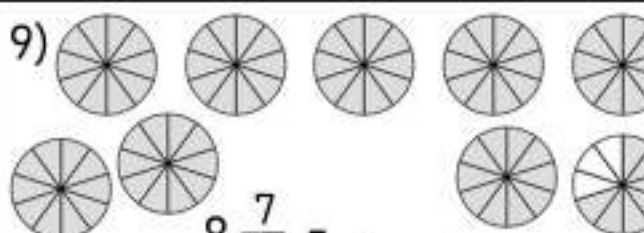
$$7 \frac{3}{8} = \underline{\hspace{2cm}}$$



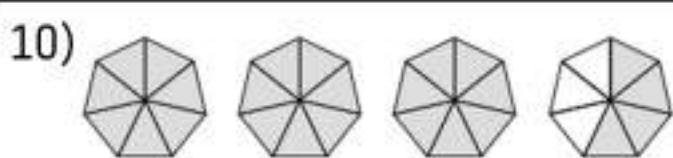
$$6 \frac{2}{5} = \underline{\hspace{2cm}}$$



$$4 \frac{9}{12} = \underline{\hspace{2cm}}$$



$$8 \frac{7}{10} = \underline{\hspace{2cm}}$$



$$3 \frac{4}{8} = \underline{\hspace{2cm}}$$

Mixed Numbers and Improper Fractions

Instructions

Shade in the fractions and write the mixed number

1)



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

2)



$$\frac{9}{2} =$$

3)



$$\frac{6}{4} =$$

4)



$$\frac{14}{4} =$$

5)



$$\frac{17}{5} =$$

6)



$$\frac{11}{6} =$$

7)



$$\frac{13}{3} =$$

8)



$$\frac{15}{4} =$$

9)



$$\frac{8}{3} =$$

10)



$$\frac{19}{6} =$$

Matching The Mixed Numbers With Improper Fractions

Instructions

Match the visual fractions with the improper fractions and mixed numbers

Visual Fractions	Mixed Numbers and Improper Fractions
1) _____ 	a) $5\frac{3}{4}$
2) _____ 	b) $\frac{18}{5}$
3) _____ 	c) $\frac{10}{3}$
4) _____ 	d) $4\frac{1}{5}$
5) _____ 	e) $6\frac{2}{4}$
6) _____ 	f) $\frac{21}{9}$
7) _____ 	g) $3\frac{4}{7}$
8) _____ 	h) $\frac{22}{4}$
9) _____ 	i) $5\frac{4}{5}$
10) _____ 	j) $\frac{23}{5}$

Converting Mixed Numbers to Improper Fractions**Instructions**

Convert the mixed numbers to improper fractions

1) $5\frac{3}{4} =$

2) $4\frac{1}{5} =$

3) $5\frac{4}{5} =$

4) $5\frac{1}{2} =$

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

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

7) $4\frac{2}{4} =$

8) $5\frac{1}{2} =$

9) $2\frac{3}{7} =$

10) $5\frac{2}{3} =$

11) $3\frac{4}{8} =$

12) $2\frac{2}{4} =$

13) $4\frac{1}{5} =$

14) $2\frac{2}{7} =$

15) $4\frac{1}{4} =$

16) $7\frac{1}{2} =$

17) $6\frac{2}{4} =$

18) $8\frac{3}{4} =$

19) $4\frac{1}{2} =$

20) $3\frac{4}{5} =$

21) $5\frac{4}{5} =$

Exit Cards

Cut Out

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

Name: _____

Convert the improper fractions to mixed numbers.

1)

2)

$$\frac{41}{10} =$$

3)

$$\frac{50}{9} =$$

3)

Name: _____

Convert the improper fractions to mixed numbers.

1)

$$\frac{34}{9} =$$

2)

$$\frac{41}{10} =$$

3)

$$\frac{50}{9} =$$

Name: _____

Convert the improper fractions to mixed numbers.

1)

$$\frac{34}{9} =$$

2)

$$\frac{41}{10} =$$

3)

$$\frac{50}{9} =$$

3)

Name: _____

Convert the improper fractions to mixed numbers.

1)

$$\frac{34}{9} =$$

2)

$$\frac{41}{10} =$$

3)

$$\frac{50}{9} =$$

Ordering Mixed Numbers

Instructions

Put the mixed numbers in order from least to greatest

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

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

3) $2\frac{2}{7}$ $2\frac{3}{8}$ $4\frac{3}{4}$ $4\frac{1}{4}$

4) $8\frac{2}{6}$ $1\frac{3}{4}$ $3\frac{3}{4}$ $8\frac{3}{6}$

5) $6\frac{2}{5}$ $6\frac{1}{5}$ $3\frac{3}{9}$ $3\frac{2}{9}$

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

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

8) $8\frac{4}{6}$ $3\frac{1}{4}$ $3\frac{2}{4}$ $8\frac{3}{6}$ $1\frac{3}{4}$

Ratio

A **ratio** shows the relationship between two amounts.

Example



The ratio of apples to bananas is 1:7. For every apple you have, you have 7 bananas.

Questions

Write the ratios for the questions below



The ratio of cookies to cupcakes is _____ : _____



The ratio of tomato to onion is _____



The ratio of pizza to drink is _____ : _____



The ratio of burger to fries is _____ : _____



The ratio of pineapple to strawberries is _____ : _____



The ratio of bread to jam is _____ : _____

Equivalent Ratios – Scaling Up and Down

A **ratio** shows the relationship between two amounts.

Example  

The ratio of cars to bikes is 2:8. There are four times as many bikes as cars. You could also say there are four times less cars than bikes. We can scale down the ratio and say the ratio of cars to bikes is 1:4. We can also scale up by saying the ratio of cars to bikes is 4:16. These are equivalent ratios.

Instruction: Write the ratio of the images. Then write a scaled up and down equivalent ratio

 	Scaled Up	Scaled Down
The ratio of skates to pucks is: _____		
 	Scaled Up	Scaled Down
The ratio of laptops to televisions is: _____		
 	Scaled Up	Scaled Down
The ratio of erasers to pencils is: _____		
 	Scaled Up	Scaled Down
The ratio of juice to chips is: _____		
 	Scaled Up	Scaled Down
The ratio of basketballs to soccer balls is: _____		

Equivalent Ratios – Scaling Up and Down

Instructions

Circle two equivalent ratios for each of the questions below

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

Memory Game: Matching Equivalent Ratios

Objective

What are we learning about?

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

Materials

What you will need for the activity.

- Memory game cards. Each card will have a different ratio. It can be matched to another equivalent ratio.
- A small table or clear floor space.



Instructions

How you will complete the activity.

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

Name: _____

58

Curriculum Connection
N5

Cards

Memory Game Cards

72:108

6:9

80:100

4:5

75:100

2:4

90:100

9:10

70:100

7:10

PREVIEW

Name: _____

59

Curriculum Connection
N5

Cards

Memory Game Cards

45:90

5:10

PREVIEW

48:96

6:12

54:108

9:18

60:90

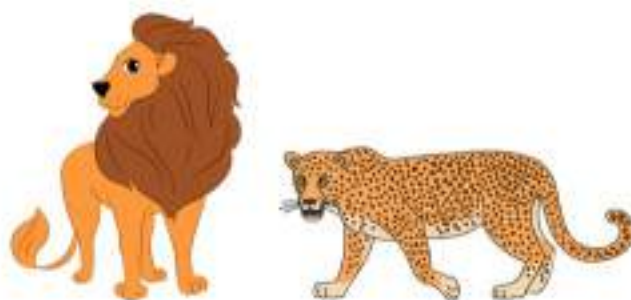
4:6

Ratios Word Problems – At The Zoo

Questions

1) Draw pictures 2) Use a solution statement 3) show your thinking

1) At the zoo, the ratio of lions to leopards is 4:1. There are 6 leopards. How many lions are there?



2) At the zoo, the ratio of goats to eagles is 3:1. There are 4 eagles. How many goats are there?



3) At the zoo, the ratio of alligators to crocodiles must be 3:7. There are 9 alligators and 25 crocodiles. How many crocodiles do they need to release?



b) How many alligators could they have gotten if they didn't want to give any crocodiles away?



Rates

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

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

Questions

Write the rates for the questions below

1) 8 dollars for 4 burgers

Rate =



Unit Rate = 4 dollars per burger

2) 5 dollars for 10 pencils

Rate =

Unit Rate = _____

3) 10 dollars for 10 batteries

Rate =

Unit Rate = _____

4) 6 dollars for 3 coffees



Unit Rate = _____

5) 6 dollars for 12 chocolate bars

Rate =



Unit Rate = _____

6) _____ of _____

Rate =

Unit Rate = _____

7) Driving 600km in 4 hours

Rate =

Unit Rate = _____

8) Running 15km in 3 hours

Rate =

Unit Rate = _____



9) 300km on 20 litres of gas

Rate =



Unit Rate = _____

10) Growing 52cm every 4 years

Rate =

Unit Rate = _____

Equivalent Rates

Multiple Choice

Circle the equivalent rates below

1) 3 burgers per person

- a) 4 burgers for 10 people
- b) 8 burgers for 12 people
- c) 15 burgers for 5 people
- d) 6 burgers for 10 people



2) 5 pencils per 5 people

- a) 5 pencils for 8 people
- b) 8 pencils for 8 people
- c) 6 pencils for 12 people
- d) 10 pencils for 15 people



3) \$1 per person

- a) \$30 for 5 people
- b) \$25 for 3 people
- c) \$20 for 2 people
- d) \$50 for 10 people

4) 30 minutes per show

- a) 40 minutes for 3 shows
- b) 90 minutes for 3 shows
- c) 60 minutes for 3 shows
- d) 120 minutes for 2 shows

5) 3 games per day

- a) 12 games in 3 days
- b) 15 games in 5 days
- c) 10 games in 2 days
- d) 6 games in 3 days



6) 4 ice cubes per drink

- a) 12 ice cubes for 2 drinks
- b) 8 ice cubes for 2 drinks
- c) 16 ice cubes for 5 drinks
- d) 6 ice cubes for 3 drinks



7) 8 minutes per book

- a) 30 minutes for 3 books
- b) 50 minutes for 4 books
- c) 20 minutes for 3 books
- d) 32 minutes for 4 books

8) 2 pillows per person

- a) 4 pillows for 4 people
- b) 8 pillows for 8 people
- c) 16 pillows for 8 people
- d) 20 pillows for 5 people

9) 7 basketballs per team

- a) 21 basketballs for 3 teams
- b) 25 basketballs for 5 teams
- c) 10 basketballs for 3 teams
- d) 16 basketballs for 2 teams



10) 5 snacks per student

- a) 9 snacks for 3 students
- b) 13 snacks for 3 students
- c) 25 snacks for 5 students
- d) 16 snacks for 4 students



Factors, Fractions, and Ratios Quiz

Part 1

Follow the directions below

1) Circle the prime numbers below

90	55	49	18	81	5
74	19	33	7	52	45
15	59	67	11	3	13

2) Circle the composite numbers below

54	13	62	75
48	51	55	21
12	25	51	43

Part 2

List all of the factors for each number below

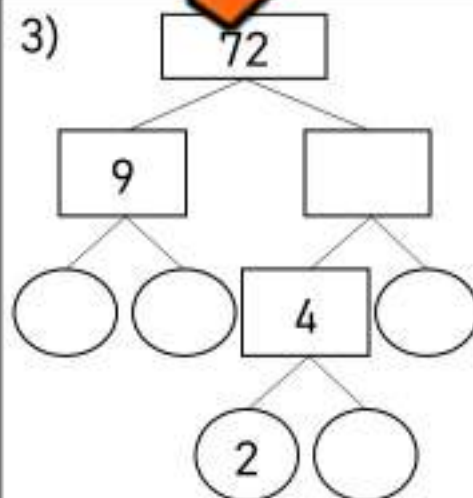
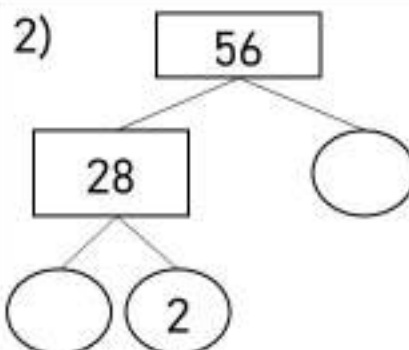
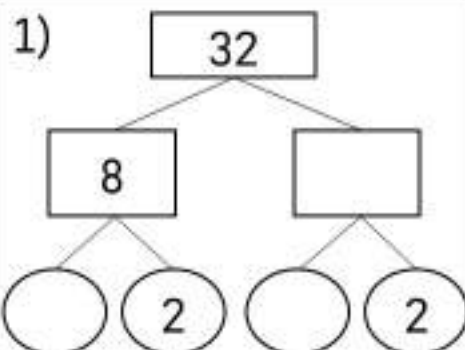
1) 12 _____, _____, _____, _____

2) 25 _____, _____, _____

3) 21 _____, _____, _____

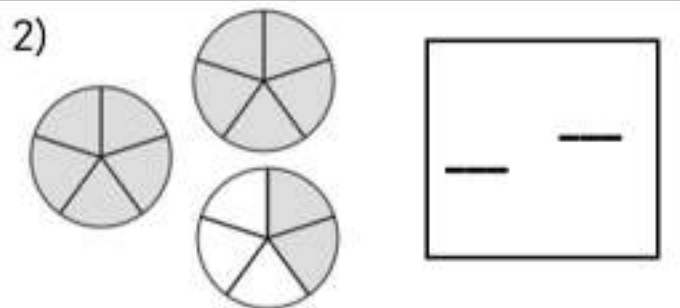
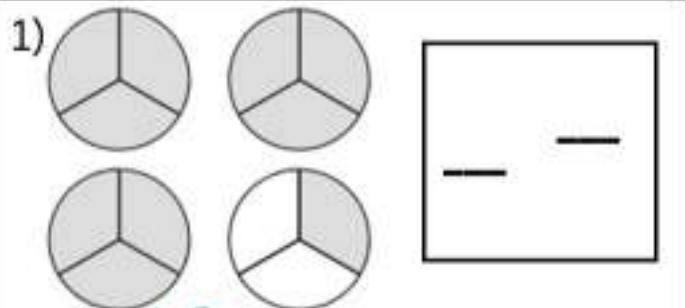
Part 3

Fill in the factor trees below



Part 4

Write the fraction beside the visual fractions



Part 5

Convert the improper fractions to mixed numbers

1) $\frac{13}{5} =$

2) $\frac{17}{4} =$

3) $\frac{11}{3} =$

Part 6

Convert the mixed numbers to improper fractions

1) $5\frac{3}{4} =$

2) $4\frac{1}{5} =$

3) $5\frac{4}{5} =$

Part 7

Put the mixed numbers in order from least to greatest

1) $4\frac{2}{4}$ $2\frac{3}{7}$ $5\frac{3}{5}$ $2\frac{1}{7}$

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

Part 8

Put the improper fractions in order from least to greatest

$\frac{16}{5}$ $\frac{13}{5}$ $\frac{9}{5}$ $\frac{21}{4}$ $\frac{16}{4}$ $\frac{21}{5}$

Part 9

Circle the equivalent rates below

1) 2 burgers per person

- a) 4 burgers for 10 people
- b) 5 burgers for 10 people
- c) 15 burgers for 5 people
- d) 8 burgers for 2 people

2) 12 pencils per 4 people

- a) 4 pencils for 8 people
- b) 8 pencils for 4 people
- c) 4 pencils for 16 people
- d) 15 pencils for 5 people

3) \$15 per person

- a) \$30 for 2 people
- b) \$25 for 5 people
- c) \$20 for 4 people
- d) \$100 for 5 people

4) 20 minutes per show

- a) 40 minutes for 2 shows
- b) 90 minutes for 3 shows
- c) 60 minutes for 2 shows
- d) 80 minutes for 2 shows

5) 5 games per day

- a) 12 games in 3 days
- b) 15 games in 5 days
- c) 15 games in 3 days
- d) 6 games in 2 days

6) 6 ice cubes per 2 drinks

- a) 12 ice cubes for 6 drinks
- b) 3 ice cubes for 2 drinks
- c) 15 ice cubes for 5 drinks
- d) 4 ice cubes for 2 drinks

Part 10

Solve the ratio/rate questions

1) At the zoo, the ratio of lions to leopards is 5:1. There are 10 leopards. How many lions are there?

2) At the zoo, the ratio of eagles to goats is 3:5. There are 6 eagles. How many goats are there?

3) The ratio of red candies to total candies is 4:24. What percentage of candies are red?

Place Value Using Decimals

Decimal numbers are any numbers that represent a value less than one. We use a decimal point to represent that a number can be less than one. We would represent a single cookie with the number 1, but we can still represent a quarter of a cookie by writing 0.25. The 0 is the whole number, while the numbers to the right of the decimal show how large the part of the whole is.

PLACE VALUE

1	4	2	3	7	5
Ones	Ten Thousandths	Thousandths	Ten Thousandths	Hun. Thousandths	Millionths

Part 1

Write the place value for the underlined number?

1) 8.124589	2) 1.23 <u>4</u> 567	3) 2.4217	4) 3.64882
5) 2.4335	6) 4.747823	7) 1.2345678	8) 7.92 <u>6</u>
9) 2.530521	10) 7.754218	11) 1.23456789	12) 9.538142

Part 2

Fill in the place value table for the numbers below.

1) 1.579238

Ones	Decimal	Tenths	Hundredths	Thousandths	Ten Thousandths	Hun. Thousandths	Millionths

2) 2.387219

Ones	Decimal	Tenths	Hundredths	Thousandths	Ten Thousandths	Hun. Thousandths	Millionths

Rounding Decimal Numbers – Nearest Hundredths

Round Down

Round Up

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Rounding to the nearest hundredth

 $0.753 \rightarrow 0.75$ $22.745 \rightarrow 22.75$ **Part 1** Round the decimal number to the nearest hundredth

1) $0.825 \rightarrow$ _____	3) $0.227 \rightarrow$ _____
4) $0.346 \rightarrow$ _____	6) $0.103 \rightarrow$ _____
7) $0.182 \rightarrow$ _____	8) $0.189 \rightarrow$ _____

Part 2 Round the decimal number to the nearest hundredth

1) $2.843 \rightarrow$ _____	2) $2.346 \rightarrow$ _____	3) $5.33 \rightarrow$ _____
4) $4.426 \rightarrow$ _____	5) $3.244 \rightarrow$ _____	6) $7.755 \rightarrow$ _____
7) $13.271 \rightarrow$ _____	8) $15.844 \rightarrow$ _____	9) $19.945 \rightarrow$ _____
10) $25.841 \rightarrow$ _____	11) $34.911 \rightarrow$ _____	12) $23.217 \rightarrow$ _____
13) $41.439 \rightarrow$ _____	14) $52.278 \rightarrow$ _____	15) $77.213 \rightarrow$ _____

Terminating and Repeating Decimal

Terminating Decimal

- Decimals that come to an end

Example - $2/4 = 0.5$

Repeating Decimal

- Decimals that never end

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

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

Part 1 Write the decimal a repeating or terminating decimal?

1) 0.6		6) 0.9	
2) 0.3		7) $0.\overline{72}$	
3) $0.\overline{7}$		8) $0.41\overline{6}$	
4) 0.25		9) _____	
5) $0.\overline{6}$		10) 0.8	

Part 2 Write the decimals below - use a line to show repeating decimals.

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

Exit Cards

Cut Out

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

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.91

2) 0.59

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

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

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

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) 0.59

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

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

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

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) 0.59

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

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

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

Name: _____

Is the decimal a repeating or terminating decimal?

1) 0.916

2) 0.59

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

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

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

Converting Fractions and Decimals

Part 1

Fill in the table with the converted decimal and fraction.

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

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

Part 2

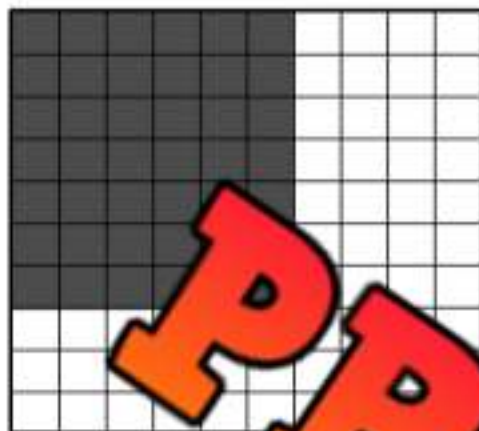
Convert the following fractions and decimals.

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

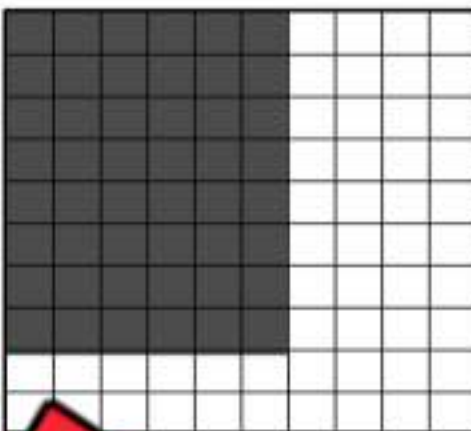
Fractions, Decimals, and Percents

Part 1

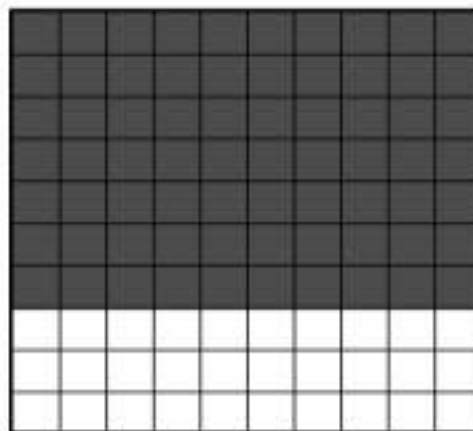
What fraction, decimal and percent of the array is shaded in?



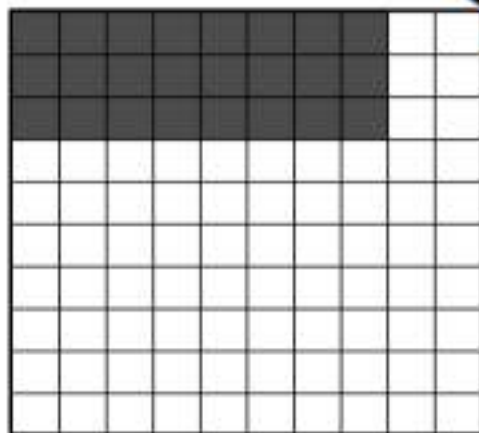
Fraction	Decimal	Percent



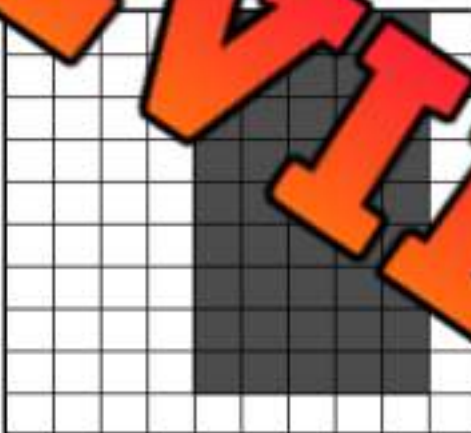
Fraction	Decimal	Percent



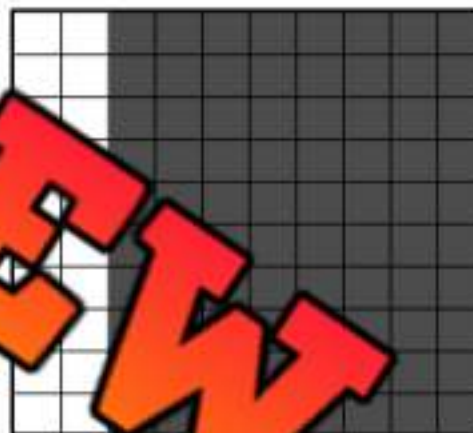
Fraction	Decimal	Percent



Fraction	Decimal	Percent



Fraction	Decimal	Percent



Fraction	Decimal	Percent

Part 2

Answer the word problems below

- Hank got 71 out of 100 on his math test. What percent did he get on his test?
- Wendy scored 23 out of 50 of her three point shots. What was her three point percentage?

Fractions, Decimals, and Percents

Part 1

Fill in the table with the converted decimal, fraction, and percent

Fraction	Decimal	Percent
100/1000		10.0%
200/1000		20.0%
300/1000	0.300	%
400/1000		40.0%
500/1000		%
		60.0%
		%
	0.80	%
900/1000		%
	1.000	%

Part 2

Convert the following fractions, decimals and percent

$138/1000 =$ %	$536/1000 = 0.$	$42.4\% =$ /1000	$798/1000 =$ %
$56.2\% =$ /1000	$161/1000 =$ %	$871/1000 = 0.$	$0.938 =$ %
$0.356 =$ %	$0.682 =$ %	$71.4\% = 0.$	$782/1000 = 0.$

Exit Cards

Cut Out

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

Name: _____

Fill in the table with the converted decimal, fraction, and percent

Fraction	Decimal	Percent
151/1000		
363/1000		
	0.427	
	0.675	
		78.0%
		92.8%

Name: _____

Fill in the table with the converted decimal, fraction, and percent

Fraction	Decimal	Percent
151/1000		
363/1000		
	0.427	
	0.675	
		78.0%
		92.8%

Name: _____

Fill in the table with the converted decimal, fraction, and percent

Fraction	Decimal	Percent
151/1000		
363/1000		
	0.427	
	0.675	
		78.0%
		92.8%

Name: _____

Fill in the table with the converted decimal, fraction, and percent

Fraction	Decimal	Percent
151/1000		
363/1000		
	0.427	
	0.675	
		78.0%
		92.8%

Sport Statistics – Fractions, Decimals, and Percents

Part 1 Baseball statistics – What are these player's percentages from the 2000 season

1) Mike Trout had 200 at bats in 2020. He had $56/200$ hits, $41/200$ runs, and $17/200$ home runs. This means for every 200 at bats, he would have 56 hits, 41 runs, and 17 home runs.

	Hits	Runs	Home Runs
Totals - Fraction	$56/200$	$41/200$	$17/200$
Decimal to thousandths			
Percent			

If Trout had 100 at bats, how many home runs would he have? _____

2) Mookie Betts had 300 at bats in 2020. He had $98/300$ hits, $58/300$ runs, and $27/300$ home runs. This means for every 300 at bats, he would have 98 hits, 58 runs, and 27 home runs.

	Hits	Runs	Home Runs
Totals - Fraction	$98/300$	$58/300$	$27/300$
Decimal to thousandths			
Percent			

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

Part 2 Basketball statistics – LeBron James shooting percentages

LeBron James and the LA Lakers won a Championship title in 2020. Find his shooting percentages by filling in the table below.

	2 pointers	3 pointers
Fraction	$214/382$	$44/119$
Decimal to thousandths		
Percent		

a) If James had taken only 100 3 pointers, how many would he have made? _____

b) If James had taken 300 3 pointers, how many would he have made? _____

c) The average NBA player shoots 46% from 2 pointers. How much better is LeBron? ____%

Comparing Decimals

Part 1

Compare the following numbers

1) 0.157



0.232

2) 0.372



0.921

3) 0.347



0.338

4) 0.257

0.253

5) 0.264



0.812

6) 0.567



0.521

7) 0.157



0.36



0.462

9) 0.328



0.724

10) 0.157



0.152

0.24

0.47

12) 0.349



0.812

13) 0.157



0.159

14) 0.927



0.82

0.59



0.532

Part 2

Compare the following numbers

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



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



- 3) Jacob jumped 3.783m in long jump. Owen jumped 3.859m. Who jumped further?



Ordering Decimals

0.2721, 0.1215, 0.5487, 0.9232

Least to Greatest

0.1215, 0.2721, 0.5487, 0.9232

5.2242, 0.3263, 6.9317, 8.5229

Greatest to Least

8.5229, 6.9317, 5.2242, 0.3263

Part 1Order the numbers below from least to greatest

1) 0.5253, 0.139, 0.4357, 0.1113

_____, _____, _____, _____

2) 0.4227, 0.1259, 0.4278, 0.4106

_____, _____, _____, _____

3) 0.6421, 0.1, 0.6412, 0.11

_____, _____, _____, _____

4) 1.4254, 2.4126, 1.4308, 2.6216

_____, _____, _____, _____

5) 11.4564, 11.4583, 24.2165, 24.62

_____, _____, _____, _____

6) 51.1214, 51.1128, 51.1312

_____, _____, _____, _____

Part 2Order the numbers below from greatest to least

1) 0.6225, 0.6641, 0.6703, 0.6122

_____, _____, _____, _____

2) 0.3321, 0.338, 0.1398

_____, _____, _____, _____

3) 1.4123, 1.6529, 1.8723, 1.9432

_____, _____, _____, _____

4) 2.1282, 2.1281, 1.1415, 1.3762

_____, _____, _____, _____

5) 14.2851, 14.2729, 14.3496, 14.2838

_____, _____, _____, _____

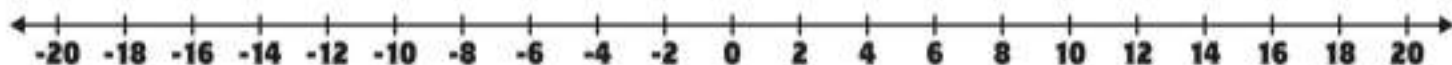
6) 19.7228, 19.6625, 19.6415, 19.6371

_____, _____, _____, _____

Graphing Integers & Opposite Integers

Part 1

Graph each integer by writing the letter on the number line



a) 0

e) -18

i) 3

m) -6

b) 6

f) -17

j) 15

n) -7

c) 16

g) 20

k) -20

o) -10

d) 18

h) -7

L) -3

p) 17

Part 2Which letter pairs are opposites?
(hint: an opposite integer is the same number but with the opposite sign – ex. 3 and -3)

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

8) _____

Part 3

Write the opposite integer below

1) 8

2) 12

3) -18

4) 14

5) -4

6) -10

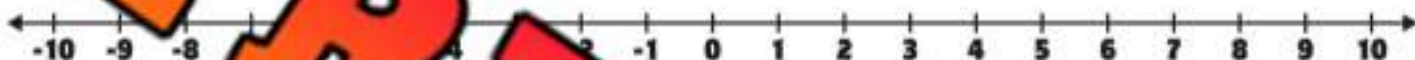
Introduction to Integers

Integers are whole numbers that can be positive, negative or zero. Integers do not include fractions or decimals. We use positive integers a lot, but we sometime need to use negative integers, like when we are measuring the temperature outside in the winter.

Questions

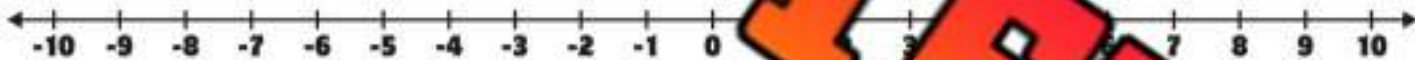
Use the number lines to solve the questions

- 1) The temperature at 6am was -8°C . At noon, the temperature was 2°C . Circle the temperature on the number line. How much did the temperature rise?



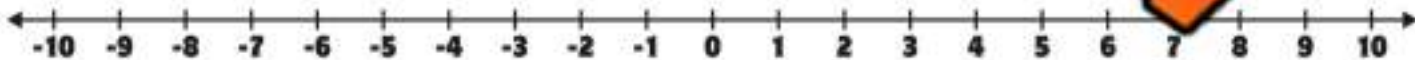
Rise in temperature = _____

- 2) Steve was in debt to his brother by \$10. He was able to make some money by cutting his neighbour's grass and paid his brother back and has \$8 left. How much did he make cutting grass?



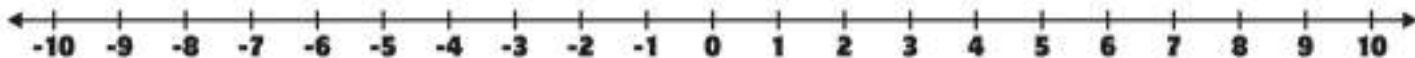
Earnings from cutting grass = \$ _____

- 3) A running back in football earned -7 yards in the first half of his game and 9 yards in the second half. How many yards did he get in the second half?



Yards in the second half = _____

- 4) Tiger Woods scored a -5 in his third round of a golf tournament. He scored $+8$ in the fourth round. How many more shots did he take in the fourth round?



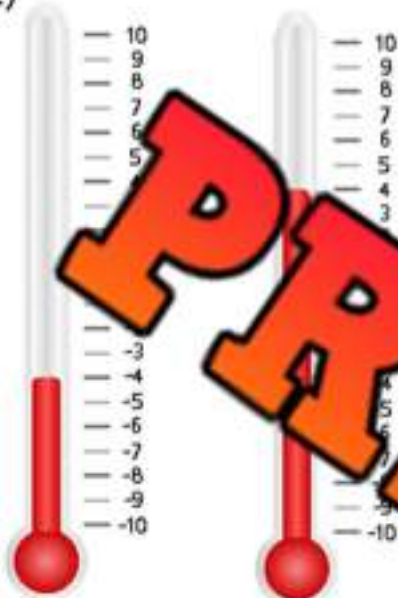
Extra shots in the fourth round = _____

Integers – Temperatures – Vertical Number Line

Instructions

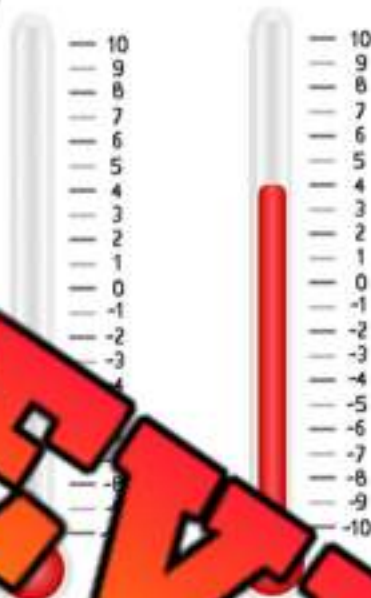
Use the number lines to solve the questions

1)



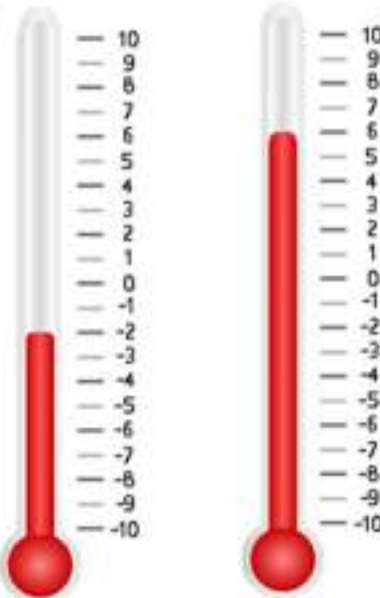
Difference = _____

2)



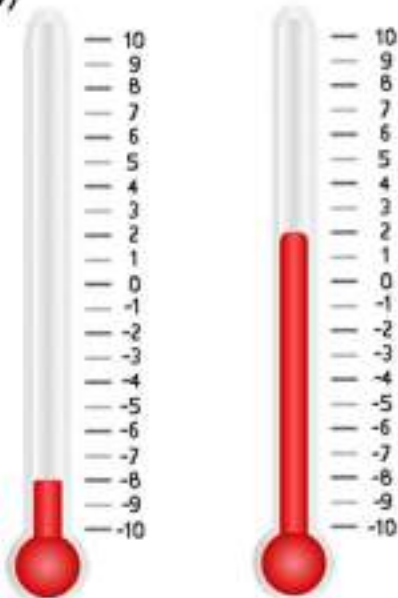
Difference = _____

3)



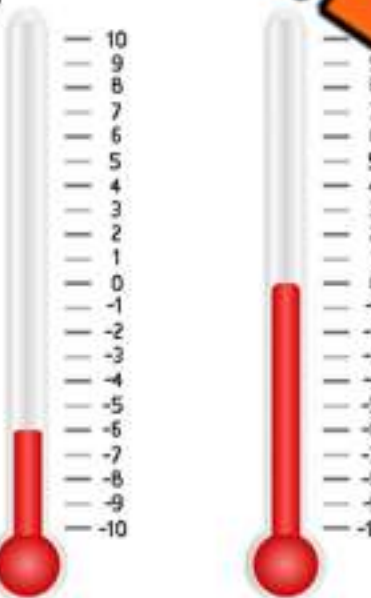
Difference = _____

4)



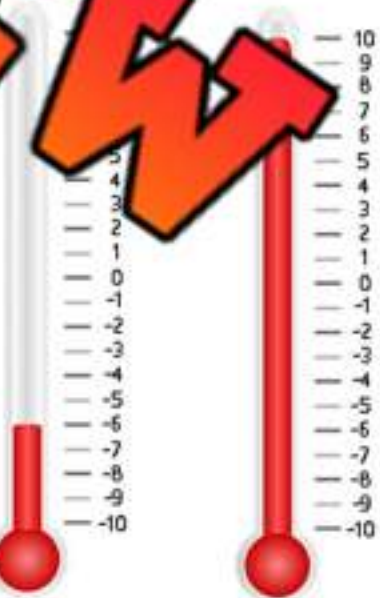
Difference = _____

5)



Difference = _____

6)



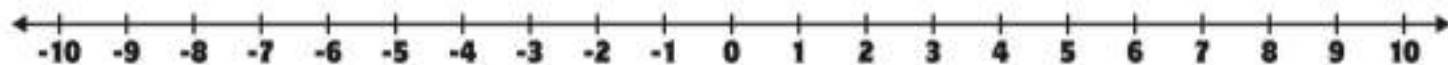
Difference = _____

Comparing Integers

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

- 1) 8 -6 2) -5 4 3) -7 3
- 4) -5 -4 5) -1 -6 6) -3 -7
- 7) -3 8 8) 8 8 9) 8 6
- 10) -5 -7 11) -4 -5 12) 3 4
- 13) -7 2 14) -7 -8 15) 5 -2
- 16) 2 -3 17) -6 -3 18) -1 -9
- 19) -3 0 20) -9 -6 21) -2 -2
- 22) 6 -9 23) -5 -6 24) -3 6

Ordering Integers – Least to Greatest

**Part 1**

Arrange the integers from least to greatest

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

2) -4, 4, 8, 2, -9

3) 4, -5

4) -5, -4, -6, -2, -7

5) 5, -3, -8, -5, -1, 6, 0, 2

7) 4, 0, -2, -9, -6

8) 11, -8, -3, -5

9) 15, -23, -12, -16, 7

10) -15, -11,

Part 2

Answer the word problem below

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

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

_____, _____, _____, _____, _____

Ordering Integers – Least to Greatest

**Part 1**

Circle the largest integer

1) 7, 3, -8, -2, 1	2) -2, -3, -1, -4, 0
3) 1, -1, 4	4) -5, 2, -3, -1, 5
5) 6, 2, -5, -1	6) 7, 6, -9, -4, 0

Part 2

Circle the smallest integer

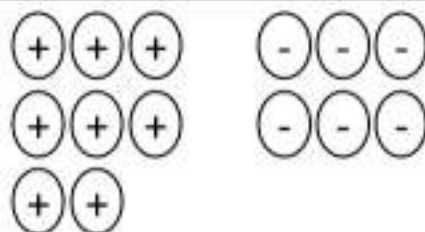
1) 5, 2, -5, -8, 7	2) -4, 7, 2, -9
3) 0, 3, -4, 9, -6	4) -7, -6, -3
5) 3, 2, -2, -3, 0	6) -1, -3, -5

Part 3

Arrange the integers from greatest to least

1) 7, 3, -6, -8, 5	2) 0, -4, 8, 1, -9
3) 1, 3, -3, 6, -7	4) -2, -4, -8, -1, -5

Adding Integers - Visuals



$$8 + (-6) = 2$$



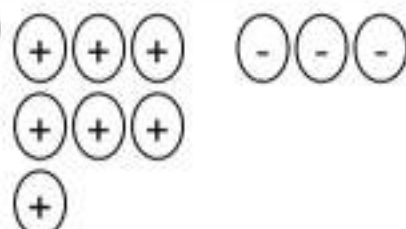
Instructions: Use the visuals to solve the equations below. What is the difference?

1)



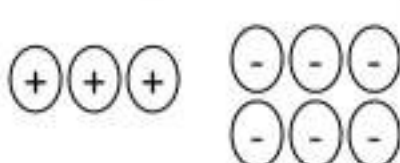
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

3)



$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

4)



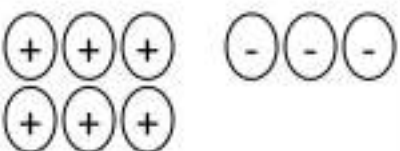
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

5)



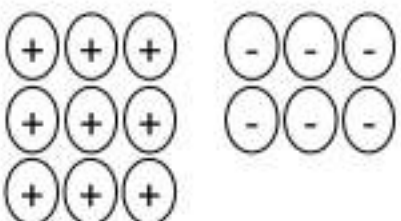
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

7)



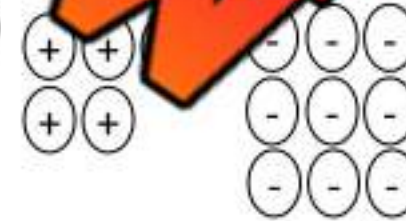
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

8)



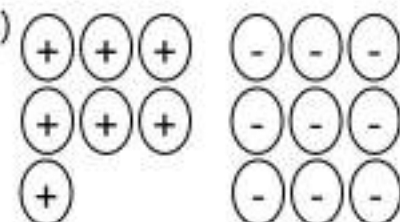
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

9)



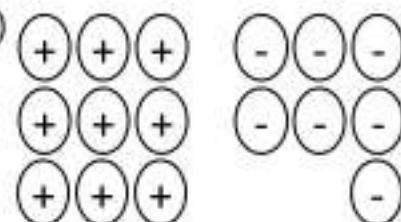
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

10)



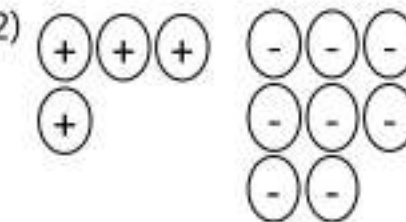
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

11)



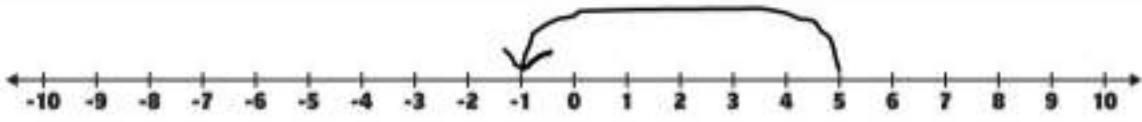
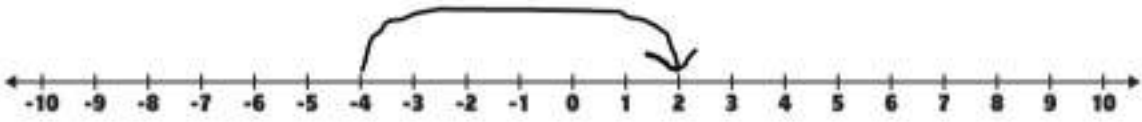
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

12)

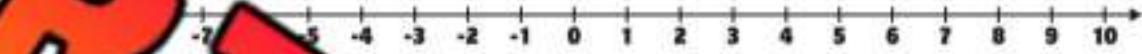
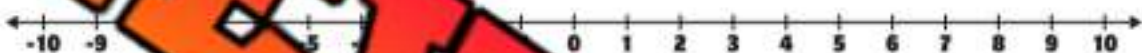
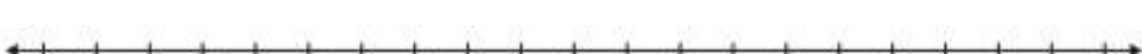


$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

Adding Integers – Using Number Lines

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

Instruction Use the number lines to solve the questions

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

Adding Integers – Using Number Lines

Part 1

Use the number lines to solve the questions

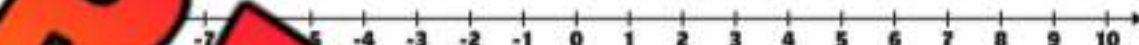
1) $7 + (-4) =$



2) $-9 + 10 =$



3) $-5 + (-3) =$



4) $-7 + 11 =$



5) $8 + (-12) =$



6) $-10 + 15 =$

**Part 2**

Answer the word problems below. Write the equation.

- 1) A football team loses 6 yards on one play and then loses 5 yards on the next play. How many total yards did they lose?

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$



- 2) In golf, Roger played two rounds. He scored a +4 and a -6. What was his total score?

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$



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) $5 + (-3) =$	6) $-15 + 11 + (-5) =$
2) $18 + (-6) =$	7) $17 + (-6) + (-8) =$
3) $-12 + 5 + (-6) =$	8) $-15 + (-5) + 11 =$
4) $13 + (-6) + (-4) =$	9) $11 + (-7) =$
5) $-11 + 4 + (-2) =$	10) $10 + (-3) =$

Part 2

Answer the word problems below. Write the equation and solution.

- 1) You take 9 steps forwards, 7 steps backwards, another 5 steps forwards, and another 4 steps forwards. How far have you moved in steps?
- 2) The Big Dipper rollercoaster climbs straight up 30m above ground level before it drops 18m. Next, it climbs another 22m before it drops 17m. When the ride is over, the participants are how much higher than ground level?



Math Jeopardy – Adding Integers

Objective

What are we learning about?

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

Materials

What you will need for the activity.

- Jeopardy board and questions
- Buzzer or bell



Instructions

How you will complete the activity

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

Jeopardy Questions

Ask students the questions below:

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

Ordering Integers and Decimals

Questions

Put the integers and decimals in order from least to greatest

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

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

2) 8.43, 2, -2, -6, 6.414

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

3) 7.372, 7.25, 5, 0

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

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

11) 8.4, -8, -9, -7

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

12) 0, 5.45, 39

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

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

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

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

Comparing Integers, Decimals, and Fractions

Part 1

Circle the larger value:

1) 0.250 $\frac{4}{6}$	2) -2 -5	3) 0.50 $\frac{3}{8}$	4) -5 0.101
5) -4 $\frac{1}{4}$	6) 0 $\frac{3}{8}$	7) -2 0.750	8) $\frac{1}{2}$ 0.681
9) $\frac{5}{8}$	10) 3 -9	11) $\frac{2}{5}$ -2	12) 0.25 $\frac{3}{5}$
13) -0.4 0.5	$\frac{2}{8}$	15) -2 $\frac{2}{8}$	16) $\frac{1}{5}$ 0.5
17) 1 -1	18) 0 -1	19) $\frac{1}{5}$ 0	20) 0.75 $\frac{2}{6}$

Part 2

Compare the values using $<$, $>$, $=$

1) 0.150 $\frac{1}{4}$	2) 0.372 -1	3) $\frac{3}{6}$
4) $\frac{2}{3}$ -2	5) 0.285 0	6) 0.5 $\frac{1}{4}$
7) -7 $\frac{2}{4}$	8) 0.750 $\frac{2}{3}$	9) 0.250 $\frac{5}{8}$
10) $\frac{4}{5}$ -4	11) $\frac{1}{3}$ -2	12) -4 $\frac{2}{4}$
13) 0.850 $\frac{2}{3}$	14) -3 $\frac{2}{4}$	15) 0.600 $\frac{1}{5}$

Ordering Integers, Decimals, and Fractions**Instruction**

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

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

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

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

4) $\frac{5}{6}$, 2, 0.451, -1, $\frac{2}{4}$

5) $\frac{3}{5}$, -1, 0, 0.10, $\frac{1}{5}$

6) $\frac{4}{7}$, -4, 1.254, 6, $\frac{2}{4}$

7) $\frac{4}{5}$, 4, 0.5, -5, $\frac{2}{7}$

8) $\frac{5}{8}$, -2, 0.251, 0, $\frac{4}{5}$

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

10) $\frac{4}{10}$, -1, 0.250, 4, $\frac{1}{4}$

11) $\frac{3}{4}$, -4, 0.500, 1, $\frac{5}{8}$

12) 4, 0.750, -2, $\frac{2}{4}$

13) -5, 0, 0.10, $\frac{1}{5}$

14) $\frac{6}{8}$, -2, 0, 6, $\frac{1}{3}$

15) $\frac{7}{8}$, 5, 0.250, -4, $\frac{2}{3}$

16) $\frac{3}{4}$, -4, 0.5, 0, $\frac{1}{4}$

Fractions, Decimals, and Integers – Word Problems

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

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

	Colton	Hudson	Joel
\$	-\$10	\$410.504	\$239/1000

- a) What is a score Colton could be -\$10?



- b) Who made the most money? Put the earnings in order from least to greatest.

- 2) The girl's basketball team keeps stats of the games. Shooting stats are listed below.

Alex	Hanna	Rebecca	May	Urianna
0.429	40/90	41.1%	47/100	

- a) Who was the best shooter?
- b) Who was the worst shooter?
- c) Rank the girls in order from best shooter to worst shooter



Integers, Decimals, Fractions, and percent Quiz**Part 1**Use the $<$, $>$, $=$ to compare the integers below

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

4) -5 -4 5) 1 -6 6) -3 -7

7) 8) -3 -7 9) 8 6

Part 2

Arrange the integers from greatest to least

1) 7, 3, -6, -8, 0, -4, 8, 1, -9

3) 1, 3, -3, 6, -7 4) -2, -8, -1, -5

Part 3

What is the name of the place value for the underlined digit?

1) 7 728.122 2) 1 563.422 3) 4 352.427 4) 7 3.688

5) 6 412.433 6) 2 454.723 7) 8 214.326 8) 4 357.926

Part 4

Arrange the integers from least to greatest

267, 423, 128, 231, 254

765, 353, 278, 358, 735

Part 5

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

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

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

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

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

Part 6

Convert the following fractions, decimals and percents

358/1000 = _____

36/100 = _____

45.2% = _____ /1000

718/1000 = _____ %

36.2% = _____ /1000

261/1000 = _____

631/1000 = _____ %

0.528 = _____ %

Part 7

Answer the questions below

4 friends competed in a 3-point shooting contest in basketball. All 4 friends shot 50 shots. Their results are below.

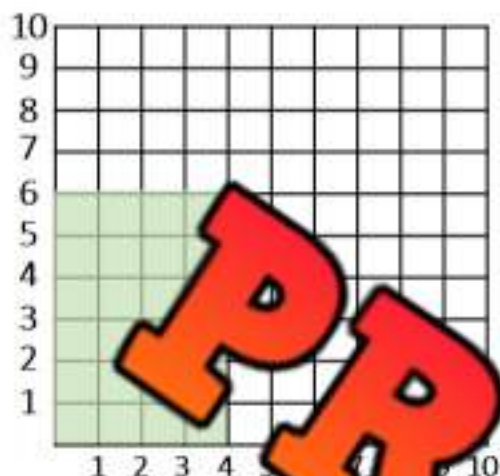
Matt	Chris	Adam	Dave
18/50	0.451	0.399	21/50

- a) Who was the best shooter?
- b) Rank the friends in order of best shooter to worst shooter.

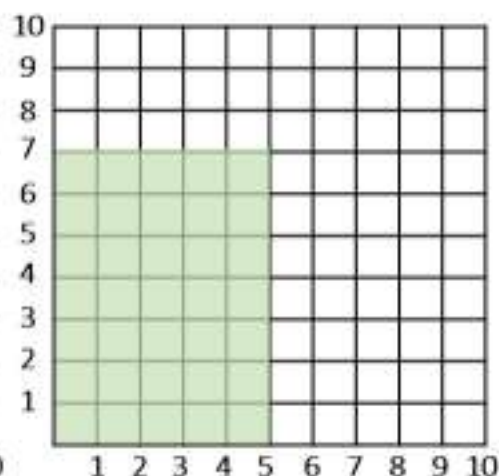
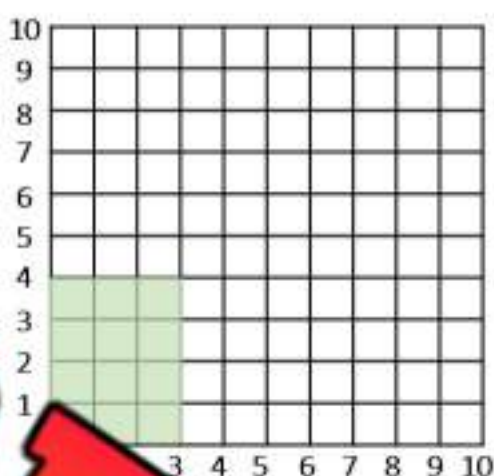
Multiplication - Arrays

Instructions

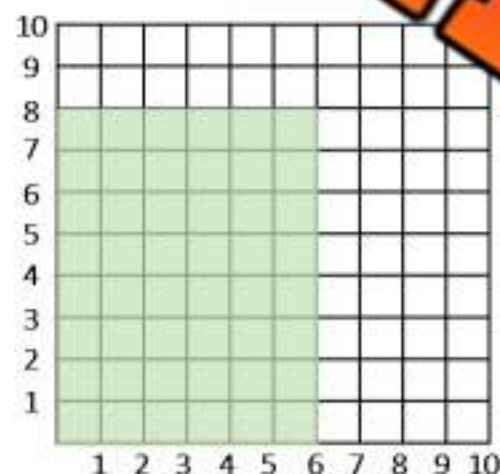
How much is shaded in? Answer the questions below



$6 \times 4 = \underline{\hspace{2cm}}$



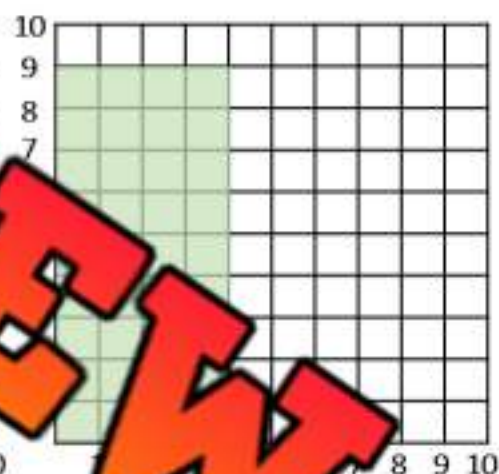
$7 \times 5 = \underline{\hspace{2cm}}$



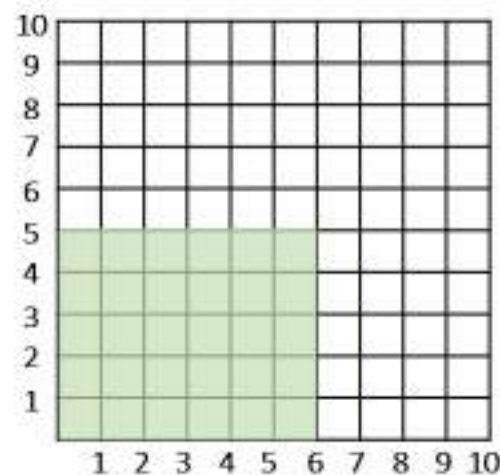
$8 \times 6 = \underline{\hspace{2cm}}$



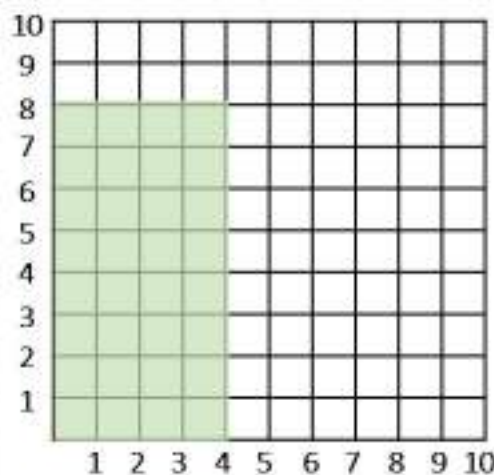
$7 \times 6 = \underline{\hspace{2cm}}$



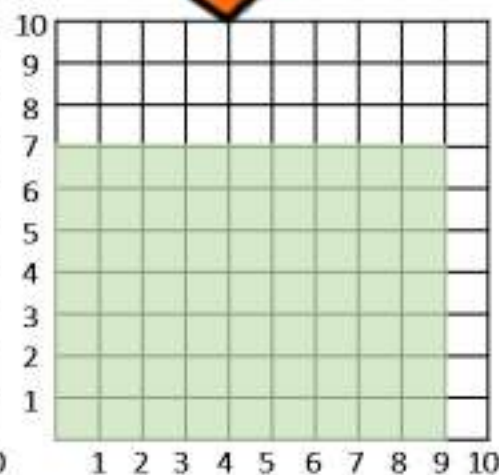
$9 \times 5 = \underline{\hspace{2cm}}$



$5 \times 6 = \underline{\hspace{2cm}}$



$8 \times 4 = \underline{\hspace{2cm}}$



$7 \times 9 = \underline{\hspace{2cm}}$

Name: _____

123

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Multiplication - 2 x 1 Digits

Questions

Use the standard algorithm to solve the multiplication problems below

1)		
	1	3
x		

2)		
	7	4
x		3

3)		
	2	5
x		8

4)		
	3	7
x		2

5)		
	9	4
x		7

6)		
	5	8
x		2

7)		
	6	7
x		9

8)		
	8	3
x		6

9)		
	2	8
x		4

10)		
	6	3
x		6

11)		
	7	7
x		5

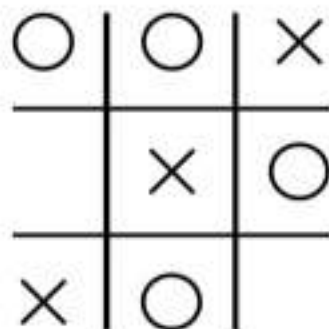
12)		
	9	3
x		2

Math Tic-Tac-Toe: 2 x 1 Digit Multiplication

Objective

What are we learning about?

To help students practice solving 2 x 1-digit multiplication problems in a fun and interactive way through a Tic-Tac-Toe game.



Material

What you will need for the activity.

- Whiteboard or paper
- Markers or pens
- Math Tic-Tac-Toe grid template (to be drawn on the whiteboard or printed on paper)

Instructions

How you will complete the activity.

1. Find a partner to play the game with.
2. The goal is to solve 2 x 1 digit multiplication problems. When a player solves a problem, they are to place their marker (X or O).
3. One player will be "X" and the other will be "O".
4. Take turns choosing a square and solving the problem in that square.
5. Write down the solution below the equation and place your marker (X or O) in the square.
6. If a player chooses a square and solves the equation incorrectly, they do not get to place their marker in that square. The other player gets a chance to solve it correctly and place their marker.
7. The first player to get three markers in a row (horizontally, vertically, and diagonally) wins the game. Continue playing with different tic-tac-toe grids on the sheet.

Tic-Tac-Toe

Use the following tic-tac-toe grids for the game.

1 2 x 4	4 5 x 7	2 3 x 6
7 8 x 2	3 4 x 5	5 6 x 3
6 7 x 1	8 9 x 4	4 5 x 4

2 4 x 5	3 6 x 7	2 9 x 8
4 9 x 7	5 7 x 8	6 8 x 9
7 8 x 9	3 5 x 6	4 7 x 7

1 5 x 6	2 7 x 8	3 9 x 9
3 9 x 8	4 8 x 9	6 7 x 9
2 7 x 8	5 8 x 9	3 7 x 6

1 8 x 9	4 9 x 8	3 9 x 9
1 8 x 9	5 6 x 7	4 8 x 9
1 8 x 9	3 7 x 9	5 7 x 9

2 1 x 2	4 3 x 4	2 5 x 6
4 7 x 8	5 9 x 5	6 8 x 7
3 6 x 9	4 7 x 6	5 8 x 7

1 3 x 4	2 5 x 6	3 7 x 8
4 9 x 6	5 7 x 5	6 8 x 9
2 8 x 9	3 5 x 7	4 6 x 8

Multiplication – 2 x 2 Digits**Part 1**

Use the standard algorithm to solve the multiplication problems below

1)
$$\begin{array}{r} 42 \\ \times 42 \\ \hline \end{array}$$

2)
$$\begin{array}{r} 65 \\ \times 71 \\ \hline \end{array}$$

3)
$$\begin{array}{r} 75 \\ \times 11 \\ \hline \end{array}$$

4)
$$\begin{array}{r} 23 \\ \times 35 \\ \hline \end{array}$$

5)
$$\begin{array}{r} 58 \\ \times 41 \\ \hline \end{array}$$

6)
$$\begin{array}{r} 37 \\ \times 34 \\ \hline \end{array}$$

8)
$$\begin{array}{r} 36 \\ \times 65 \\ \hline \end{array}$$

9)
$$\begin{array}{r} 58 \\ \times 27 \\ \hline \end{array}$$

10)
$$\begin{array}{r} 28 \\ \times 21 \\ \hline \end{array}$$

11)
$$\begin{array}{r} 46 \\ \times 27 \\ \hline \end{array}$$

12)
$$\begin{array}{r} 72 \\ \times 21 \\ \hline \end{array}$$

13)
$$\begin{array}{r} 49 \\ \times 37 \\ \hline \end{array}$$

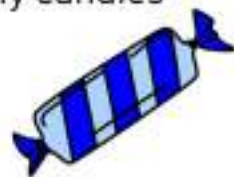
14)
$$\begin{array}{r} 58 \\ \times 65 \\ \hline \end{array}$$

15)
$$\begin{array}{r} 68 \\ \times 63 \\ \hline \end{array}$$

Part 2

Solve the word problems below

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



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



Name: _____

131

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Multiplication – 2 x 2 Digits

Step 1: Setup up the Area Model

$32 \times 17 = \underline{\hspace{2cm}}$

	30	2
10		
7		

Step 2: Multiply

$32 \times 17 = \underline{\hspace{2cm}}$

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

Step 3: Add

$32 \times 17 = 544$

	30	2
10	300	20
7	210	14

$300 + 210 + 20 + 14 = 544$

Question _____ Use the area model to solve the multiplication problems below

1) $37 \times \underline{\hspace{2cm}}$

2) $24 \times 32 = \underline{\hspace{2cm}}$

3) $52 \times 31 = \underline{\hspace{2cm}}$

4) $72 \times 4 \underline{\hspace{2cm}}$

5) $92 \times 55 = \underline{\hspace{2cm}}$

6) $96 \times 78 = \underline{\hspace{2cm}}$

Front-End Estimation

Front-end estimation is when we keep the first number the same and change the other numbers to 0. This form of estimation always underestimates the number.

Examples 1) $37 \rightarrow 30$ 2) $164 \rightarrow 100$ 3) $2.35 \rightarrow 2.00$ 4) $26.5624 \rightarrow 26.0000$

Part 1 Use front-end estimation to round the 3-digit numbers below

1) 324	
2)	
3) 438	
4) 614	
5) 962	

6) 212	
7) 363	
8) 745	
9) 913	
10) 867	

Part 2 Use front-end estimation to round the 4-digit numbers below

1) 4375	
2) 7265	
3) 8485	
4) 6214	
5) 1971	

6) 1067	
7) 85	
8) 4087	
9) 9582	
10) 8485	

Part 3 Use front-end estimation to round to the nearest whole number

1) 4.27	
2) 7.1	
3) 8.285	
4) 6.078	
5) 1.512	

6) 17.9312	
7) 13.57284	
8) 24.13214	
9) 39.64825	
10) 48.73126	

Front-End Estimation – Multiplication Using Decimals**Instructions**

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

1) Question	$5.31 \times 5 = ?$
Front-End Estimation Version	$5 \times 5 = 25$
2) Question	$6.82 \times 8 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____
3) Question	$8.14 \times 3 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____
4) Question	$9.14 \times 7 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____
5) Question	_____ $\times$ _____ = _____
Front-End Estimation Version	_____ $\times$ _____ = _____
6) Question	$18.15 \times 3 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____
7) Question	$20.21 \times 8 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____
8) Question	$25.54 \times 6 = ?$
Front-End Estimation Version	_____ $\times$ _____ = _____

Multiplying Decimals – Placing The Decimal

Instructions

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

1) 7.334×7	2) 3.152×5
a) 513.38	a) 157.6
b) 51.338	b) 1.576
c) 5.1338	c) 15.76
d) 51	d) 0.1576
3) 6.742×8	4) 5.31×3
a) 53.936	a) 159.3
b) 5.3936	b) 1593.0
c) 539.36	c) 15.93
d) 5393.6	d) 1593
5) 9.422×7	6) 6.37×8
a) 65.954	a) 50.952
b) 6.5954	b) 50.952
c) 659.54	c) 50.592
d) 6595.4	d) 5059.2
7) 9.325×4	8) 4.627×4
a) 37.3	a) 185.08
b) 3.73	b) 18.508
c) 0.373	c) 1850.8
d) 373.0	d) 1.8508
9) 11.624×2	10) 10.334×3
a) 232.48	a) 310.02
b) 23.248	b) 3.1002
c) 2.3248	c) 3100.2
d) 2324.8	d) 31.002

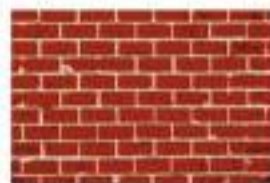
Front-End Estimation – Multiplication Using Decimals**Questions**

Use front-end estimation to estimate the answers

- 1) Jen earns \$22.53 each time she washes a car. She washed 6 cars today. Approximately how much money did she earn?



- 2) Ben has 9 bricks in his driveway. Each brick is 12.23cm long. Approximately how long are all the bricks if he puts them together?



- 3) Steve ran a route around his neighborhood for 7 days straight. His route is 11.25km. Approximately how many km did Steve run in 7 days?



- 4) Julia worked 7 hours yesterday and made \$18.55 per hour. How much money did she earn yesterday?



- 5) Henry bought 4 bags of soil. Each bag weighs 18.75kg. Approximately how much did all the bags weigh in total?



Multiplication – 1-Digit Multiplier**Questions**

Use the standard algorithm to solve the multiplication problems below

1)

$$\begin{array}{r} 4. \ 1 \ 3 \\ \times \quad \quad \\ \hline \end{array}$$

2)

$$\begin{array}{r} 7. \ 5 \ 7 \\ \times \quad \quad 5 \\ \hline \end{array}$$

3)

$$\begin{array}{r} 2. \ 1 \ 7 \\ \times \quad \quad 3 \\ \hline \end{array}$$

4)

$$\begin{array}{r} 3. \ 4 \ 1 \\ \times \quad \quad 6 \\ \hline \end{array}$$

5)

$$\begin{array}{r} 5. \ 8 \ 3 \\ \times \quad \quad 4 \\ \hline \end{array}$$

6)

$$\begin{array}{r} 4. \ 7 \ 8 \\ \times \quad \quad 5 \\ \hline \end{array}$$

7)

$$\begin{array}{r} 3. \ 6 \ 6 \\ \times \quad \quad 2 \\ \hline \end{array}$$

9)

$$\begin{array}{r} 3. \ 7 \ 8 \\ \times \quad \quad 1 \\ \hline \end{array}$$

10)

$$\begin{array}{r} 7. \ 4 \ 3 \\ \times \quad \quad 7 \\ \hline \end{array}$$

11)

$$\begin{array}{r} 9 \ 7. \ 8 \\ \times \quad \quad 2 \\ \hline \end{array}$$

12)

$$\begin{array}{r} 8 \ 5. \ 6 \\ \times \quad \quad 1 \\ \hline \end{array}$$

13)

$$\begin{array}{r} 7 \ 3. \ 9 \\ \times \quad \quad 9 \\ \hline \end{array}$$

14)

$$\begin{array}{r} 6 \ 0. \ 0 \\ \times \quad \quad 5 \\ \hline \end{array}$$

16)

$$\begin{array}{r} 5. \ 2 \ 3 \\ \times \quad \quad 2 \\ \hline \end{array}$$

17)

$$\begin{array}{r} 6 \ 3. \ 6 \\ \times \quad \quad 1 \\ \hline \end{array}$$

18)

$$\begin{array}{r} 9 \ 1. \ 4 \\ \times \quad \quad 9 \\ \hline \end{array}$$

19)

$$\begin{array}{r} 7. \ 2 \ 4 \\ \times \quad \quad 3 \\ \hline \end{array}$$

20)

$$\begin{array}{r} 8 \ 0. \ 5 \\ \times \quad \quad 4 \\ \hline \end{array}$$

Multiplication – 1-Digit Multiplier - Wages

Questions

Solve the word problems below

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



Friend	Ava	Mia	Charlotte	Emma
Wages	135	15.75	13.40	17.65
Hours	9	7	8	6
Earnings				

- a) Who made the most money? How much did each friend earn? Fill in the table above

- b) How much did all 4 friends earn combined?

Divisibility Rules

We can determine whether one whole number is divisible by another without doing division. We can use the following divisibility rules:

- A number is divisible by **2** if the last digit is even (0, 2, 4, 6, or 8)
- A number is divisible by **3** if the sum of the digits is divisible by 3
- A number is divisible by **4** if the last two digits form a number divisible by 4
- A number is divisible by **5** if the last digit is 0 or 5
- A number is divisible by **6** if the number is divisible by both 2 and 3
- A number is divisible by **8** if the number formed by its last three digits is divisible by 8.
- A number is divisible by **9** if the sum of the digits is divisible by 9
- A number is divisible by **10** if the last digit is a 0

Instruction

For each number on the left, place a checkmark under the numbers it is divisible by.

Number	2	3	4	6	8	9	10
1) 65							
2) 20							
3) 105							
4) 81							
5) 120							
6) 548							
7) 423							
8) 657							

Divisibility Rules – 2 and 3

We can determine whether one whole number is divisible by another without doing division. We can use the following divisibility rules:

- A number is divisible by **2** if the last digit is even (0, 2, 4, 6, or 8)
- A number is divisible by **3** if the sum of the digits is divisible by 3

Part 1 Is the number divisible by 2?

- 1) _____ 2) 953 _____
3) 2 682 _____ 4) 8 694 _____

Part 2 Is the number divisible by 3?

- 1) 268 _____
3) 1 458 _____ 4) 428 _____

Part 3 Which numbers are divisible by 2? Circle them.

41 58 162 247 358 655 583
685 714 805 901 1 025 1 714 2 058

Part 4 Which numbers are divisible by 3? Circle them.

73 58 84 105 215 324 515
645 683 729 806 1358 2355 5484

Exit Cards

Cut Out

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

Name: _____

Is the number divisible by 2 or 3?

	Number	Divisible by 2?	Divisible by 3?
1)	5 002		
2)	3 789		
3)	8 136		
4)	10 046		
5)	7 815		
6)	18 029		

Name: _____

Is the number divisible by 2 or 3?

	Number	Divisible by 2?	Divisible by 3?
1)	5 002		
2)	3 789		
3)	8 136		
4)	10 046		
5)	7 815		
6)	18 029		

Name: _____

Is the number divisible by 2 or 3?

	Number	Divisible by 2?	Divisible by 3?
1)	5 002		
2)	3 789		
3)	8 136		
4)	10 046		
5)	7 815		
6)	18 029		

Name: _____

Is the number divisible by 2 or 3?

	Number	Divisible by 2?	Divisible by 3?
1)	5 002		
2)	3 789		
3)	8 136		
4)	10 046		
5)	7 815		
6)	18 029		

Divisibility Rules – 6, 9, and 10

We can determine whether one whole number is divisible by another without doing division. We can use the following divisibility rules:

- A number is divisible by **6** if the number is divisible by both 2 and 3
- A number is divisible by **9** if the sum of the digits is divisible by 9
- A number is divisible by **10** if the last digit is a 0

Part 1

Is the number divisible by 6?

- 1) _____ 2) 741 _____
3) 2472 _____ 4) 4284 _____

Part 2

Is the number divisible by 9?

- 1) 208 _____ 2) 58 _____
3) 2331 _____ 4) 59 _____

Part 3

Is the number divisible by 10?

- 1) 230 _____ 2) 1685 _____
3) 3890 _____ 4) 6101 _____

Part 4

For each number on the left, place a check mark under the numbers it is divisible by:

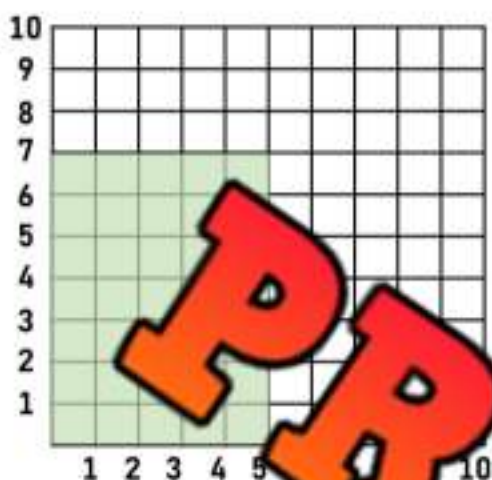
Number	6	9	10
1) 204			
2) 450			
3) 624			
4) 1250			

Number	6	9	10
5) 2460			
6) 4734			
7) 7530			
8) 9410			

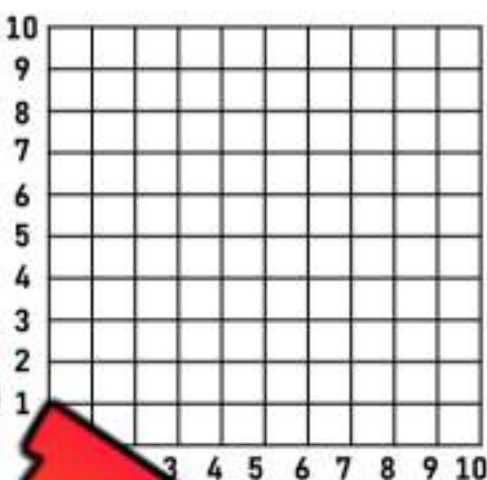
Division - Arrays

Instructions

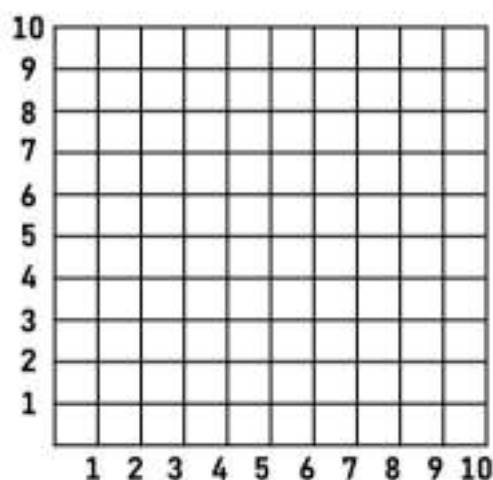
Shade in the arrays using the table. Answer the questions below



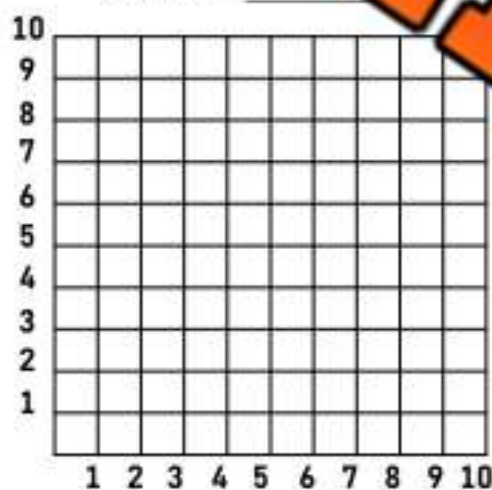
$35 \div 7 = \underline{\hspace{2cm}}$



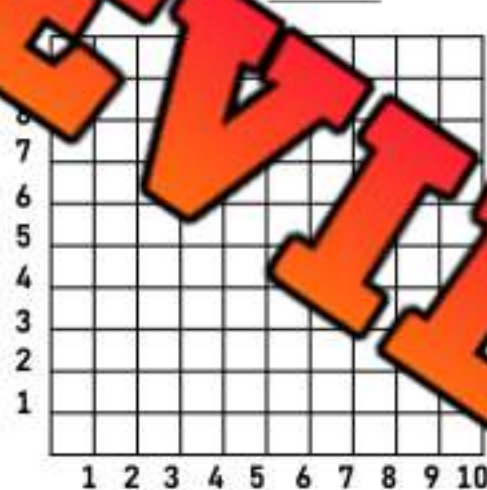
$7 = \underline{\hspace{2cm}}$



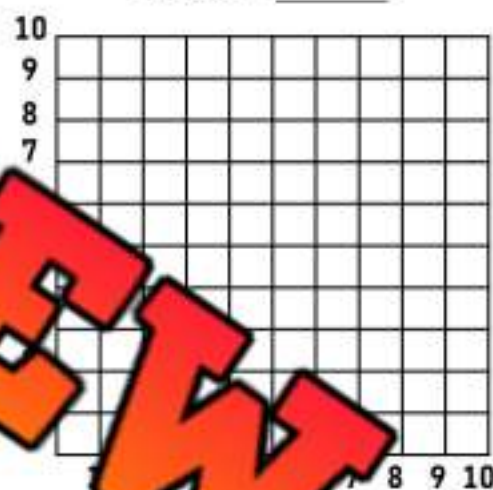
$18 \div 6 = \underline{\hspace{2cm}}$



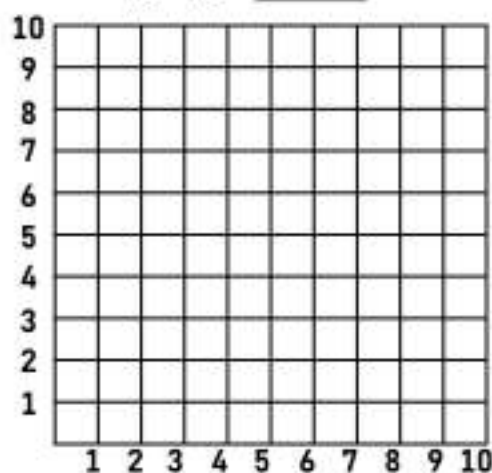
$45 \div 5 = \underline{\hspace{2cm}}$



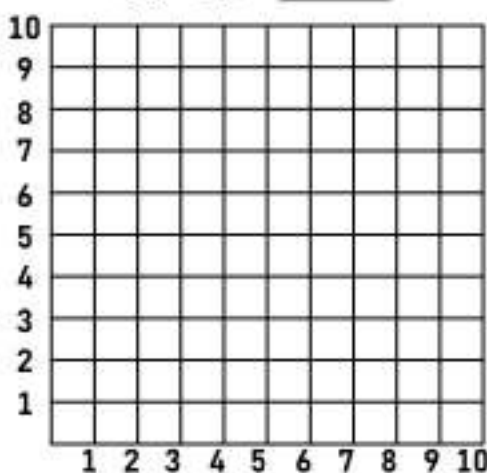
$80 \div 10 = \underline{\hspace{2cm}}$



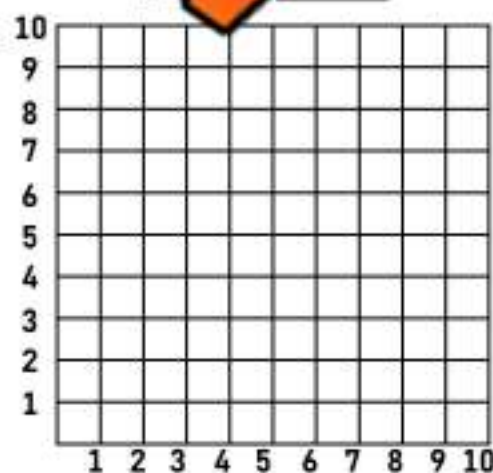
$24 = \underline{\hspace{2cm}}$



$15 \div 3 = \underline{\hspace{2cm}}$



$32 \div 4 = \underline{\hspace{2cm}}$



$50 \div 5 = \underline{\hspace{2cm}}$

Division – Bar Model**Questions**

Use the bar model to answer the division questions below

1) $48 \div 8$

48							

2) $36 \div 4$

36			

3)

4) $80 \div 10$

80									

5) $24 \div 4$

24			

6) $30 \div 5$

7) $42 \div 7$

42						

8) $72 \div 8$

72							

9) $49 \div 7$

49						

10) $48 \div 4$

48			

Division – Area Model**Questions**

Use the area model to answer the division questions below

1) $243 \div 6 = 40\text{r}3 \text{ (16+4)}$

	33	7	0
6	200	40	3
	198	42	r3

2) $284 \div 4$

4	200	80	4
---	-----	----	---

3) $513 \div 2$

2	500	10	3
---	-----	----	---

4) $428 \div 6$

6	400	20	8
---	-----	----	---

5) $636 \div 6$

6	600	30	6
---	-----	----	---

6) $778 \div 5$

5	700	70	8
---	-----	----	---

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 for final answer

Instructions: Follow the steps above to calculate the answer

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

2) Question	$2.4 \div 2 = ?$
Step 1 and 2	
Step 3	
Answer	

3) Question	$4.24 \div 4 = ?$
Step 1 and 2	
Step 3	
Answer	

4) Question	$3.39 \div 3 = ?$
Step 1 and 2	
Step 3	
Answer	

Multiplying Decimals – Placing The Decimal

Questions

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

1) $35.34 \div 7$

- a) 5.048
- b) 504.8
- c) 5048.0
- d) 50.48

2) $30.152 \div 5$

- a) 603.04
- b) 60.304
- c) 6030.4
- d) 6.0304

3) $48.51 \div 8$

- a) 60.64
- b) 6.064
- c) 606.4
- d) 6064.0

4) $21.531 \div 3$

- a) 0.7177
- b) 717.7
- c) 71.77
- d) 7.177

5) $42.422 \div 7$

- a) 6060.0
- b) 606.0
- c) 6.060
- d) 60.60

6) $72.7 \div 8$

- a) 9.0905
- b) 90.905
- c) 90.90
- d) 9.0905

7) $32.825 \div 4$

- a) 8206.0
- b) 8.206
- c) 820.6
- d) 82.06

8) $36.627 \div 6$

- a) 6104.5
- b) 610.45
- c) 6.1045
- d) 61.045

9) $14.124 \div 2$

- a) 7.062
- b) 70.62
- c) 706.2
- d) 7062.0

10) $24.844 \div 3$

- a) 8281.3
- b) 8.2813
- c) 828.13
- d) 82.813

Front-End Estimation – Dividing Using Decimals**Questions**

Use front-end estimation to estimate the answer

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



2) Cori spent \$3.60 on 6 bags of chips. Approximately how much did each bag of chips cost?



3) Chris earned \$88.34 after working 4 hours. How much did he earn per hour?



4) Mark spent \$77.82 on 7 hockey cards. On average, approximately how many dollars did each card cost?



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



Mixed Operations - BEDMAS

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

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

Example 2

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

$$9 - 3 \div 3 =$$

$$9 - 1 = 8$$

Instructions

Calculate the answers to the equations using BEDMAS

1) $3 + (4 \times 5) =$

2) $21 -$

3) $(8 \times 4) + (4 \div 2) =$

4) $(12 \div 6) \times 3 =$

5) $12 + (2 + 10) =$

6) $8 \div$ $+ 3) =$

7) $24 \div 6 + (4 + 10) =$

8) $17 - 2 \times 5 =$

9) $25 + (5 \times 5) =$

10) $25 - 15 \div 5 =$

11) $22 - 6 + 5 =$

12) $18 - 5 + (6 \times 8) =$

Mixed Operations - BEDMAS**Instructions**

Find out the value of the variables using BEDMAS

1) $1 \times (2 + 8) =$	2) $3 \times (6 - 4) =$	3) $8 \times 4 + (13 + 8) =$
4) $(7 + 3) \times 2 =$	5) $9 - 4 + (4 \times 9) =$	6) $5 \times (4 + 5) =$
7) $36 \div (3 + 3) =$	8) _____	9) $28 + (9 \div 3) =$
10) $2 \times (28 \div 7) =$	11) $42 + (3 \times 4 \times 2) =$	$15 \div 9 \times (2 + 1) =$

Word Problems

Answer the word problems below

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

$$\$2.50 + \$2.00 \times 2 = ?$$

$$\$4.50 \times 2 = \$9.00$$



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



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	$2 + 6 \times 4 + 12$	44	38
2	$12 \div 3 \times 3$	4	24
3	$12 \div (2 + 3)$	0	18
4	$5 \times 3 + 8 \div 2$	19	11
5	$12 \div 3 \times (5 + 5)$	25	40
6	$20 + (8 - 3) \times 2$	30	
7	$10 \times 3 - (2 \times 5) - 2$	22	18
8	$25 \div 5 + 6 \times 3$	23	33
9	$48 \div 6 - (2 + 3)$	48	3
10	$3 + 6 \times 7 + 11 - 6 \div 2$	53	34

Order of Operations – Candy Shop

Word Problems

Write the equation for the situations below and answer the question

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

Candy	Price in Cents
Gum	25
Gummies	5
Candies	10

**Example**

Miranda bought 2 pieces of gum, 4 gummies, and 5 candies. How many cents did she spend?

Answer: $(2 \times 25) + (4 \times 5) + (5 \times 10) =$
 $50 + 20 + 50 = 120$

- 1) Ava bought 3 pieces of gum, 8 gummies, and 2 candies. How many cents did she spend?
- 2) Neil had 100 cents. He bought 5 gummies and 6 candies. How many cents does he have left?
- 3) Dan purchased 4 pieces of gum, 9 gummies, and 3 candies. How many cents did he spend?
- 4) Claire had 150 cents. She bought 3 pieces of gum, 3 candies, and 6 gummies. How much does she have left?

Multiplication, Division and BEDMAS - Quiz

Part 1

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

1) 6.34×7

- a) 42
- b) 49
- c) 50
- d) 47

2) 7.26×5

- a) 40
- b) 30
- c) 35
- d) 38

3) 9.44×6

- a) 50
- b) 62
- c) 54
- d) 64

4) $27.21 \div 3$

- a) 7
- b) 8

5) $24.25 \div 3$

- a) 5
- b) 7
- c) 8
- d) 4

6) $30.6 \div 5$

- a) 6
- b) 4
- c) 6
- d) 7

Part 2

Use the standard algorithm to solve the multiplication problems below

1)					
		7	.	2	5
x					2

2)					
		5	.	6	3
x					5

3)					
	1	5	.	4	6
x					6

Part 3

Solve the division problems below

1)
$$\begin{array}{r} 2 \overline{) 4.22} \end{array}$$

2)
$$\begin{array}{r} 3 \overline{) 9.63} \end{array}$$

3)
$$\begin{array}{r} 2 \overline{) 8.48} \end{array}$$

4)
$$\begin{array}{r} 4 \overline{) 8.60} \end{array}$$

Part 4

Use BEDMAS to solve the questions below

1) $2 \times (2 + 4) =$

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

3) $3 \times 4 + (12 + 8) =$

4) $(7 + 4 - 3) \times 4 =$

5) $9 - 4 \times 9 =$

6) $5 + 4 \div 2 \times 5 =$

Part 5

Solve the word problems below

1) Carter bought 6 bags of chips for a camping trip. Each bag cost him \$3.39. How much did he spend on chips?



2) Lily spent \$9.60 on 3 drinks for her and her friends. How much did each drink cost?

