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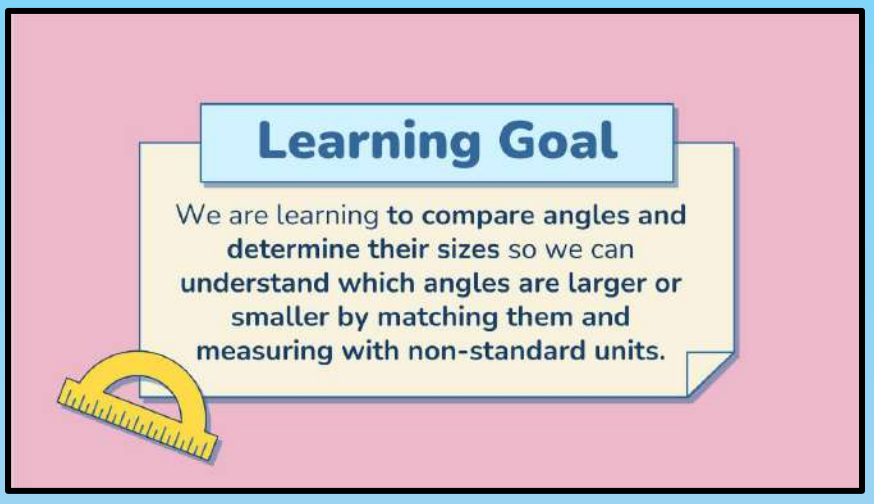
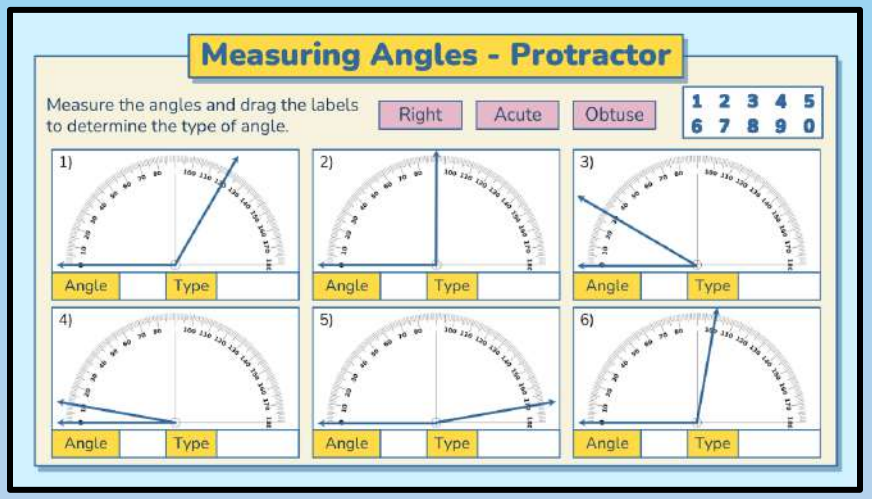
Google Slides Lessons Preview

Saskatchewan Math Curriculum
Shape & Space – Grade 7

3-Part Lesson Format

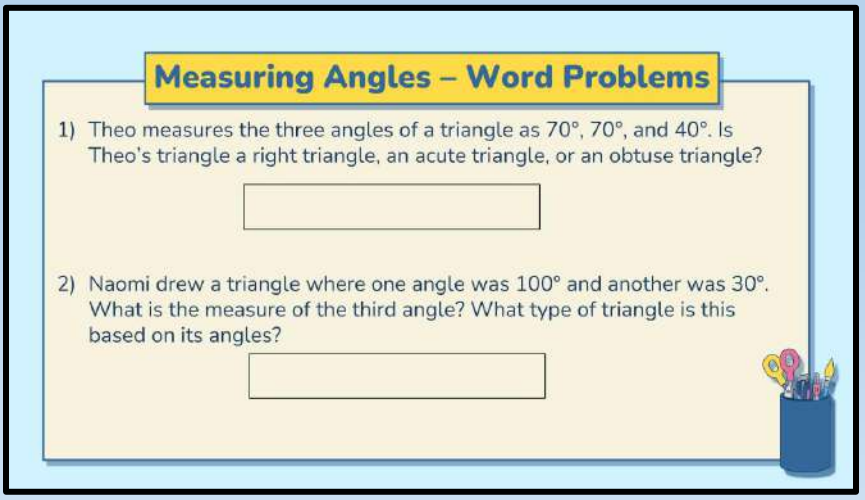
Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!



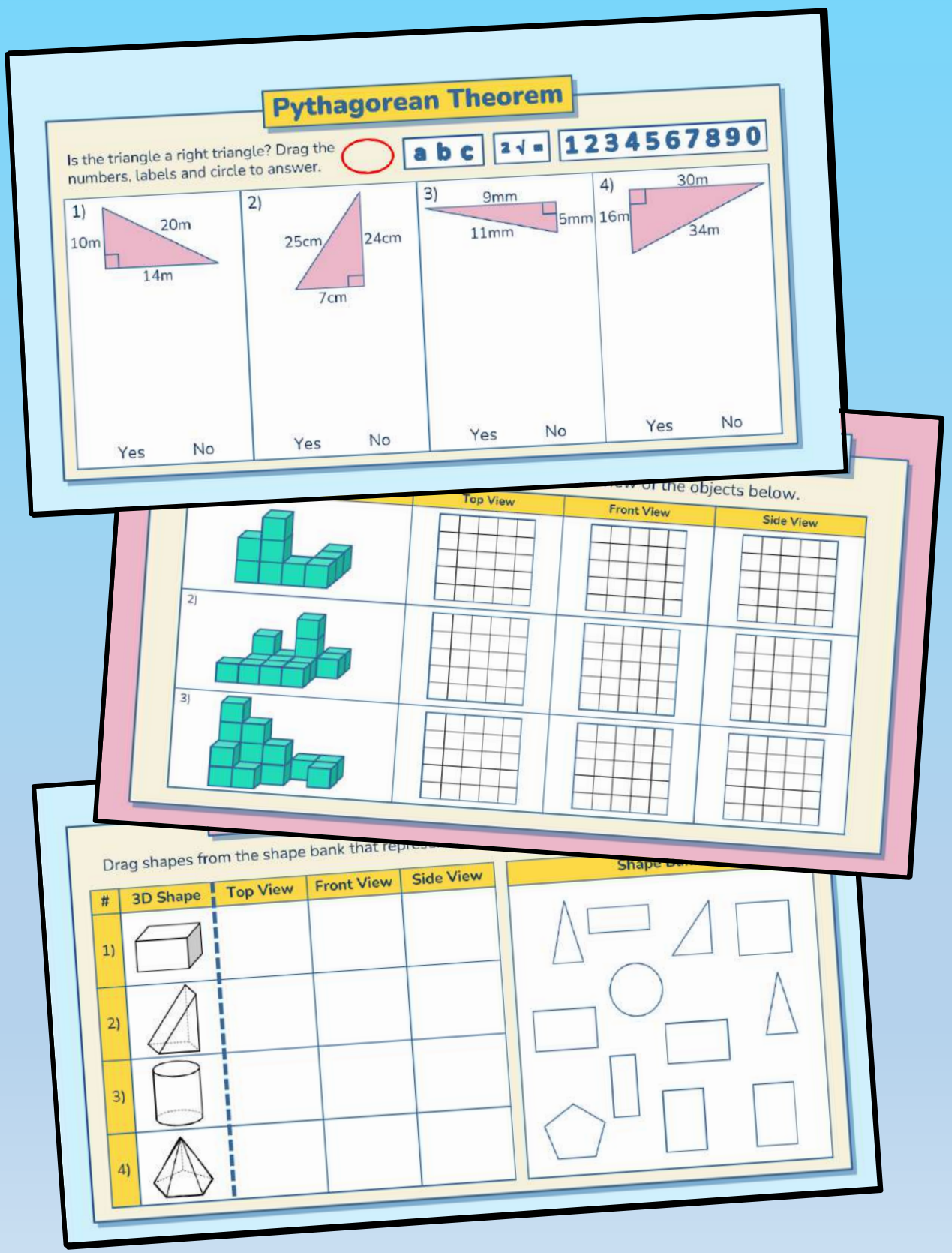


Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!



Saskatchewan Math Curriculum
Shape & Space – Grade 7



Saskatchewan Math Curriculum
Shape & Space – Grade 7

Workbook Preview

Grade 7

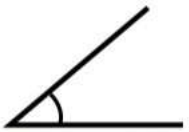
Shape and Space

	Curriculum Expectations	Pages
SS7.1	Demonstrate an understanding of circles including circumference and central angles.	5-51, 56-64
S	[illegible]	
S	involving lines and angles.	
SS7.4	Demonstrate an understanding of the Cartesian plane and ordered pairs with integral coordinates.	117-125
SS7.5	Expand and demonstrate an understanding of transformations (translations, rotations, and reflections) of 2-D shapes in all four quadrants of the Cartesian plane.	126-166
TQ	Tests and Quizzes	67-69, 102-103, 167-170

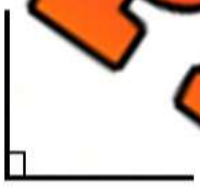
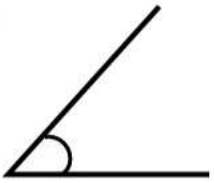
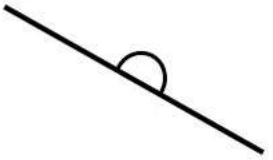
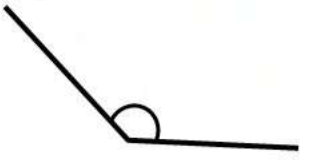
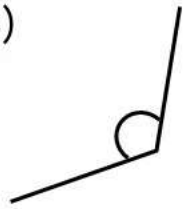
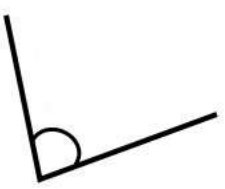
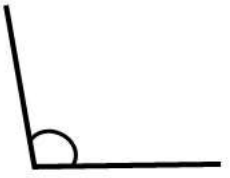
Name: _____ 5

Curriculum Connection
SS7.1

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°
				

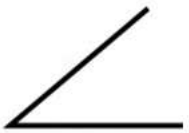
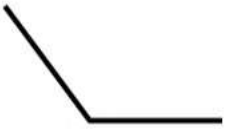
Instruction Label the angle – straight, acute, obtuse, right, or reflex

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

Name: _____ 7

Curriculum Connection
SS7.1

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°
				

Instruction: Draw acute, obtuse, right, and reflex angles below

1)	2)	3)	4)
Acute	Obtuse		Reflex

5)	6)	7)	8)
Reflex	Obtuse	Acute	Straight

9)	10)	11)	12)
Right	Acute	Obtuse	Reflex

Name: _____ 9

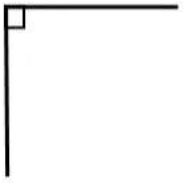
Curriculum Connection
SS7.1

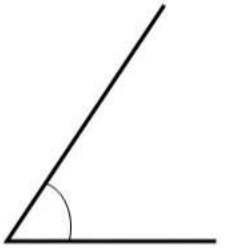
Measuring Angles Up To 180°

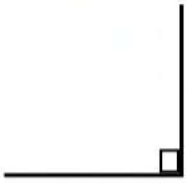
Instructions Measure the angles and label them acute, right or obtuse

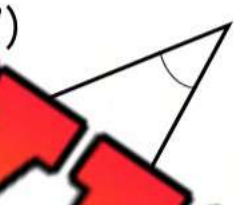
1) 

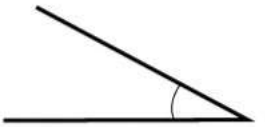
2) 

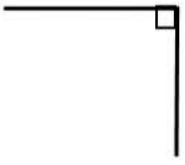
3) 

4) 

5) 

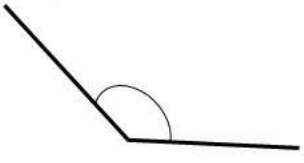
7) 

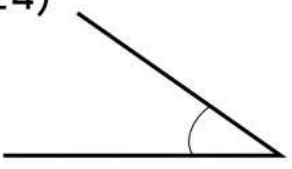
8) 

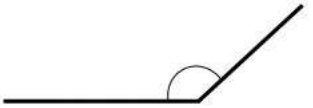
9) 

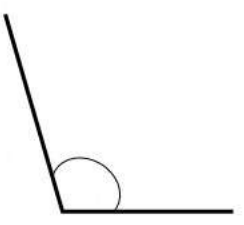
10) 

11) 

13) 

14) 

15) 

16) 

Curriculum Connection
SS7.1

Exit Cards

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

Name: _____

Label the angle – acute, obtuse or reflex.

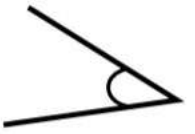
1) 

3) 

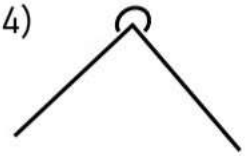
Name: _____

Label the angle – acute, obtuse or reflex.

1) 

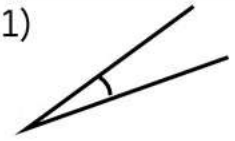
2) 

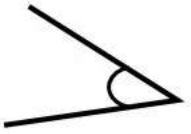
3) 

4) 

Name: _____

Label the angle – acute, obtuse or reflex.

1) 

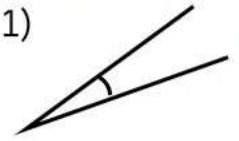
2) 

3) 

4) 

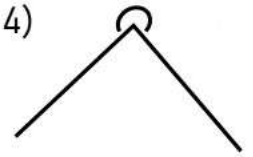
Name: _____

Label the angle – a… reflex.

1) 

2) 

3) 

4) 

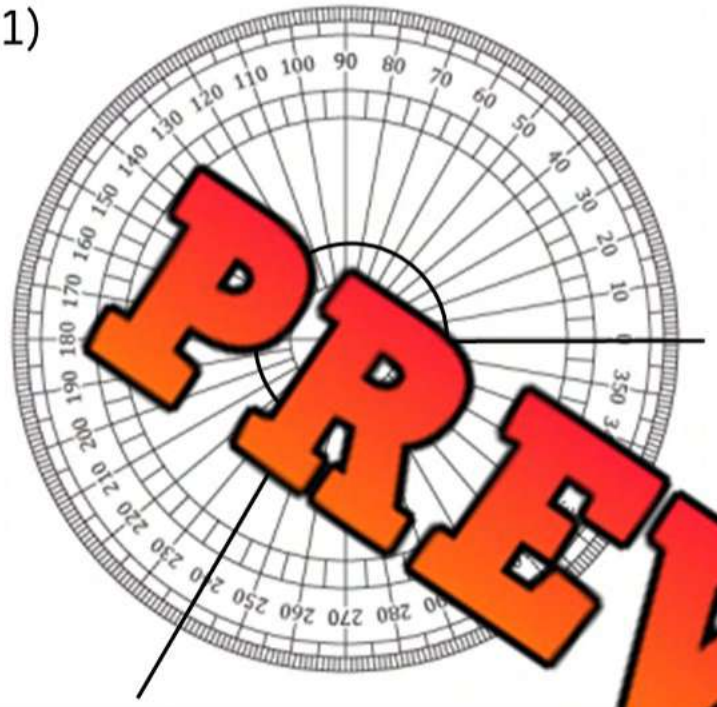
Name: _____ 11

Curriculum Connection
SS7.1

Using Printed Protractor – Angles Up To 360°

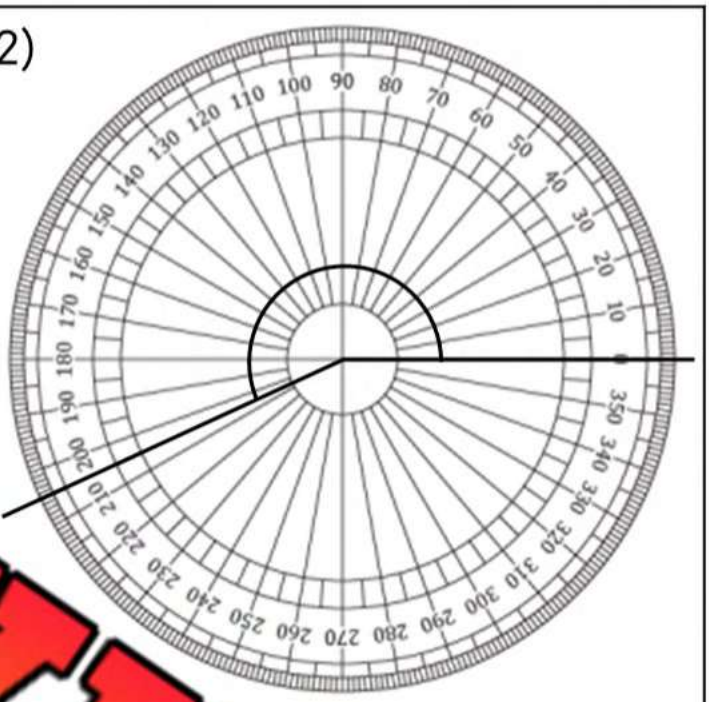
Instructions Measure the angles below using the circular protractor

1)



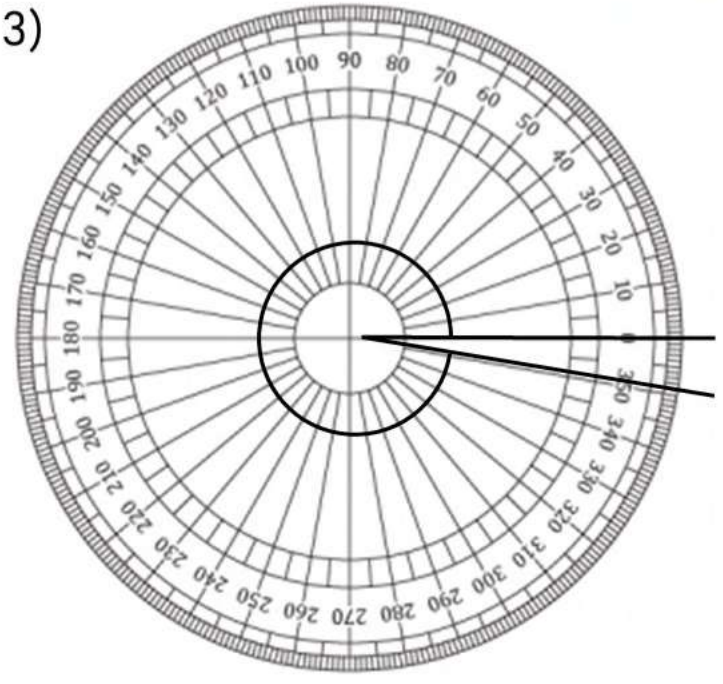
Angle = Type of Angle =

2)



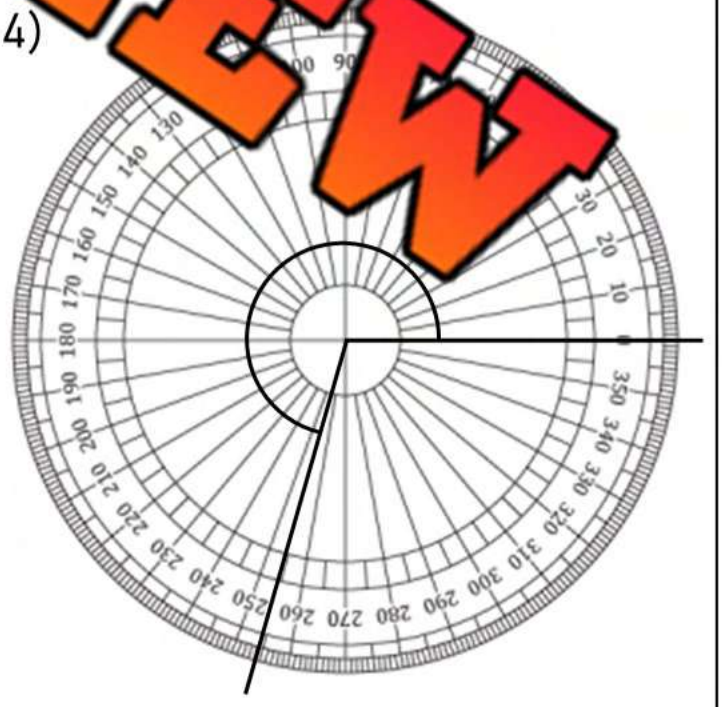
Angle = Type of Angle =

3)



Angle = Type of Angle =

4)



Angle = Type of Angle =

Name: _____ 13

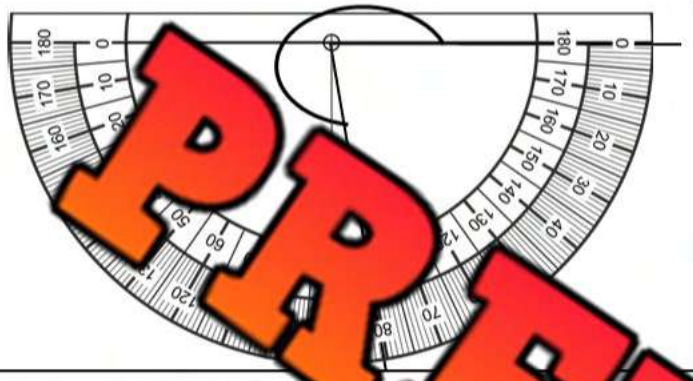
Curriculum Connection
SS7.1

Measuring Angles Up To 360°

We can measure reflex angles that are larger than 180° by using a circular protractor or a semi-circular protractor.

When using a semi-circular protractor, you can use one of two strategies:

1) Measure the angle starting with 180° and add 180°
2) Measure the remaining angle from 0° and subtract 360°



Solution

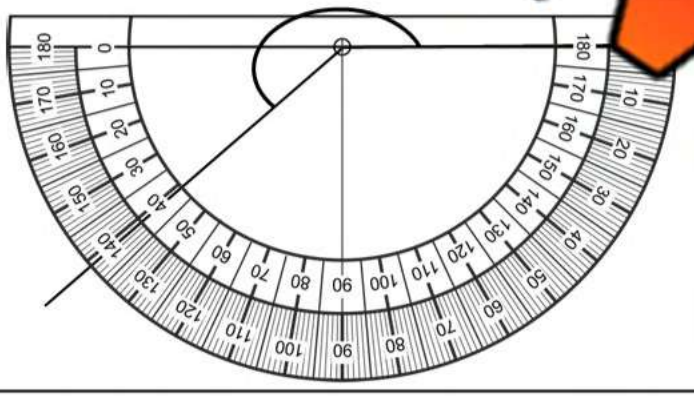
Strategy 1

180 + 100 = 280

Strategy 2

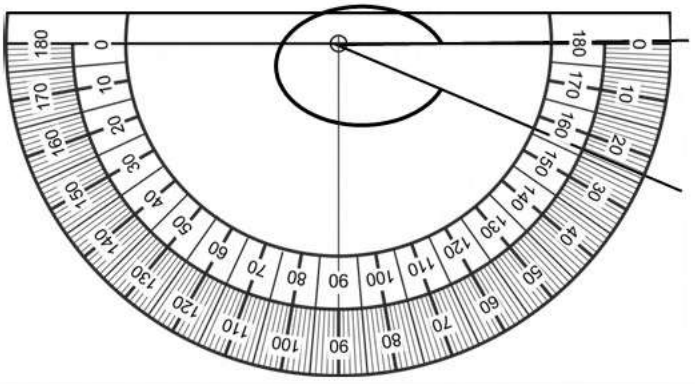
360 - 80 = 280

Instructions Meas efl low

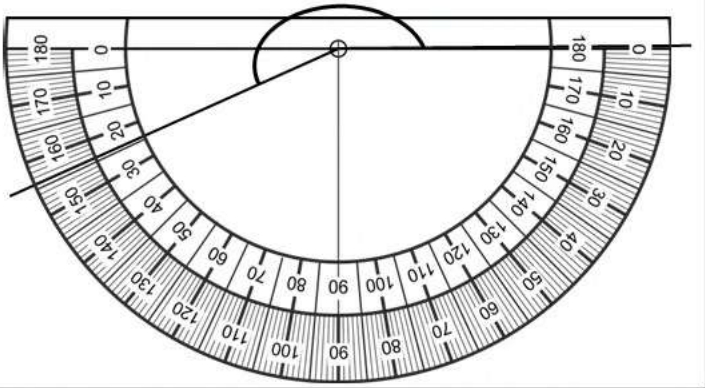


1) Angle Size =

2) Angle Size =



3) Angle Size =



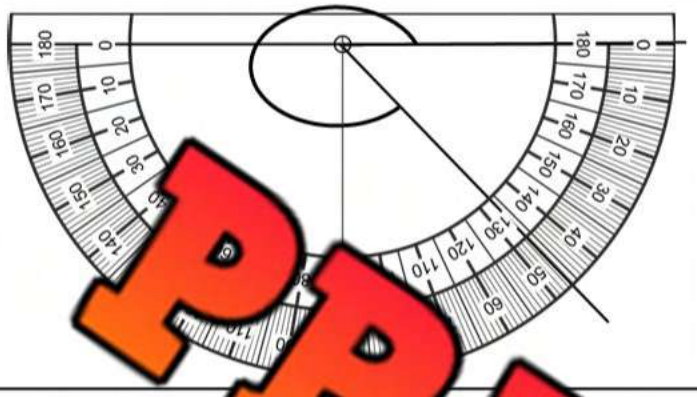
4) Angle Size =

Name: _____ 14

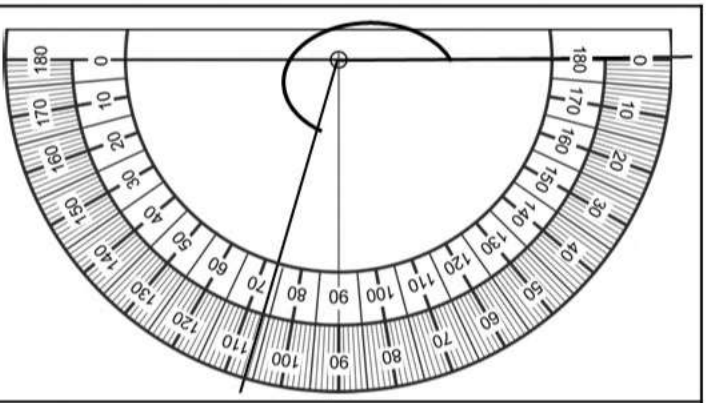
Curriculum Connection
SS7.1

Measuring Angles Up To 360°

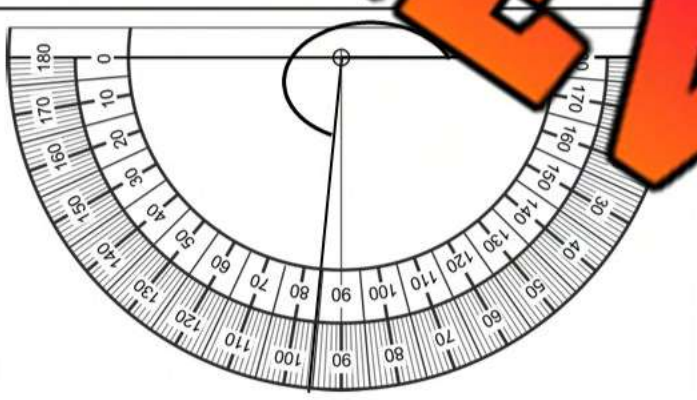
Instructions Measure the reflex angles below



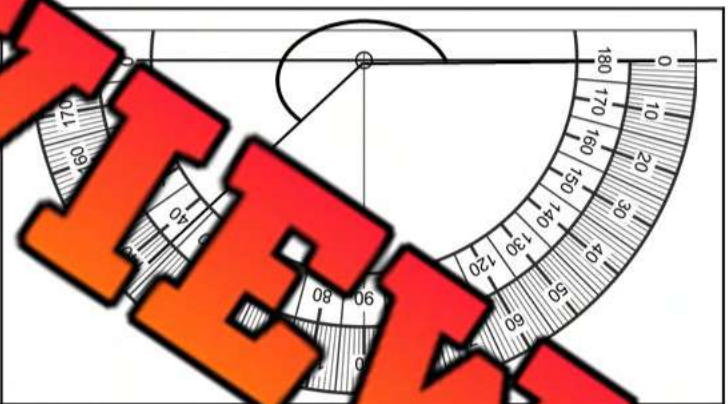
1) Angle Size



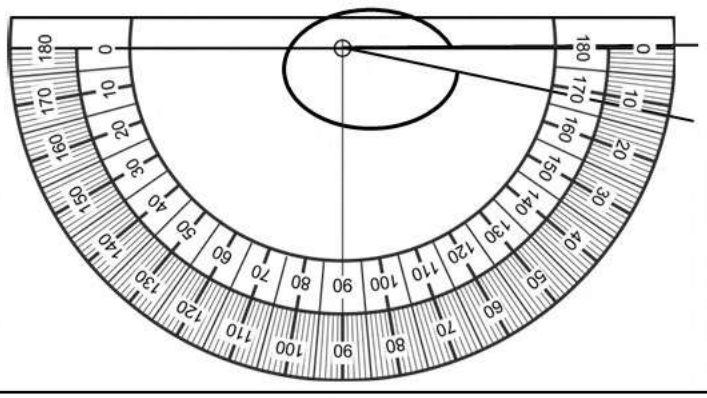
2) Angle Size =



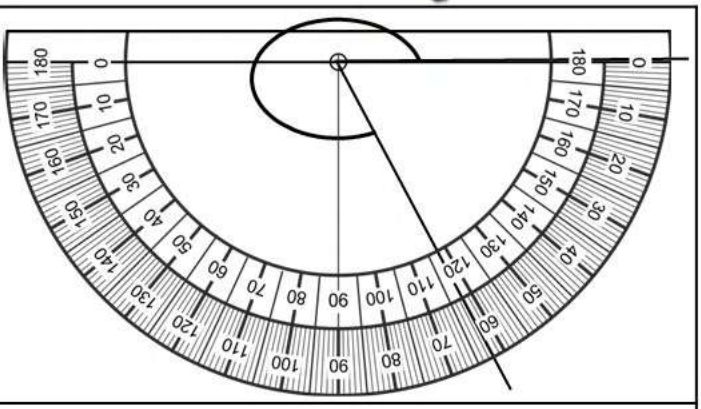
3) Angle Size =



4) Angle Size =



5) Angle Size =



6) Angle Size =

Curriculum Connection
SS7.1

Exit Cards

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

Name: _____

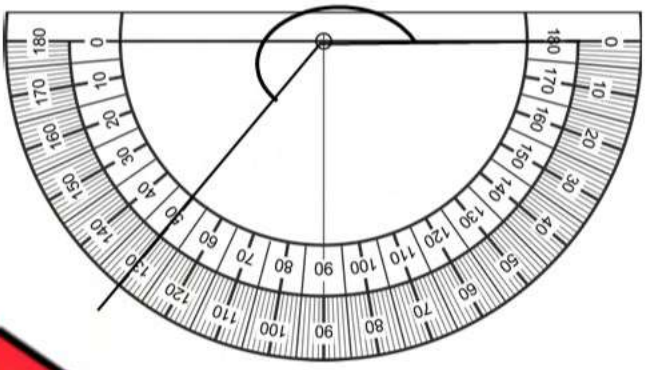
Measure the reflex angle below.

Angle Size = _____

Type of Angle = _____

Name: _____

Measure the reflex angle below.

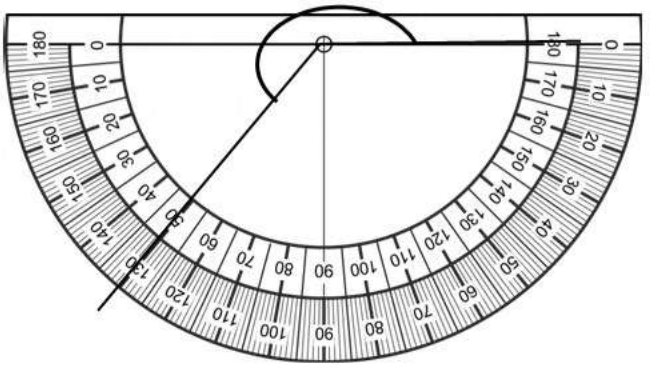


Angle Size = _____

Type of Angle = _____

Name: _____

Measure the reflex angle below.

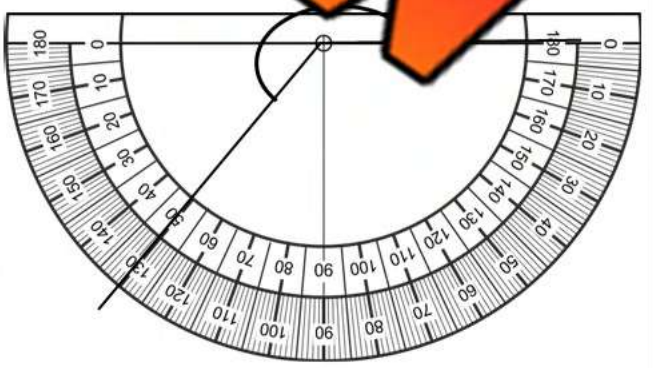


Angle Size = _____

Type of Angle = _____

Name: _____

Measure the reflex angle below.



Angle Size = _____

Type of Angle = _____

Name: _____ 16

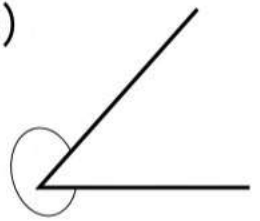
Curriculum Connection
SS7.1

Measuring Angles Up To 360°

Instructions Measure the angles below

1) 

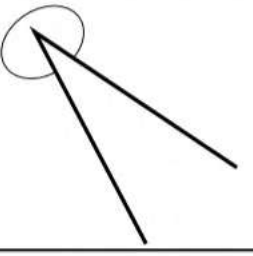
2) 

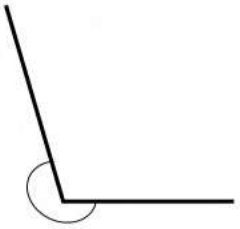
3) 

4) 

5) 

7) 

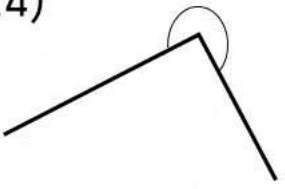
8) 

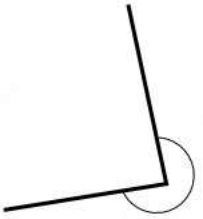
9) 

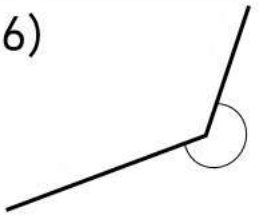
10) 

11) 

13) 

14) 

15) 

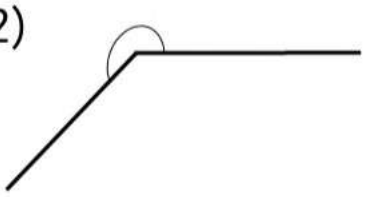
16) 

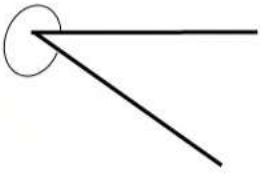
Name: _____ 17

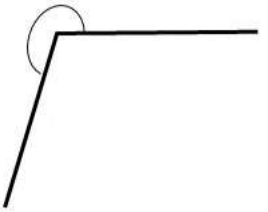
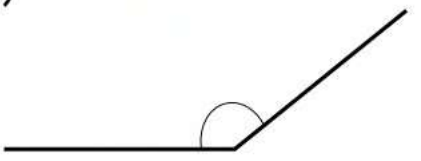
Curriculum Connection
SS7.1

Constructing Angles - Estimating – Multiple Choice

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

1) 	2) 	3) 
a) ∠= [illegible]	a) ∠= 95°	a) ∠= 171°
b) ∠= [illegible]°	b) ∠= 100°	b) ∠= 9°
c) ∠= [illegible]	c) ∠= 225°	c) ∠= 50°
d) ∠= [illegible]	d) ∠= 290°	d) ∠= 85°

4) 		6) 
a) ∠= 168°	a) ∠= 60	∠= 90°
b) ∠= 50°	b) ∠= 120°	180°
c) ∠= 120°	c) ∠= 10°	
d) ∠= 10°	d) ∠= 160°	

7) 	8) 	9) 
a) ∠= 50°	a) ∠= 75°	a) ∠= 40°
b) ∠= 160°	b) ∠= 190°	b) ∠= 30°
c) ∠= 20°	c) ∠= 255°	c) ∠= 140°
d) ∠= 100°	d) ∠= 355°	d) ∠= 170°

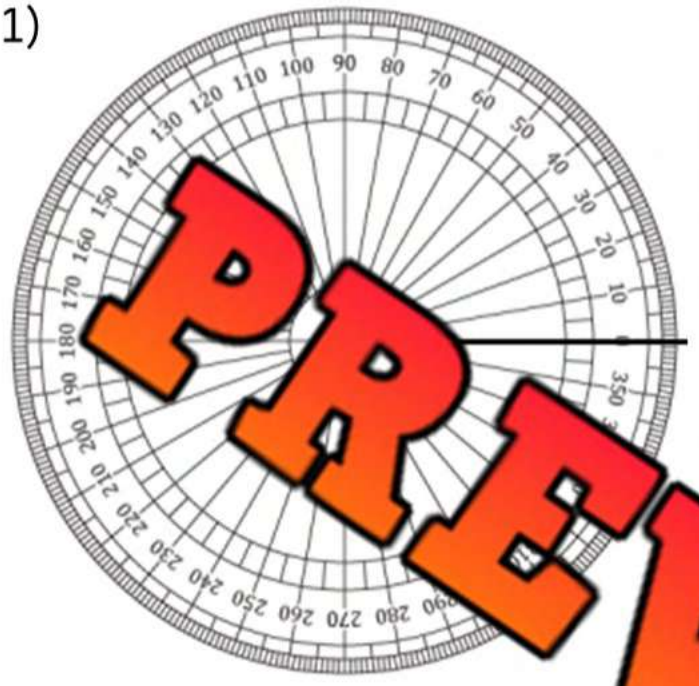
Name: _____ 22

Curriculum Connection
SS7.1

Constructing Angles Up To 360°

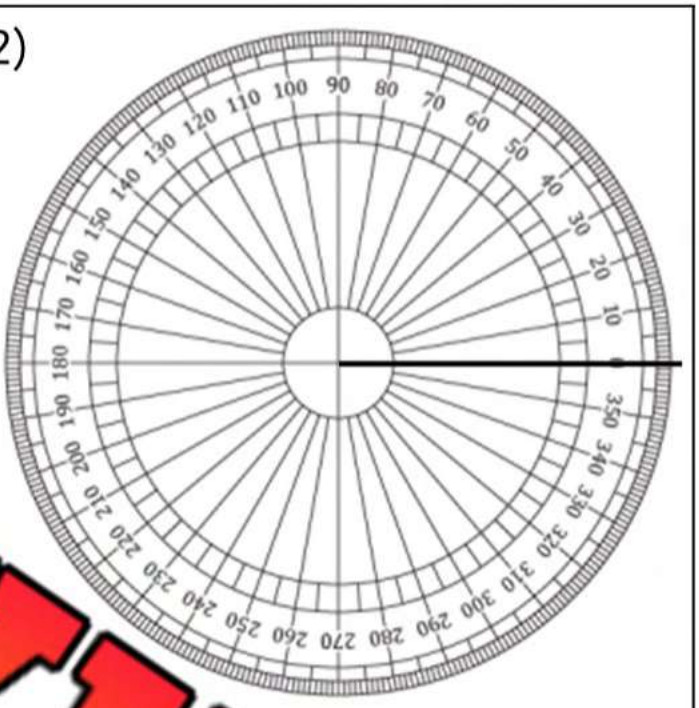
Instructions Construct the angles below

1)



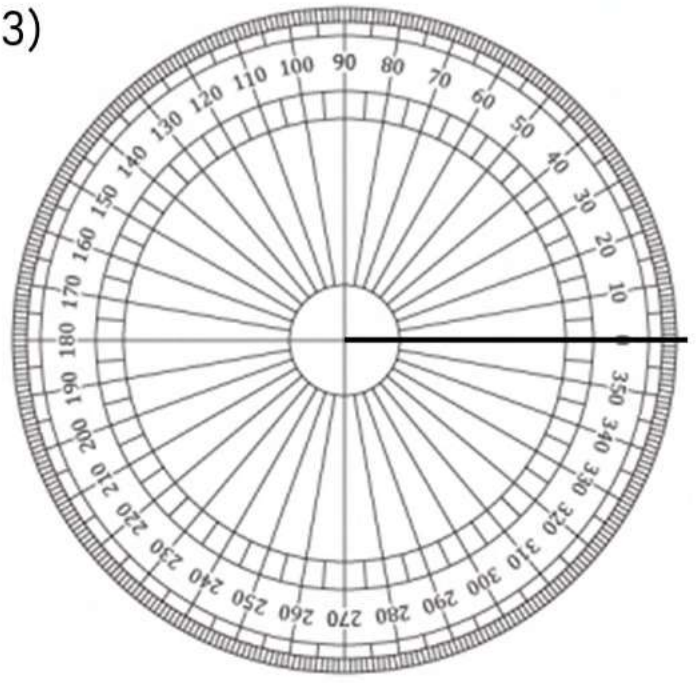
Angle = 195°

2)



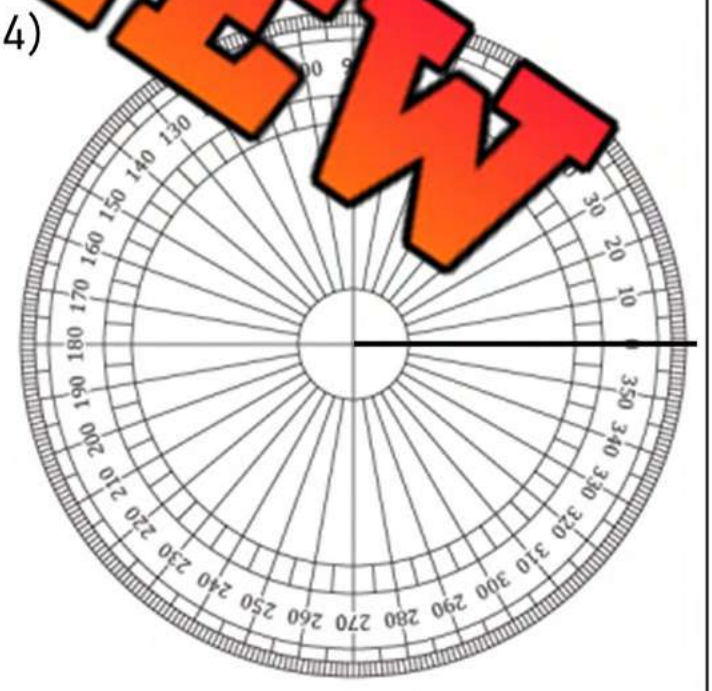
Angle = 292°

3)



Angle = 347°

4)



Angle = 262°

Name: _____ 23

Curriculum Connection
SS7.1

Constructing Angles Up To 360°

Part 1 Use a protractor to draw the angles below using the line provided

1)	2)	3)
∠= 2	∠= 275°	∠= 350°

Part 2 Use a protrac aw th below

1)	2)	3)
∠= 287°	∠= 322°	∠= 8°

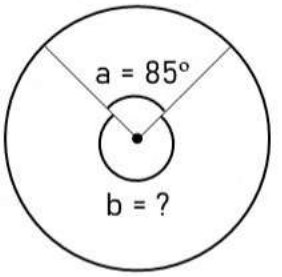
4)	5)	6)
∠= 248°	∠= 318°	∠= 264°

Name: _____ 25

Curriculum Connection
SS7.1

Introduction to Central Angles

A **central angle** is an angle with a vertex at the centre of a circle. Both angles a and b in the example are central angles. The sum of all central angles need to equal 360°. Therefore, if angle a = 85°, then angle b would equal 275° (360 – 85).

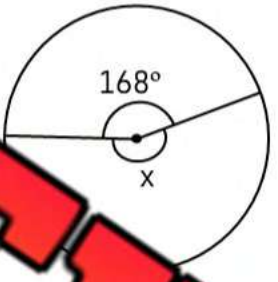


Practice Determine the value of angle x

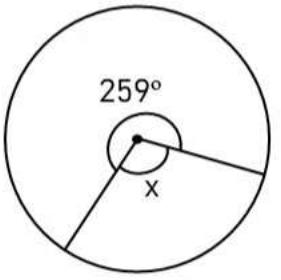
1)

∠x =

2)

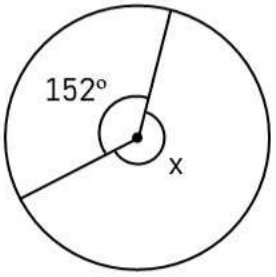


3)



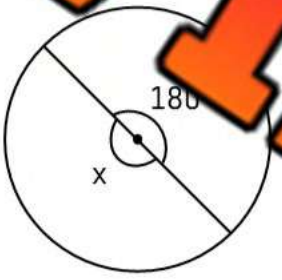
∠x =

4)



∠x =

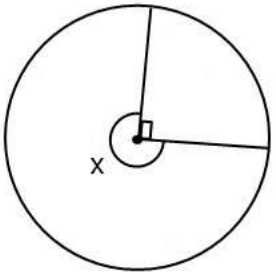
5)



∠x =

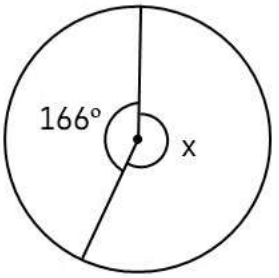
=

7)



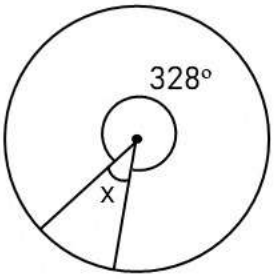
∠x =

8)



∠x =

9)



∠x =

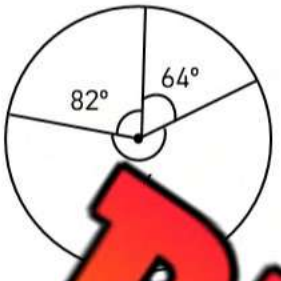
Name: _____ 29

Curriculum Connection
SS7.1

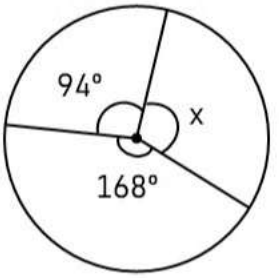
Finding the Missing Angle – Central Angles

Practice Determine the value of angle x

1)

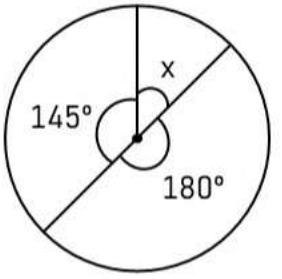


2)



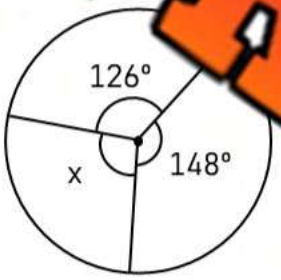
∠x =

3)



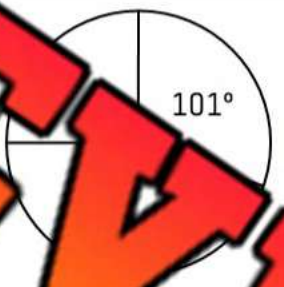
∠x =

4)



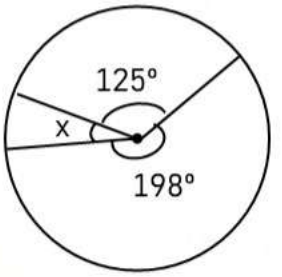
∠x =

5)



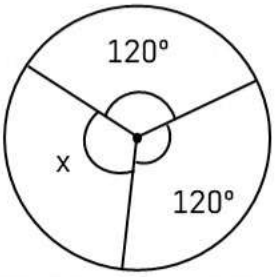
∠x =

6)



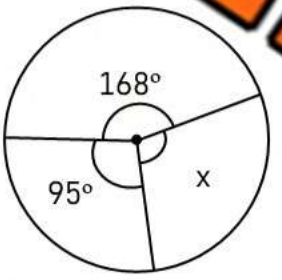
∠x =

7)



∠x =

8)

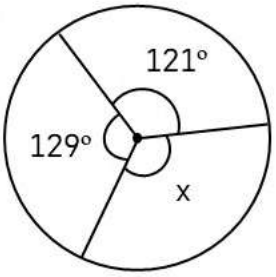


∠x =

9)

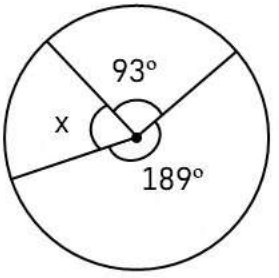
∠x =

10)



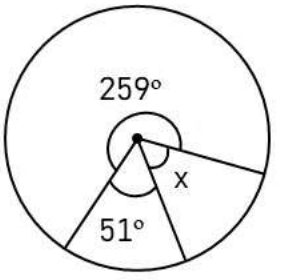
∠x =

11)



∠x =

12)



∠x =

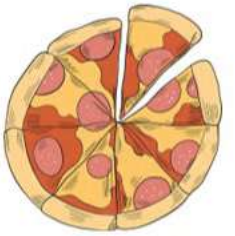
Name: _____ 30

Curriculum Connection
SS7.1

Central Angles – Word Problems

Questions | Answer the questions below

1) At a pizza party, a large pizza is sliced into 8 equal pieces. What is the measure of the central angle formed by each slice?

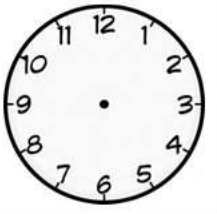


2) A c[illegible] hands form a central angle of 120 degrees at 4:00 PM. What would b[illegible] cent[illegible] the hour and minute hands when it is 8:00 PM?

3) A circular pie chart shows the percen[illegible] eopl[illegible] prefer different types of ice cream. The central angle for chocolate [illegible]eam is 1[illegible]. If the pie chart forms a full circle, what is the measure of the central angle [illegible]esen[illegible] preference for all other ice cream flavors combined?

4) At a science fair, a circular table is divided into two sections to dis[illegible] projects. The central angle for project A is 160 degrees. What is the measu[illegible]e central angle for project B if the table forms a full circle?

5) On a round clock, the angle between the 4 and 7-hour marks is 90 degrees. If the central angle for the 4-hour mark is 120 degrees, what is the measure of the central angle for the 7-hour mark?



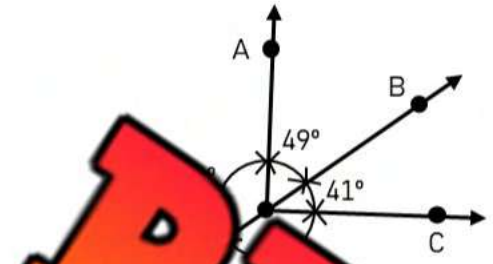
Name: _____ 31

Curriculum Connection
SS7.1

Finding the Missing Angle – Central Angles

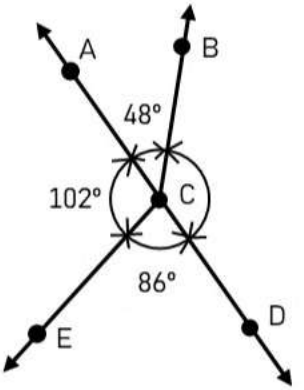
Practice Find the missing angles below

1)



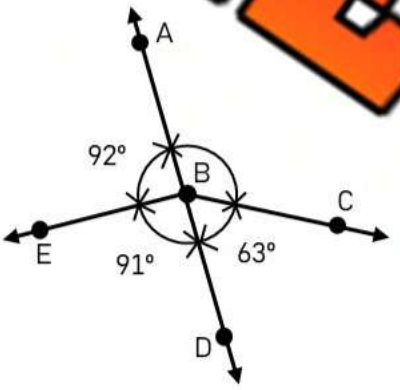
∠ABC =

2)



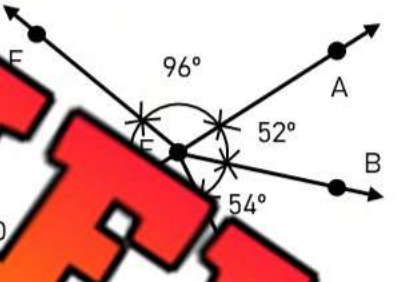
∠BCD =

3)



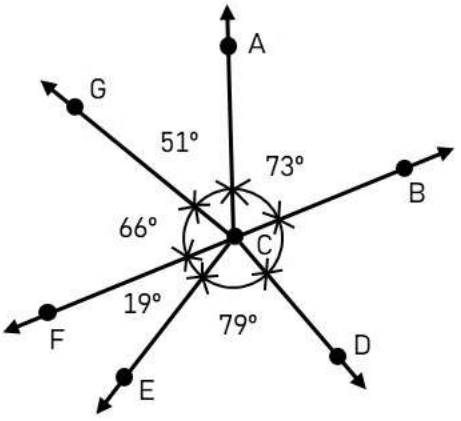
∠ABC =

4)



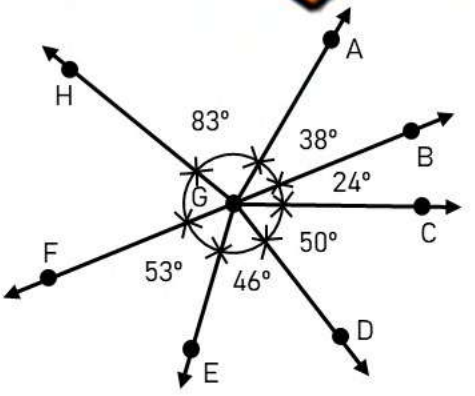
∠FED =

5)



∠BCD =

6)



∠FGH =

Name: _____ 32

Curriculum Connection
SS7.1

Central Angles – Word Problems

Questions | Answer the questions below

1) A circular pizza is divided into 3 sections with different toppings: pepperoni, cheese, and veggie. The central angles for the pepperoni and cheese sections are 130 degrees and 110 degrees, respectively. What is the measure of the central angle for the veggie section if the pizza forms a full circle?

2) A round play[illegible] different play areas for children. The central angles for the first three[illegible] 60 [illegible]00 degrees, and 120 degrees. If the playground forms a full circle, w[illegible] the[illegible] central angle for the fourth play area?

3) a) A pie chart displays the market share of 4 sm[illegible]tral angles for brands A, B, and C are 85 degrees, 135 degrees, and 55[illegible] respe[illegible] If the pie chart forms a full circle, what is the measure of the centra[illegible] market share for brand D?

b) Draw the pie chart below by either estimating or using a protractor.

Exit Cards

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

Name: _____

1) Determine the value of angle x.

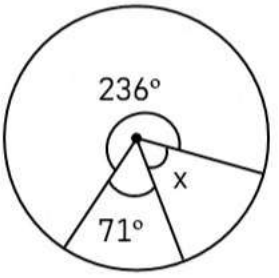
∠x = _____

2) An apple pie is cut into 6 pieces. Five pieces have angles of 40, 50, 60, 70, and 80 degrees. What is the angle of the remaining piece?

_____

Name: _____

1) Determine the value of angle x.



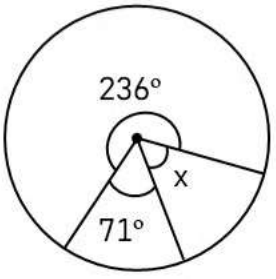
∠x = _____

2) An apple pie is cut into 6 pieces. Five pieces have angles of 40, 50, 60, 70, and 80 degrees. What is the angle of the remaining piece?

_____

Name: _____

1) Determine the value of angle x.



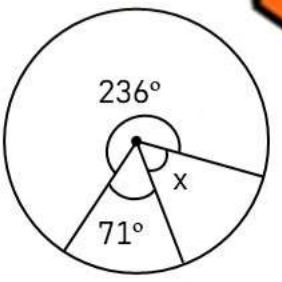
∠x = _____

2) An apple pie is cut into 6 pieces. Five pieces have angles of 40, 50, 60, 70, and 80 degrees. What is the angle of the remaining piece?

_____

Name: _____

1) Determine the value of angle x.



∠x = _____

2) An apple pie is cut into 6 pieces. Five pieces have angles of 40, 50, 60, 70, and 80 degrees. What is the angle of the remaining piece?

_____

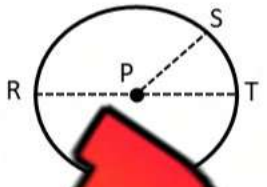
Name: _____ 34

Curriculum Connection
SS7.1

Intro – Radius and Diameter

Instructions Identify the elements for each question. The first one is done for you

1)

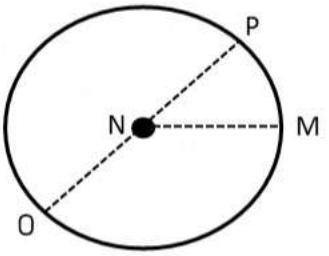


Centre = P

Radius = PS

Diameter = _____

2)

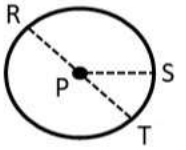


Centre = _____

Radius = _____

Diameter = _____

3)

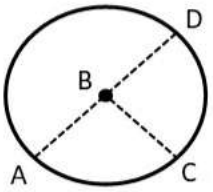


Centre = _____

Radius = _____

Diameter = _____

4)



Centre = _____

Radius = _____

Diameter = _____

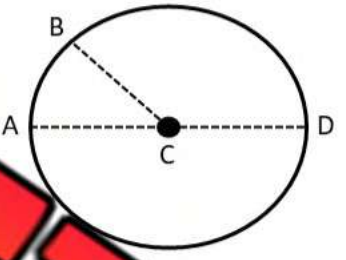
5)

Centre = _____

Radius = _____

Diameter = _____

6)

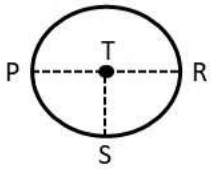


Centre = _____

Radius = _____

Diameter = _____

7)

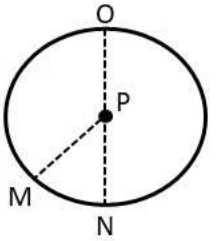


Centre = _____

Radius = _____

Diameter = _____

8)

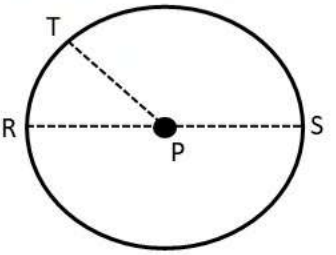


Centre = _____

Radius = _____

Diameter = _____

9)



Centre = _____

Radius = _____

Diameter = _____

Name: _____ 35

Curriculum Connection
SS7.1

Relationship Between Radius and Diameter

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

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

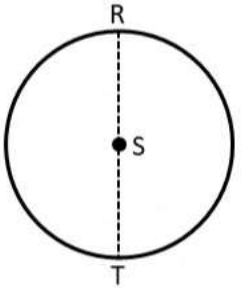
1)

a) SR = _____

b) ST = _____

c) RT = _____ (diameter)

2)

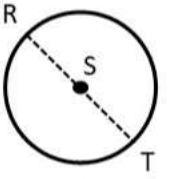


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

3)

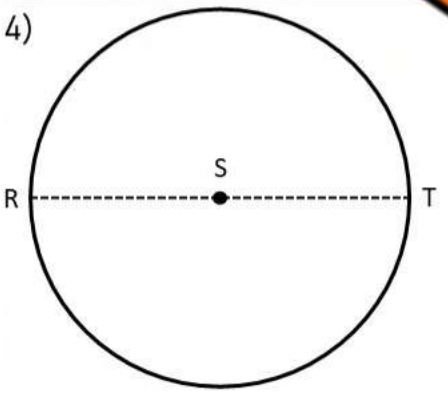


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

4)

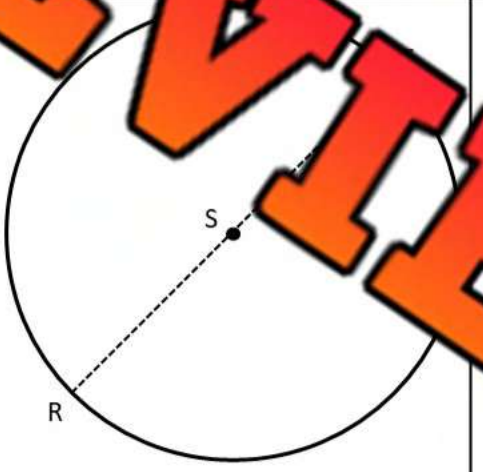


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

5)

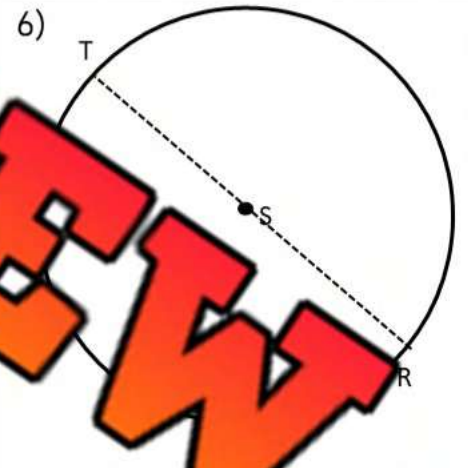


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

6)



a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

Part 2 Answer the questions below

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

Name: _____ 36

Curriculum Connection
SS7.1

Calculating Radius and Diameter

Calculating Radius Formula

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

Calculating Diameter Formula

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

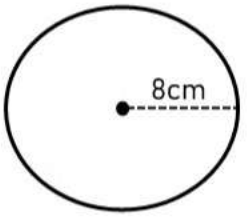
Instructions Find the radius and diameter of each circle below

1)

Radius = _____

Diameter = _____

2)



Radius = _____

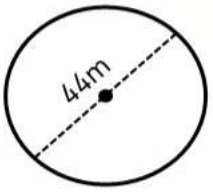
Diameter = _____

3)

Radius = _____

Diameter = _____

4)



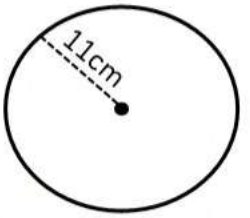
Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

6)



Radius = _____

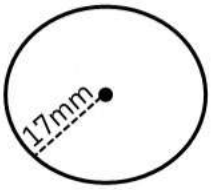
Diameter = _____

7)

Radius = _____

Diameter = _____

8)



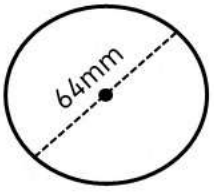
Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

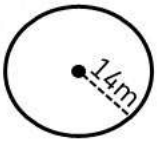
10)



Radius = _____

Diameter = _____

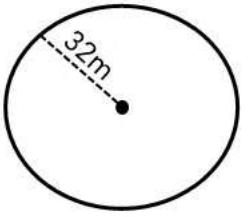
11)



Radius = _____

Diameter = _____

12)



Radius = _____

Diameter = _____

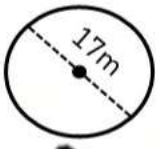
Name: _____ 37

Curriculum Connection
SS7.1

Calculating Radius and Diameter

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

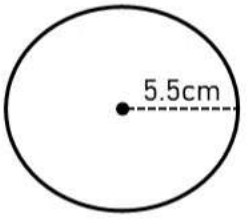
1)



Radius = _____

Diam_____

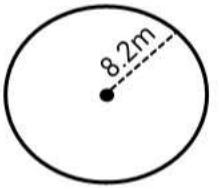
2)



Radius = _____

Diameter = _____

3)



Radius = _____

Diameter = _____

4)

Radius = _____

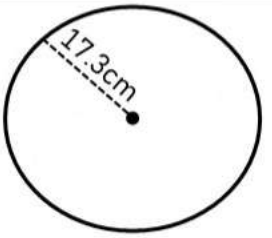
Diameter = _____

5)

e = _____

Radius = _____

6)



Radius = _____

Diameter = _____

Part 2 — Fill in the blanks below

	Radius	Diameter
1)	7cm	
2)		28mm
3)		35m
4)	19cm	
5)		53mm

		Diameter
6)	5.5m	
7)	13.5m	
8)		77cm
9)		85mm
10)	62.2cm	

Part 3 — Answer the word problems below

1)	A pizza slice is 12cm long. What is the width of the entire pizza?	
2)	A circular pool is 13m long across the middle of the pool. How far is the middle of the pool from the side?	

Name: _____ 38

Curriculum Connection
SS7.1

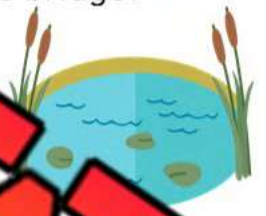
Radius and Diameter – Word Problems

Questions | Answer the questions below

1) Emily found a round stone in her backyard and decided to make a necklace pendant out of it. She measured the diameter of the stone as 3 cm. She needs to drill a hole in the middle of the rock. How many cm from the outside of the rock is the middle?

2) A ch pizza h eter of 31 cm. The chef wants to know where the middle of the pizza is so they ca ver How many cm is the middle of the pizza from the outside?

3) A circular pond in a park has a radius ters. k manager wants to install a decorative bridge straight across the po what sh e th ngth of the bridge?



4) A circular ice rink has a radius of 15 meters. The rink owner plans porary divider straight across the rink to create separate sections for beginners a anced skaters. How long should the divider be?

5) In a botanical garden, there is a circular flower bed with a diameter of 16 meters. The gardener plans to place a wooden plank halfway across the flower bed for maintenance purposes. How long should the plank be?

Exit Cards

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

Name: ____________________

1) Find the radius and diameter of the circle.

Radius = ____________

Diameter = ____________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ____________________

1) Find the radius and diameter of the circle.

Radius = ____________

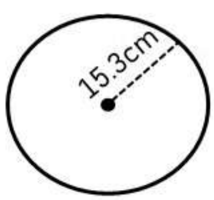
Diameter = ____________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ____________________

1) Find the radius and diameter of the circle.



Radius = ____________

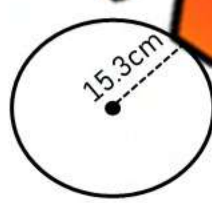
Diameter = ____________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: ____________________

1) Find the radius and diameter of the circle.



Radius = ____________

Diameter = ____________

2) A garden fountain has a radius of 5 meters. How long is a pipe that goes straight across it?

____

Name: _____ 40

Curriculum Connection
SS7.1

Estimating Circumferences

The perimeter of a circle is called its circumference (*c*). The circumference is a little more than 3 times the length of the diameter. When we do not need a precise calculation of circumference, we can estimate by multiplying the diameter by 3. We may estimate the circumference of a pizza to know how large a box we need.

Part 1 Estimate the circumference of the circles below

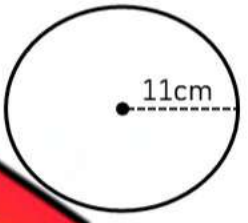
1)

Radius = _____

Diameter = _____

Circumference = _____

2)

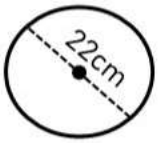


Radius = _____

Diameter = _____

Circumference = _____

3)

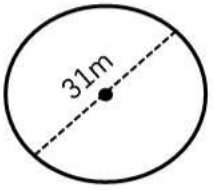


Radius = _____

Diameter = _____

Circumference = _____

4)



Radius = _____

Diameter = _____

Circumference = _____

5)

Radius = _____

Diameter = _____

Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

Part 2 Answer the word problems below

1)	Chase is drawing a circular logo. He needs the logo to be approximately 18cm in circumference. What will the radius of the logo be?	
2)	Leon is building a deck around his pool. He needs an estimate of the circumference of his pool, so he knows how much wood to buy. The radius of the pool is 3.3m. What is an estimate of the circumference?	

Name: _____ 41

Curriculum Connection
SS7.1

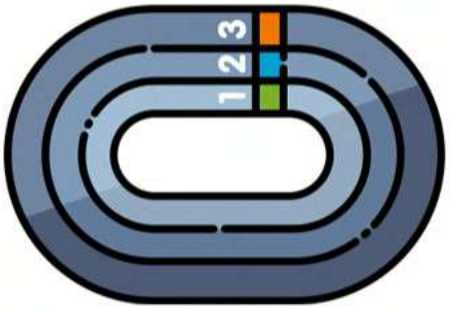
Math Race: Circumference, Radius, and Diameter

Objective What are we learning about?

Students will practice calculating the circumference, radius, and diameter of circles by quickly answering related questions in a competitive and engaging game format.

Materials What you will need for the activity.

- List[illegible]out circumference, radius, and
- Opt[illegible]l: Tim[illegible]atch
- Chairs arr[illegible]cle



Instructions How to [illegible] activity

1. Setup: Arrange chairs in a [illegible]le, [illegible]t seated in a chair. One student stands behind a seated student to [illegible]e game.
2. Explain the Game: Explain to the students th[illegible]ey w[illegible]articipating in a race around the circle by answering questions [illegible] circ[illegible]radius, and diameter. The goal is to move around the en[illegible] ci[illegible]d[illegible] their original position. Students should use mental math and [illegible]s (pi
3. Start the Game: The teacher reads out a question (e.g., "What [illegible]nce of a circle with a radius of 3 cm?"
4. Answering the Question: The standing student and the seated stud[illegible] front of them compete to answer the question first. The student who answers correctly first moves to stand behind the next seated student, while the other student remains seated.
5. Continue the Race: The teacher continues reading out questions, and the process repeats. The standing student continues to move around the circle, answering questions at each stop.
6. Winning the Game: The first student to make it around the entire circle and return to their original position wins the race.
7. Review: After the game, review some of the questions and answers with the class to reinforce the concepts and ensure understanding.

Name: _____ 42

Curriculum Connection
SS7.1

Questions | Use the questions below for the game

Questions
A donut has a circumference of 12 cm. What is the radius?
A pizza has a circumference of 3 m. What is the radius of the pizza in centimeters?
You need to wrap a label around a can. If the diameter of the can is 10 cm, what length does the label need to be?
Chase is ... a circular logo. He needs the logo to be approximately 18 cm in circum... will the radius of the logo be?
What is ... circu... of a circle with a radius of 4 cm?
A circular ga... diam... 10 m. What is its circumference?
The diameter of a ... What is its circumference?
What is the radius of a ci... a ci... ce of 30 cm?
A clock face has a diameter of ... cm ... mference?
If a circle has a circumference of 45 ... what is ... ?
A round table has a radius of 1.1 m. What is ... cumf...
The circumference of a circular park is 300 m. Wh... dius?
What is the circumference of a circle with a diameter ... m?
A hula hoop has a radius of 45 cm. What is its circumference?
What is the radius of a circle with a circumference of 60 cm?
The diameter of a round mirror is 20 cm. What is its circumference?
If a circle has a circumference of 90 cm, what is its radius?
A circular pond has a diameter of 8 m. What is its circumference?
What is the diameter of a circle with a circumference of 45 cm?
The circumference of a wheel is 90 cm. What is its diameter?
A circular plate has a diameter of 25 cm. What is its circumference?
What is the radius of a circle with a circumference of 12 cm?

Name: _____ 43

Curriculum Connection
SS7.1

Questions | Use the questions below for the game

Questions
A frisbee has a diameter of 30 cm. What is its circumference?
If a circle has a circumference of 96 cm, what is its radius?
The diameter of a circular rug is 50 cm. What is its circumference?
What is the circumference of a circle with a radius of 7 cm?
A circular garden has a radius of 100 m. What is its circumference?
The circumference of a circle is 42 cm. What is its radius?
A round pool has a diameter of 8 m. What is its circumference?
What is the radius of a circle with a circumference of 15 cm?
The diameter of a circular fountain is 12 m. What is its circumference?
If a circle has a circumference of 33 cm, what is its diameter?
A circular pizza has a radius of 20 cm. What is its circumference?
What is the diameter of a circle with a circumference of 25 cm?
The circumference of a circular field is 150 m. What is its diameter?
A round cake has a diameter of 40 cm. What is its circumference?
What is the radius of a circle with a circumference of 54 cm?
The diameter of a circular fountain is 10 m. What is its circumference?
If a circle has a circumference of 63 cm, what is its diameter?
A circular track has a diameter of 500 m. What is its circumference?
What is the diameter of a circle with a circumference of 39 cm?
The circumference of a circular playground is 306 m. What is its diameter?
A roundabout has a diameter of 30 m. What is its circumference?
What is the radius of a circle with a circumference of 48 cm?

Name: _____ 44

Curriculum Connection
SS7.1

Calculating Circumferences

The circumference of a circle is slightly more than 3 times the length of the diameter, or a little more than 6 times the length of the radius. When we need to calculate the circumference of a circle more precisely, we use pi (π). Pi is equal to approximately 3.14, but it is an irrational number, meaning it never ends!

Calculating Circumference (Diameter)

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

Calculating Circumference (Radius)

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

Practice — Calculate the circumference of the circles below

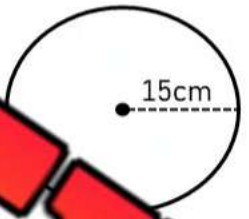
1)

Radius = _____

Diameter = _____

Circumference = _____

2)

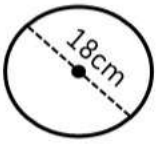


Radius = _____

Diameter = _____

Circumference = _____

3)

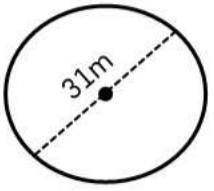


Radius = _____

Diameter = _____

Circumference = _____

4)



Radius = _____

Diameter = _____

Circumference = _____

5)

Radius = _____

Diameter = _____

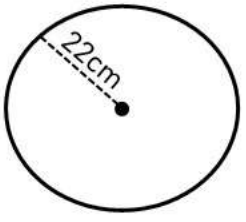
Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

7)

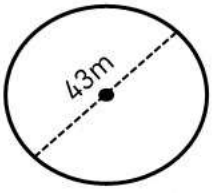


Radius = _____

Diameter = _____

Circumference = _____

8)

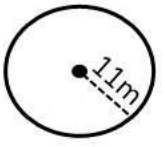


Radius = _____

Diameter = _____

Circumference = _____

9)



Radius = _____

Diameter = _____

Circumference = _____

Name: _____ 45

Curriculum Connection
SS7.1

Calculating Circumferences

Calculating Circumference (Diameter)
$c = \pi d$ or $c = \pi \times d$

Calculating Circumference (Radius)
$c = 2\pi r$ or $c = 2 \times \pi \times r$

Part 1 — Fill in the table with the missing information

	Radius	Diameter	Circumference
1)	6cm		
2)	1		
3)		22m	
4)		46cm	
5)	16m		
6)			
7)	2.5km		
8)	6.8m		
9)		1	
10)		48.6mm	

Part 2 — Answer the word problems below

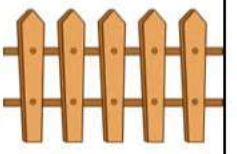
1)	Harrison is deciding which pizza to buy. He has two options. Option A: Pizza with the radius of 18cm Option B: Pizza with a circumference of 106cm Which pizza is larger? 	
2)	You need to wrap a label around a can. If the diameter of the can is 9.5cm, what length does the label need to be? 	
3)	Alexa needs to wrap a cake she made with a ribbon. The cake has a radius of 12.5cm. How long does the ribbon need to be? 	

Name: _____ 46

Curriculum Connection
SS7.1

Circumferences Word Problems

Questions | Answer the word problems below

1)	An asteroid hit the moon and created a massive round crater. Scientists measured the diameter of the crater as 31.2km. What is the circumference of the crater? 
2)	Geo[illegible]d[illegible]g a fence around his circular yard. His house is in the centre of t[illegible]e [illegible]e from his house to the edge of the yard is 15.5 metres. a) [illegible]hat is [illegible]ter of his yard?  b) If 1 metre [illegible] [illegible] how much will his fence cost him?
3)	Mark can run 100m in 14 second[illegible] is at a [illegible]r track and is trying to figure out how long it will take him to run [illegible]s. Th[illegible] has a diameter of 16m. a) What distance is the track? b) Approximately how long will it take him to run around four times? 
4)	The radius of your bicycle wheel is 40cm. a) How far will your bike move in one turn of your wheel?  b) Neill thinks it will take around 3 rotations of the wheel to move 1m. Dane thinks it will take around 4. Who is correct?

Name: _____ 47

Curriculum Connection
SS7.1

Circumferences, Radius and Diameter

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

Calculating Diameter (Circumference)

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

Calculating Radius (Circumference)

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

Part 1 Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Diameter	Radius
1)		8.9 mm	4.5 mm
2)			
3)	36		
4)	47 cm		
5)	55 m		
6)	32 mm		
7)	59 km		
8)	64 m		
9)	71 cm		
10)	68 mm		

Part 2 Answer the word problems below

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

Curriculum Connection
SS7.1

Exit Cards

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

Name: _____

1) Fill in the table with the missing information.

Radius	Diameter	Circumference
	8 mm	
26cm		
11 m		

2) A circular pond in a city park has a diameter of 12 meters. What is the circumference of the pond?

_____

Name: _____

1) Fill in the table with the missing information.

Radius	Diameter	Circumference
	8 mm	
26cm		
11 m		

2) A circular pond in a city park has a diameter of 12 meters. What is the circumference of the pond?

_____

Name: _____

1) Fill in the table with the missing information.

Radius	Diameter	Circumference
	8 mm	
26cm		
11 m		

2) A circular pond in a city park has a diameter of 12 meters. What is the circumference of the pond?

_____

Name: _____

1) Fill in the table with the missing information.

Radius	Diameter	Circumference
	8 mm	
26cm		
11 m		

2) A circular pond in a city park has a diameter of 12 meters. What is the circumference of the pond?

_____

Name: _____ 49

Curriculum Connection
SS7.1

Drawing Circles Using Radius and Diameter

A circle is a shape that has all points in a plane that are equal distance from the centre point. Therefore, an oval is not a circle. We can draw a circle by using a tool called a compass.

Draw Use a compass and a ruler to draw the circles below

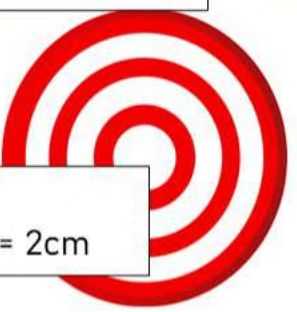
1) Radius = 2cm Diameter = _____	2) Radius = _____ Diameter = 3cm
3) Radius = _____ Diameter = 6cm	4) Radius = 2.5cm Diameter = _____
5) Radius = _____ Diameter = 40mm	6) Radius = 1cm Diameter = _____

Name: _____ 50

Curriculum Connection
SS7.1

Drawing Circles Using Radius and Diameter

Draw Draw a target using the measurements below



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

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

Name: _____ 51

Curriculum Connection
SS7.1

Drawing Circles Using Circumferences

We can draw a circle if we know the radius, diameter, or circumference. Use the formula for calculating radius so you can set your compass to the right length.

Calculating Radius

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

Draw Use a compass and a ruler to draw circles below. Round to the nearest tenth

1)

Circumference = 12

2)

Circumference = 62.8mm

3)

Circumference = 19cm

Circumference = 15.7

5)

Circumference = 20.4cm

6)

Circumference = 14.1cm

Name: _____ 52

Curriculum Connection
SS7.2

Area of a Circle - Radius

The area of a circle is the region inside the circle. We can calculate the area of a circle by using its radius. For most calculations, we can use 3.14 for pi. The formula is pi x radius^2. We can write this as $a = \pi r^2$

Calculating Area Using Radius

$a = \pi r^2$
$a = \pi \times 8 \times 8$
$a = 200.96\ m^2$

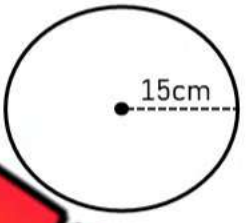
Practice Calculate the area of the circles using the radius

1)

Radius = _____

Area = _____

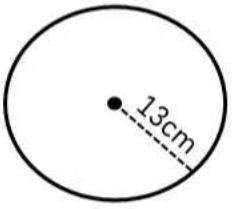
2)



Radius = _____

Area = _____

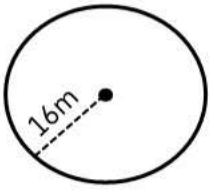
3)



Radius = _____

Area = _____

4)



Radius = _____

Area = _____

5)

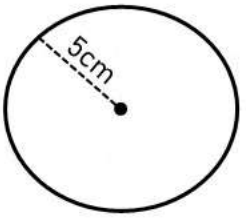
Radius = _____

Area = _____

Radius = _____

Area = _____

7)



Radius = _____

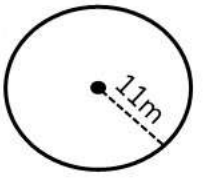
Area = _____

8)

Radius = _____

Area = _____

9)



Radius = _____

Area = _____

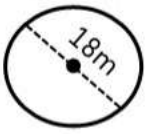
Name: _____ 53

Curriculum Connection
SS7.2

Area of a Circle - Diameter

When we know the diameter of a circle, we can divide it by two to get the radius. Once we have the radius, we can use it to calculate the area of a circle using the formula: $a = \pi r^2$

Calculating Area Using Diameter



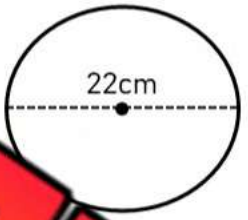
$a = \pi r^2$
diameter = 18, radius = 9
$a = \pi \times 9 \times 9$
$a = 254.34\ m^2$

Practice Calculate the area of the circles using the diameter

1)

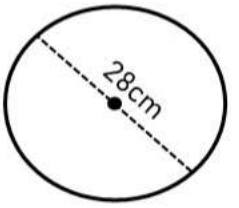
Diameter = _____
Radius = _____
Area = _____

2)



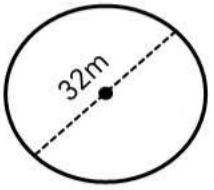
Diameter = _____
Radius = _____
Area = _____

3)



Diameter = _____
Radius = _____
Area = _____

4)



Diameter = _____
Radius = _____
Area = _____

5)

Diameter = _____
Radius = _____
Area = _____

Diam = _____
Radius = _____
Area = _____

Word Problems Solve the problems below

	Questions	Answer
1)	A dinner plate has a diameter of 14cm. What is the area of the plate?	
2)	A circular table is 1.2 metres wide. What is the area of the table in centimetres?	

Name: _____ 54

Curriculum Connection
SS7.2

Calculating Area of a Circle - Circumference

We can calculate the radius of a circle by using the circumference. Once we have the radius of a circle, we can figure out its area.

Calculating Radius From Circumference

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

Calculating Area Using Radius

$$a = \pi r^2$$

Practice Calculate the area and radius. Round to the nearest tenth

	Circumference	Radius	Area
1)	12 mm	1.9 mm	11.3 mm^2
2)			
3)	22		
4)	42 cm		
5)	36 m		
6)	58 mm		
7)	55 km		
8)	17 m		
9)	63 cm		
10)	76 mm		

Part 2 Answer the word problems below

	Questions	Answer
1)	A pool has a perimeter of 15m. What is the area inside the pool?	
2)	A ribbon that wraps around a circular present is 42cm. What is the area of the present?	
3)	The city of Williamsport is building a circular track. The track is 400m long. What will the area inside the track be?	

Curriculum Connection
SS7.2

Exit Cards

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

Name: _____

1) Calculate the area and radius.

Circu	Radius	Area
55 mm		
34 km		

2) A circular swimming [illegible] is 5 meters wide. What is the [illegible] the pool in square meters?

_____

Name: _____

1) Calculate the area and radius.

Circumference	Radius	Area
25 m		
550 mm		
34 km		

2) A circular swimming pool is 5 [illegible]ers wide. What is the area of the [illegible] square meters?

_____

Name: _____

1) Calculate the area and radius.

Circumference	Radius	Area
25 m		
550 mm		
34 km		

2) A circular swimming pool is 5 meters wide. What is the area of the pool in square meters?

_____

Name: _____

1) Calculate the [illegible]

Circumference	Ra[illegible]	Area
25 m		
550 mm		
34 km		

2) A circular swimming pool is 5 meters wide. What is the area of the pool in square meters?

_____

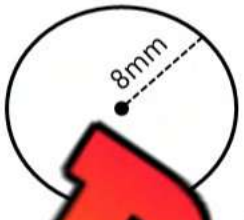
Name: _____ 56

Curriculum Connection
SS7.1, SS7.2

Circle – Mixed Review

Practice | Fill in the blanks below

1)



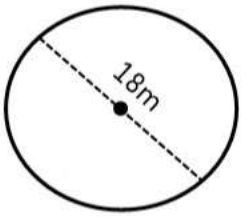
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

2)



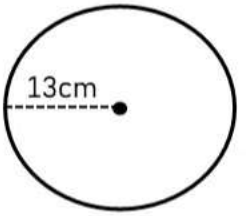
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

3)



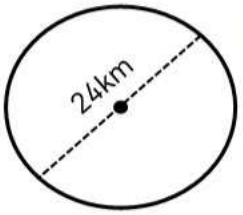
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

4)



Radius = _____

Diameter = _____

Circumference = _____

Area = _____

5)

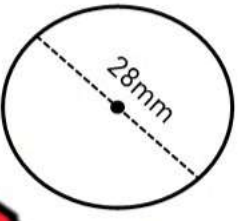
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

6)



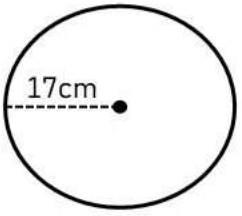
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

7)



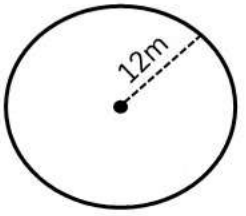
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

8)



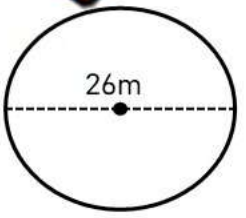
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

9)



Radius = _____

Diameter = _____

Circumference = _____

Area = _____

Name: _____ 61

Curriculum Connection
SS7.1, SS7.2

Circle – Word Problems

Questions	Answer the word problems below

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

Name: _____ 62

Curriculum Connection
SS7.1, SS7.2

Circle – Basketball Word Problems

Questions | Answer the word problems below

A basketball hoop has a circumference of 145cm. A standard NBA basketball has a circumference of 75cm.

a) Can 2 NBA basketballs fit through the hoop at the same time?

b) A WNBA basketball has a circumference [illegible]m. W[illegible]BA basketballs fit through the hoop at the same time?

Name: _____ 63

Curriculum Connection
SS7.1, SS7.2

Circle – Putting Word Problems

Questions | Answer the word problems below

A golf hole has a diameter of 11cm.

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

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

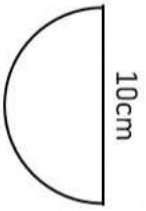
c) Will 2 or 3 golf balls fit in a line across the middle of a golf hole? Explain.

Name: _____ 64

Curriculum Connection
SS7.1, SS7.2

Semi - Circle

A semi-circle is half of a circle. If we can find the area of a full-circle, we can divide it by two to find the area of a semi-circle.



Calculating Area of Semi-Circle

$a = \pi r^2 \div 2$

diameter = 10, radius = 5

$a = 3.14 \times 5 \times 5 \div 2$

$a = 78.5\ cm^2 \div 2$

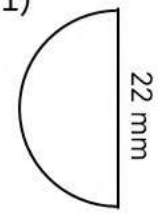
area of semi-circle = $39.25\ cm^2$

Part 1 ... in the table below

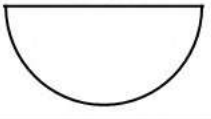
	Diameter	Radius	Area of Full Circle	Area of Semi-Circle
1)	6 cm			
2)	4 km			
3)	24 m			
4)	10 mm			
5)	16 m			
6)	30 cm			

Part 2 Calculate the area of the semi-circles

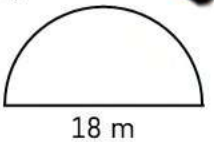
1)



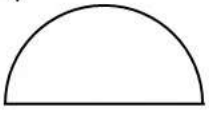
2)



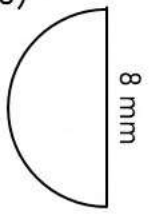
3)



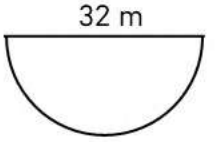
4)



5)



6)



Name: _____ 65

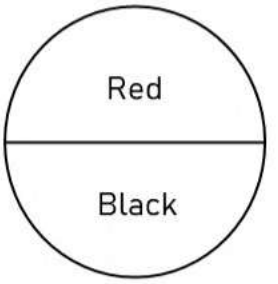
Curriculum Connection
SS7.2

Semi - Circle – Word Problems

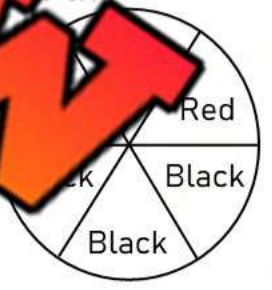
Questions | Answer the word problems below

1) A semi-circle shaped rug has a diameter of 44cm. What is the area of the rug?

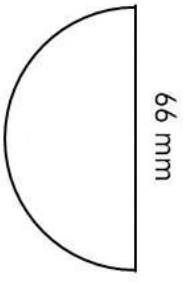
2) A circul[illegible]has 2[illegible]ns, half red and half green. The spinner has a radius of 8[illegible]at is t[illegible]the red side of the spinner?



3) A circular spinner has 6 sections. Half are[illegible]d[illegible]a[illegible]. If the diameter of the spinner is 18cm, what is the a[illegible]e sec[illegible]the spinner?



4) A semi-circle window has a diameter of 66cm. What is the area of the window?



Curriculum Connection
SS7.2

Exit Cards

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

Name: _____

1) Calcu[illegible]he area of the semi-circle.

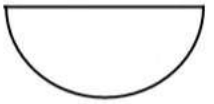
Area = _____

2) A semi-circle playg[illegible] a radius of 10 meters. What [illegible] of the playground?

_____

Name: _____

1) Calculate the area of the semi-circle.



Area = _____

2) A semi-circle playground has a [illegible]s of 10 meters. What is the area of t[illegible]yground?

_____

Name: _____

1) Calculate the area of the semi-circle.

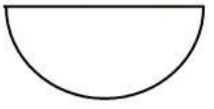
Area = _____

2) A semi-circle playground has a radius of 10 meters. What is the area of the playground?

_____

Name: _____

1) Calculate the a[illegible]i-circle.



Area = _____

2) A semi-circle playground has a radius of 10 meters. What is the area of the playground?

_____

Name: _____ 67

Curriculum Connection
TQ

Quiz - Circles

Part 1 Fill in the table below

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

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

Part 2 Fil[illegible]nks

1)

Radius = _____

Diameter = _____

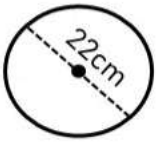
Circumference = _____

Radius = _____

Diameter = _____

Circumference = _____

3)



Radius = _____

Diameter = _____

Circumference = _____

Part 3 Calculate the diameter and radius. Round to the nearest t[illegible]

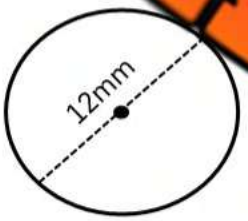
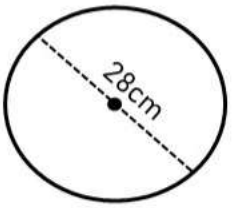
	Radius	Diameter	Circumference
1)	5 mm		
2)		16 m	
3)			22 cm
4)	32 mm		
5)			55 m

Curriculum Connection
TQ

Part 4 Use a compass and a ruler to draw circles below

1)	2)
Radius = 2 Diamete	Radius = _____ Diameter = 3cm

Part 5 Calc rea of the circles

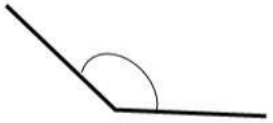
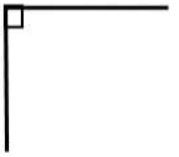
1)		3)
		
Diameter = _____ Radius = _____ Area = _____	Diameter _____ Radius = _____ Area = _____	eter = _____ a = _____ ea = _____

Part 6 Solve the problems below

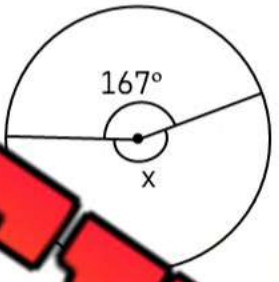
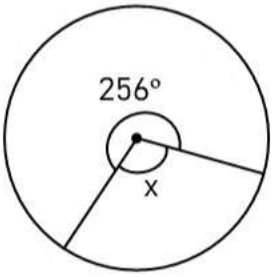
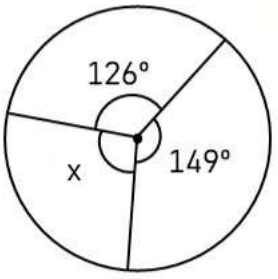
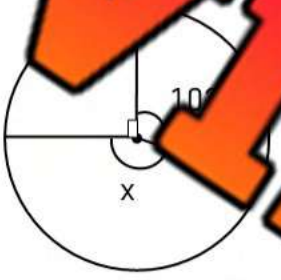
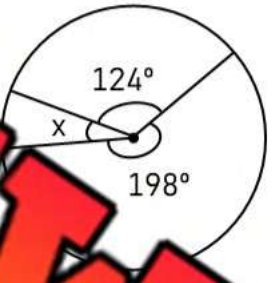
	Questions	Answer
1)	The distance around a carousel is 18m. What is its radius? 	
2)	A dog has its leash tied to a stake in a backyard. The dog's leash is 6.5 metres long. How much area can the dog play in?	
3)	The diameter of a wheel on a car is 25 centimetres. How far does the car move with one rotation of the wheel? 	

Curriculum Connection
TQ

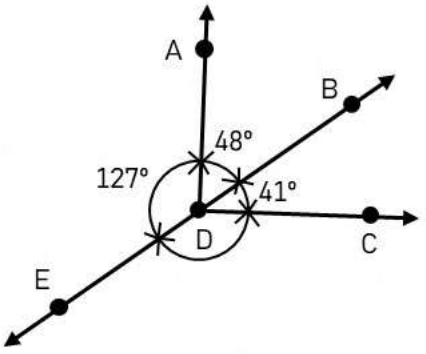
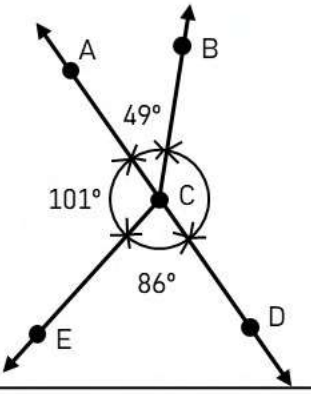
Part 7 Measure the angles and label them acute, right, obtuse, or reflex

1)	2)	3)	4)
			

Part 8 Determine the value of angle x

1)	2)	3)
		
∠x =		∠x =
4)	5)	6)
		
∠x =	∠x =	

Part 9 Find the missing angles below

1)	2)
	
∠CDE =	∠BCD =

Name: _____ 70

Curriculum Connection
SS7.2

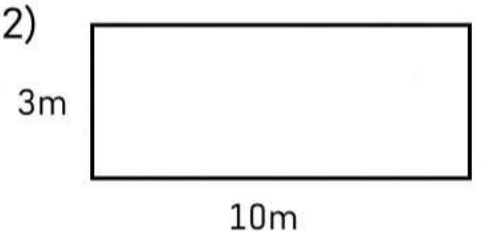
Finding the Area of Rectangles

Instructions | Find the area (A= b x h) | *Not to Scale

1)

Area = _____

2)

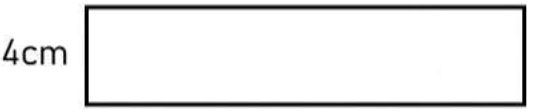


Area = _____

3)

Area = _____

4)



Area = _____

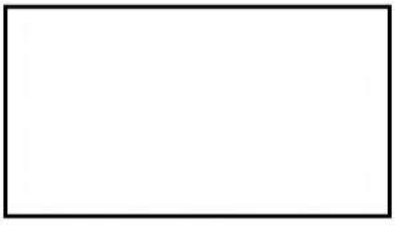
5)

Area = _____

6)

Area = _____

7)

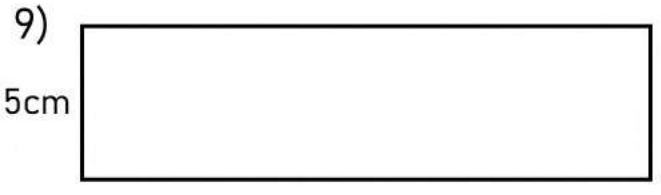


Area = _____

8)

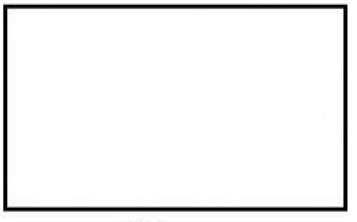
Area = _____

9)



Area = _____

10)



Area = _____

Name: _____ 72

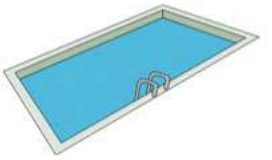
Curriculum Connection
SS7.2

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 p… 12m b… What is the area of the pool?



4) A candy wrapper is 40mm wide an… long… is the area of the wrapper in cm?

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

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

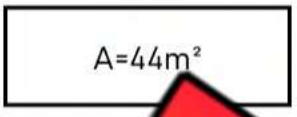
Name: _____ 73

Curriculum Connection
SS7.2

Finding the Missing Information

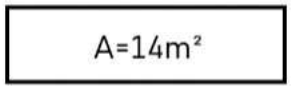
Instructions | Find the missing value (A= b x h)

1)



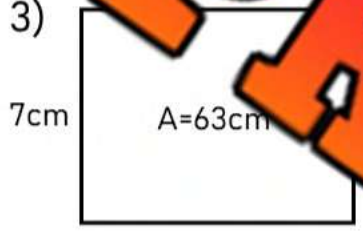
Base = _____
Height = _____
Area = _____

2)



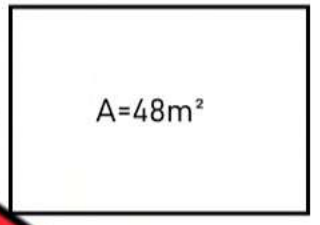
Base = _____
Height = _____
Area = _____

3)



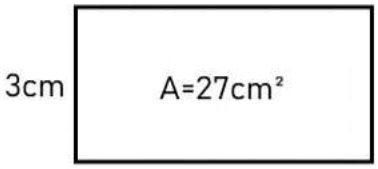
Base
Area

4)



Base = _____
Height = _____
Area = _____

5)

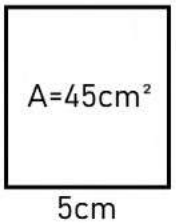


Base = _____
Height = _____
Area = _____

6)

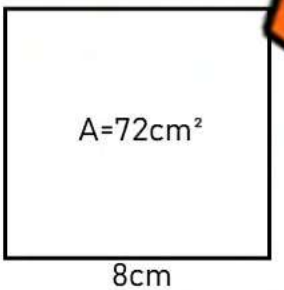
Base = _____
Height = _____
Area = _____

7)



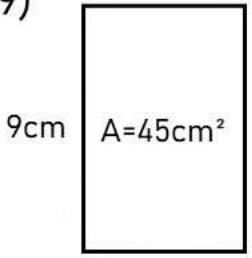
Base = _____
Height = _____
Area = _____

8)



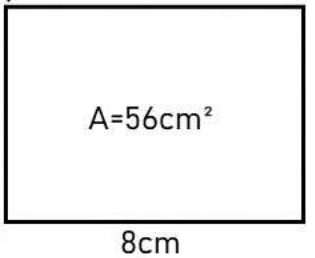
Base = _____
Height = _____
Area = _____

9)



Base = _____
Height = _____
Area = _____

10)



Base = _____
Height = _____
Area = _____

Name: _____ 75

Curriculum Connection
SS7.2

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 88cm². The base of the paper is 8cm. What is the height of the paper?

2) Jac rd has f 56m². The height of the yard is 8m. What is the base?

3) A bus has an area of 24m². The hei ne bu . What is the base?

4) A square poster has an area of 36cm². What is the base and

5) A cookie sheet has an area of 72cm². The base of the sheet is 9cm. What is the height of the cookie sheet?

Name: _____ 76

Curriculum Connection
SS7.2

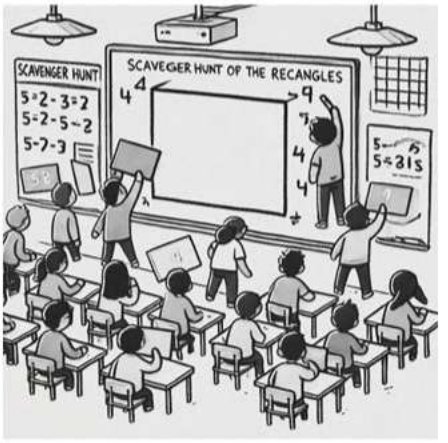
Scavenger Hunt: Area of Rectangles

Objective What are we learning about?

Students will practice calculating the area of rectangles, enhancing their understanding of this geometric concept through a fun and engaging scavenger hunt.

Materials What you will need for the activity.

- S… ca… area questions (provided)
- Sm… ags or … for each team to collect their cards
- Tape to hide … found … room or in a designated saf… loor



Instructions How you wi… ple…

1) **Prepare the Cards**: Write different a…ea ques… abo… tangles on index cards. Use the questions generated above.
2) **Hide the Cards**: Hide the cards around the cla… a des… d safe outdoor area. Tape them under chairs, desks, or t… into… bvious spots.
3) **Divide into Teams**: Divide the class into small teams and give … bag or envelope to collect their cards.
4) **Explain the Game**: Explain the game to the students. Each team wi… nt for a card, solve the problem on it as quickly as they can, and return to you for verification.
5) **Start the Game**: Say "Go!" and each team rushes to find their first card.
6) **Verify Answers**: When a team thinks they have the correct answer, they come back to you. If correct, they receive a checkmark and move on to find the next card.
7) **Continue Playing**: The game continues until all cards are found or you call time. The team with the most correct answers wins.
8) **Discuss**: After the game, discuss the problems and solutions each team encountered, focusing on the methods used to calculate the area and perimeter.

Name: _____ 77

Curriculum Connection
SS7.2

Index cards | Cut out the cards below

A garden has an area of 45 m². The base of the garden is 900 cm. What is the height of the garden?

A computer screen is 22 cm by 120 mm. What is the perimeter of the screen?

A piece of pa… s an… 8 cm². The base o… e… s… m. What is the height… ape…

A rectangle has a length of 0.3 m and a width of 25 cm. What is the area in square centimetres?

A phone is 12 cm by 0.06 m. What is the area of the phone?

A squa… si… gth of 100 mm. What is… e a… are in cent…

A square has a side length of 50 mm. What is the area of the square in centimetres?

A picture frame is 18 cm by 0.09 m. What is the area of the picture frame?

Name: _____ 78

Curriculum Connection
SS7.2

Index cards | Cut out the cards below

A rectangular garden has a length of 12 m and a width of 800 cm. What is the area of the garden?	A square has a side length of 200 mm. What is the area of the square in centimetres?
A square pl[illegible] has [illegible] of 81 m². What [illegible] side of the play[illegible] in centimetres?	A rug has an area of 24 m². The base of the rug is 600 cm. What is the height of the rug?
A book cover is 25 cm by 180 mm. What is the perimeter of the book cover?	A squa[illegible] si[illegible] of 120 mm. What [illegible] in cent[illegible]
A table is 1.2 m by 70 cm. What is the area of the table in square centimetres?	A garden has an area of 90 m². The base of the garden is 3000 cm. What is the height of the garden?

Name: _____ 80

Curriculum Connection
SS7.2

Index cards | Cut out the cards below

A rectangular piece of wood has an area of 32 cm². If the height is 4 cm, what is the base in millimetres?

A rectangular field has a width of 10 m and a length of 2500 cm. What is the area of the field?

A rectang[illegible] perimeter of 50[illegible] m, what is the [illegible] millimetres?

A garden has an area of 35 m². The base of the garden is 700 cm. What is the height of the garden?

A garden plot measures 7.5 m by 4 m. If you divide the plot into 5 equal sections lengthwise, what is the area of each section?

A rec[illegible] has an area of 2.5 m². [illegible] is 50 cm, what [illegible] meters?

A square painting has an area of 1.44 m². What is the length of one side in centimeters?

A piece of rectangular cloth is 120 cm by 0.75 m. What is the area in square centimeters?

Curriculum Connection
SS7.2

Exit Cards

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

Name: ____________________

1) Find the missing value (A= b x h)

A=72cm²
8cm

Base = ________
Height = ________
Area = ________

2) A garden has an area of 45m². The base of the garden is 900 cm. What is the height of the garden?

____

Name: ____________________

1) Find the missing value (A= b x h)

A=72cm²
8cm

Base = ________
Height = ________
Area = ________

2) A garden has an area of 45m². The base of the garden is 900 cm. What is the height of the garden?

____

Name: ____________________

1) Find the missing value (A= b x h)

A=72cm²
8cm

Base = ________
Height = ________
Area = ________

2) A garden has an area of 45m². The base of the garden is 900 cm. What is the height of the garden?

____

Name: ____________________

1) Find the missing value (A= b x h)

A=72cm²
8cm

Base = ________
Height = ________
Area = ________

2) A garden has an area of 45m². The base of the garden is 900 cm. What is the height of the garden?

____

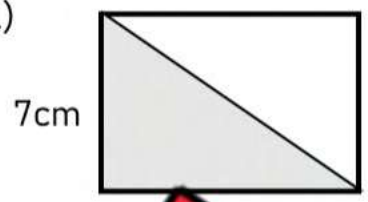
Name: _____ 82

Curriculum Connection
SS7.2

Introduction – Area of a Triangle

Instructions Find the area of the rectangles and triangles below

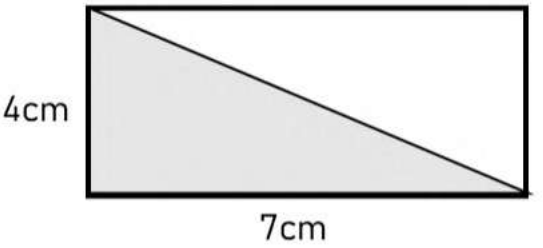
1)



Area of a rectangle = _____

Area of a triangle = _____

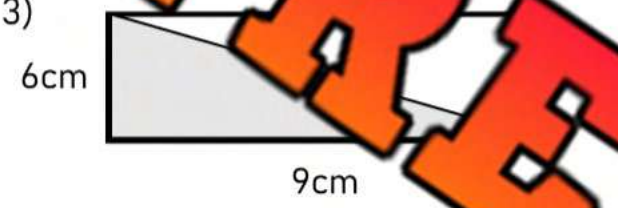
2)



Area of a rectangle = _____

Area of a triangle = _____

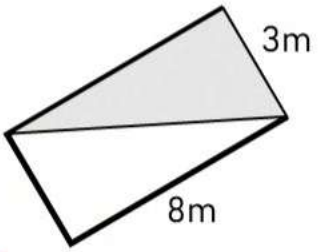
3)



Area of a rectangle = _____

Area of a triangle = _____

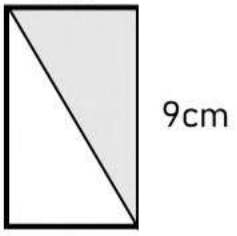
4)



Area of a rectangle = _____

Area of a triangle = _____

5)



Area of a rectangle = _____

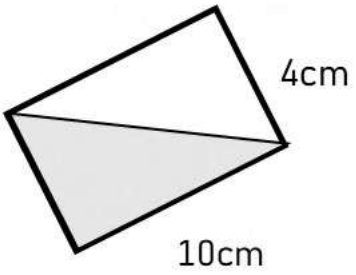
Area of a triangle = _____

6)

Area of a square = _____

Area of a square = _____

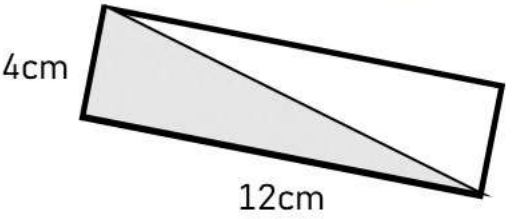
7)



Area of a rectangle = _____

Area of a triangle = _____

8)



Area of a rectangle = _____

Area of a triangle = _____

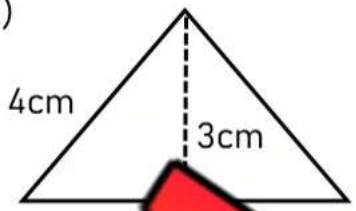
Name: _____ 83

Curriculum Connection
SS7.2

Area of a Triangle

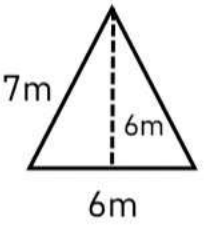
Instructions Find the area of the triangles below (A= b x h ÷ 2)

1)



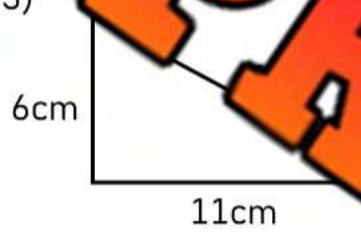
Area = _____

2)



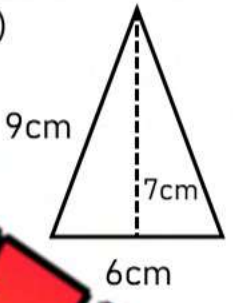
Area = _____

3)



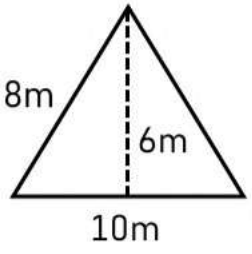
Area = _____

4)



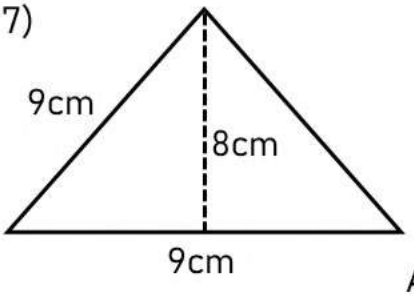
Area = _____

5)



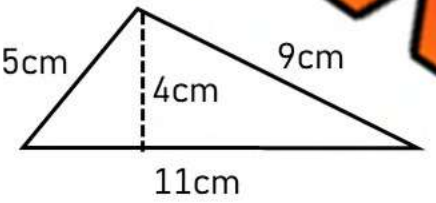
Area = _____

7)



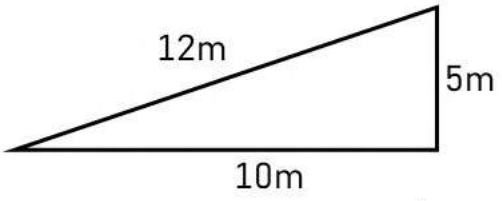
Area = _____

8)



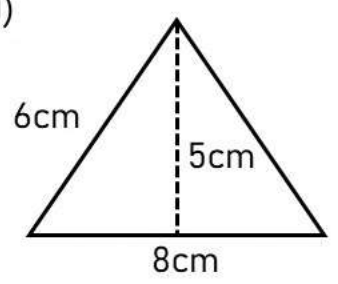
Area = _____

9)



Area = _____

10)



Area = _____

Name: _____ 84

Curriculum Connection
SS7.2

Area of a Triangle - Word Problems

Questions | Answer the questions below

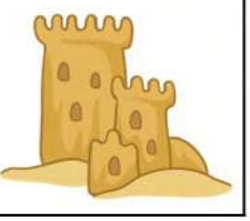
1) The school is organizing a triangular kite-making competition. Emma's kite has a base of 12 meters and a height of 7 meters. What is the area of Emma's kite?

2) A t[illegible]ular pa[illegible]ase of 25 meters and a height of 15 meters. How much area does the pa[illegible]

3) In an architecture project, student[illegible]ked t[illegible]gn a triangular window. Nathan's window design has a base o[illegible] centim[illegible] an[illegible]height of 50 centimeters. What is the area of his window d[illegible]

4) Olivia wants to create a triangular painting for her art class. [illegible] painting is 1.5 meters and the height is 1 meter. What is the area of [illegible] painting?

5) At the beach, a group of friends built a large triangular sandcastle. When looking at the front, the base of the sandcastle is 2 meters and the height is 1.2 meters. What is the area of the front of the triangular sandcastle?



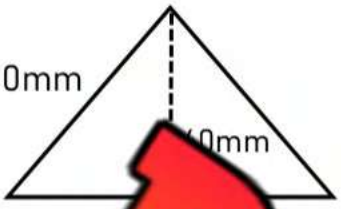
Name: _____ 85

Curriculum Connection
SS7.2

Area of a Triangle

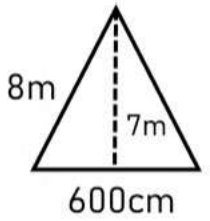
Part 1 Find the area of the triangles below (A= b x h ÷ 2)

1)



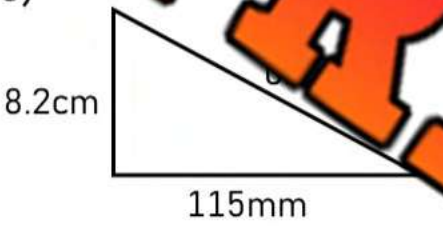
Area = _____

2)



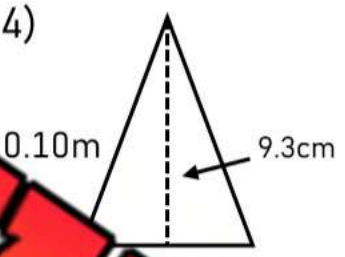
Area = _____

3)



Area = _____

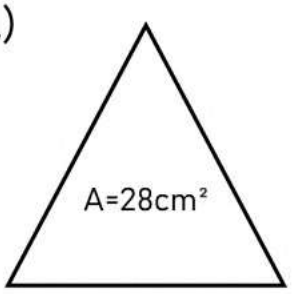
4)



Area = _____

Part 2 Find the missing value

1)

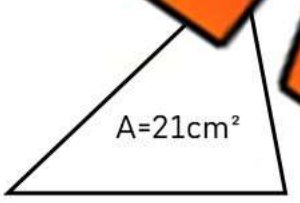


Base = _____

Height = _____

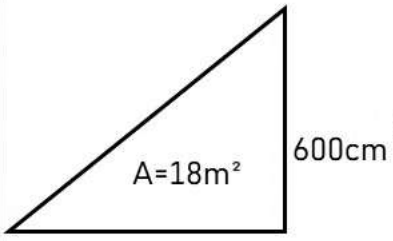
Area = _____

2)



Area = _____

3)

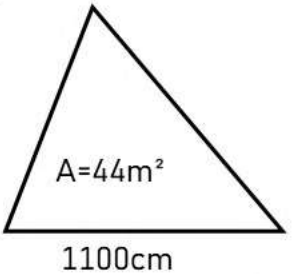


Base = _____

Height = _____

Area = _____

4)



Base = _____

Height = _____

Area = _____

Name: _____ 86

Curriculum Connection
SS7.2

Area of a Triangle - Word Problems

Questions | Answer the questions below

1) Liam wants to build a triangular treehouse platform. The platform will have a base of 3 meters and a height of 2.5 meters. After calculating the area of the platform, he plans to cover it with wooden planks. If each wooden plank covers 0.5 square meters, how many wooden planks will he need to cover the entire floor?

2) A triangular stage for [illegible] play[illegible]se of 6 meters and a height of 4 meters. After finding the ar[illegible]e s[illegible]dents plan to cover it with a carpet. The carpet is sold by the squa[illegible], an[illegible]sts $25 per square meter. How much will the students need to [illegible]on the[illegible] cover the entire stage?

3) Ella plans to make a triangular banner for her school's sports event. The base of the banner is 3 meters, and the height is 2 meters. After calculating the area of the banner, Ella wants to paint it using two colours, with each colour covering half of the area. If a can of paint covers 1.5 square meters, how many cans of each color will she need?

Curriculum Connection
SS7.2

Exit Cards

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

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2).

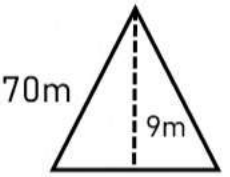
800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)



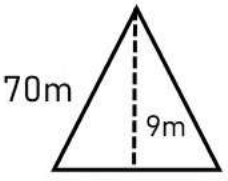
800cm Area = _____

2) A triangular banner has a base of meters and a height of 600cm. the area of the banner?

_____

Name: _____

1) Find the area of the triangles below (A= b x h ÷ 2)



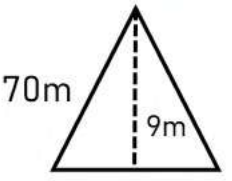
800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

Name: _____

1) Find the area of below (A= b x h ÷



800cm Area = _____

2) A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

_____

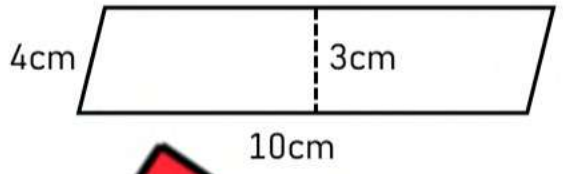
Name: _____ 88

Curriculum Connection
SS7.2

Perimeter and Area of Parallelograms

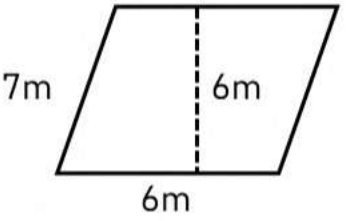
Instructions Find the perimeter and area of the parallelograms below (A= b x h)

1)



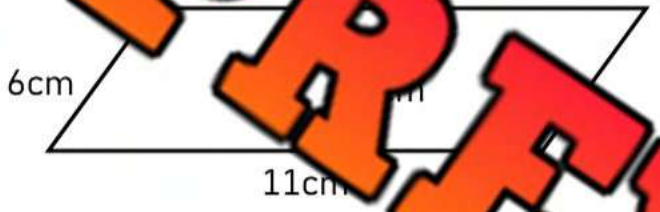
Perimeter = _____ Area = _____

2)



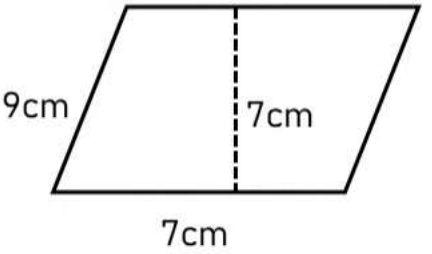
Perimeter = _____ Area = _____

3)



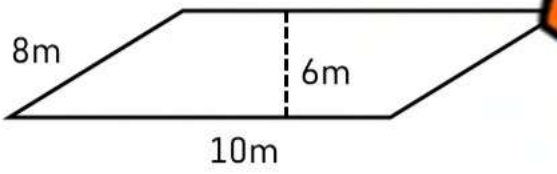
Perimeter = _____ Area = _____

4)

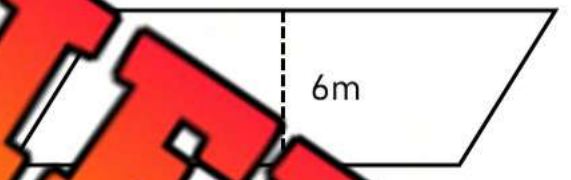


Perimeter = _____ Area = _____

5)

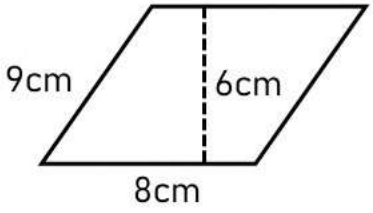


Perimeter = _____ Area = _____



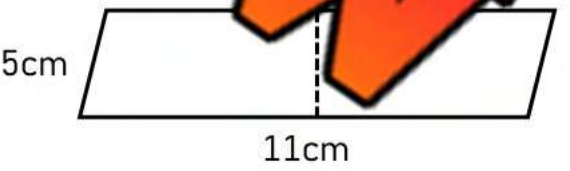
Perimeter = _____ Area = _____

7)



Perimeter = _____ Area = _____

8)

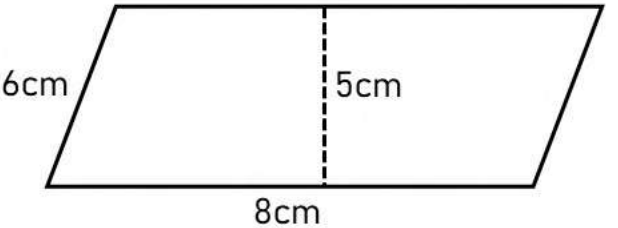


Perimeter = _____ Area = _____

9)

Perimeter = _____ Area = _____

10)



Perimeter = _____ Area = _____

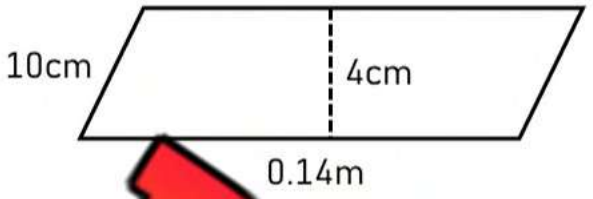
Name: _____ 90

Curriculum Connection
SS7.2

Perimeter and Area of Parallelograms

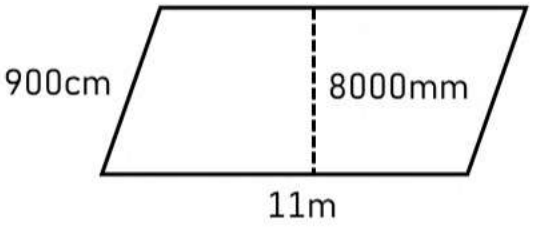
Part 1 Find the perimeter and area of the parallelograms below (A= b x h)

1)



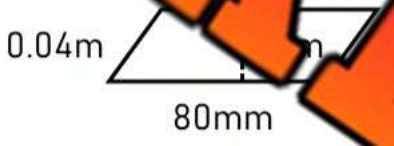
Perim_____ ea = _____

2)



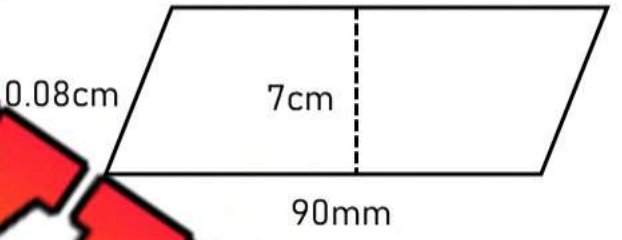
Perimeter = _____ Area = _____

3)



Perimeter = _____ Area = _____

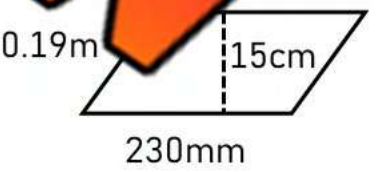
4)



P_____er = Area = _____

Part 2 Answer the word problems below

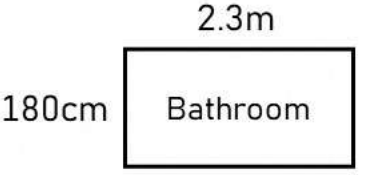
A bathroom is being tiled with parallelogram shaped tiles. The_____e tiles are below.



1) What is the area of the parallelogram?

2) The dimensions of the bathroom are displayed below.

a) What is the area of the bathroom?



b) How many tiles will fit in the bathroom?

Name: _____ 91

Curriculum Connection
SS7.2

Area of a Parallelograms - Word Problems

Questions | Answer the questions below

1) a) A parallelogram-shaped garden has a base of 9 meters and a height of 6 meters. One pair of the fence's opposite sides is 12 meters long each. If the gardener wants to put a fence around the garden, how much fence will they need?

b) If the f $50 per metre, how much will the fence cost?

2) A parallelogra ed gre s a base of 6 meters and a height of 4 meters. The other two sides l each. How much room do they have inside the greenhouse to plant th p?

3) a) A parallelogram-shaped rooftop has a base of 14 nd a he 10 meters. The other pair of opposite sides of the rooftop are 18 me each wn r wants to know how much room there is on top of the roof so they c stal w much room is there?

b) If one solar panel takes up 7 square metres, how many will they be able to fit on the roof?

c) If one solar panel is $2450, how much will they spend on solar panels?

Name: _____ 92

Curriculum Connection
SS7.2

Area of a Triangle/Parallelogram - Word Problems

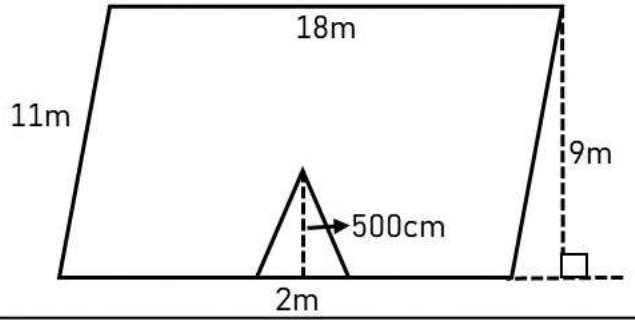
Questions | Draw a picture of the problem and then find the area

1) Jake is building a triangular garden. He needs to know how much fertilizer he needs to cover the space. If the garden has a base of 500cm and a height of 4m, what is the area of the garden in metres?

2) A farmer is l[illegible] or h[illegible]land. His land is shaped like a parallelogram. It has a base of 5000cm [illegible]eight [illegible] sides of the garden are 2000cm. What is the area of his farmland [illegible]tre[illegible]

3) Christina is painting her triangular artwork. The a[illegible]w[illegible] base [illegible]m and a height of 80mm. What is the area of her artwork in millimetres[illegible]

4) Harold is building a unique house. The shape of the front of the house is a parallelogram. It will have a triangular door cut out of it. What is the area of the front of his house without the door?



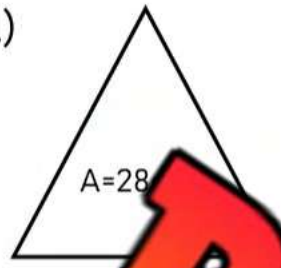
Name: _____ 93

Curriculum Connection
SS7.2

Finding the Missing Information

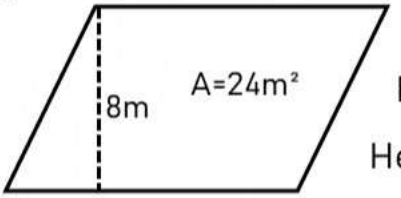
Instructions Find the missing value (A= b x h)

1)



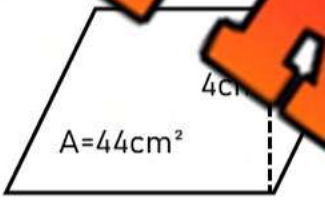
Base = _____
Height = _____
Area = _____

2)



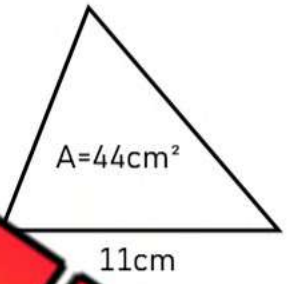
Base = _____
Height = _____
Area = _____

3)



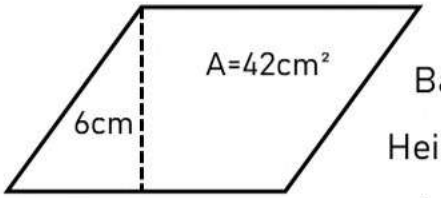
Base = _____
Height = _____
Area = _____

4)



Base = _____
Height = _____
Area = _____

5)

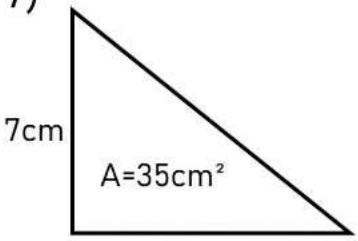


Base = _____
Height = _____
Area = _____

6)

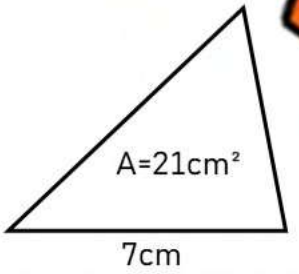
Base = _____
Height = _____
Area = _____

7)



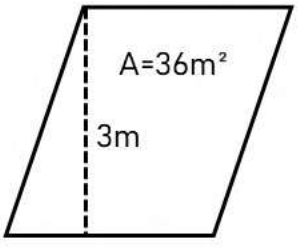
Base = _____
Height = _____
Area = _____

8)



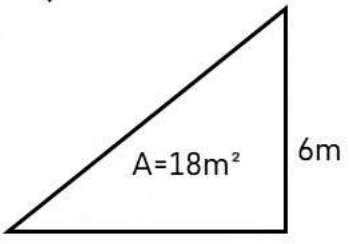
Base = _____
Height = _____
Area = _____

9)



Base = _____
Height = _____
Area = _____

10)



Base = _____
Height = _____
Area = _____

Name: _____ 94

Curriculum Connection
SS7.2

Activity: "Triangle and Parallelogram Toss Challenge"

Objective

What are we learning about?

Students will reinforce their understanding of finding the area of triangles and parallelograms through a fun, team-based activity that involves answering questions and shooting a paper ball into a bin.

Materials

What you will need for the activity.

- I[illegible]ms
- R[illegible]ng she[illegible]h team
- Paper ball[illegible]m)
- Bins or ba[illegible]per tea
- Desks (one pe[illegible])

Instructions

How you[illegible]pl[illegible]ity

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

Name: _____ 95

Curriculum Connection
SS7.2

Index Cards | Cut out the cards below

Jake is building a triangular garden. He needs to know how much fertilizer he needs to cover the space. If the garden has a base of 500cm and a height of 4m, what is the area of the garden in metres?

A triangular banner has a base of 10 meters and a height of 600cm. What is the area of the banner?

Christina is painting a triangular artwork. The artwork has a base and a height of 80mm. What is the area of her artwork in millimetres?

The school is organizing a triangular kite-making competition. Emma's kite has a base of 12 meters and a height of 7 meters. What is the area of Emma's kite?

A farmer is buying seed for his farmland. His land is shaped like a parallelogram. It has a base of 5000cm and a height of 10m. The sides of the garden are 2000cm. What is the area of his farmland in metres?

The school is organizing a triangular kite-making competition. Emma's kite has a base of 2 meters and a height of [illegible]. What is the height of the kite?

A parallelogram-shaped garden has a base of 9 meters and a height of 6 meters. One pair of the fence's opposite sides is 12 meters long each. If the gardener wants to put a fence around the garden, how much fence will they need?

A parallelogram has a base of 15 cm and a height of 20 cm. What is its area?

Name: _____ 96

Curriculum Connection
SS7.2

Index Cards | Cut out the cards below

Calculate the area of a triangle with a base of 10 cm and a height of 20 cm.	A parallelogram has an area of 48 cm² and a base of 12 cm. What is its height?
A triangular piec[illegible]oric h[illegible] of 30 cm and an area o[illegible] height?	Calculate the area of a triangle with a [illegible]se of 50 cm and a height of 1 meter.
A parallelogram has a base of 8 meters and a height of 4 meters. What is its area?	A parallelog[illegible]as [illegible] and a height of 10 cm. Wha[illegible]
The base of a triangle is 7 meters and its area is 21 m². What is the height of the triangle?	The base of a triangle is 5 cm and its height is 8 cm. What is the area of the triangle?

Name: _____ 97

Curriculum Connection
SS7.2

Index Cards | Cut out the cards below

A parallelogram has an area of 36 m² and a height of 6 meters. What is its base?

A parallelogram has a base of 25 cm and a height of 10 cm. What is its area?

Calculate the ar… trian… w… base of 4 meters an… h… 2 meters.

The area of a triangle is 56 cm² and the height is 8 cm. What is the base of the …gle?

The height of a parallelogram is 9 inches and its area is 81 in². What is the base?

Calculate t… of … rallel…gram with a base of … me… a… t of 500 cm.

A triangular plot of land has a base of 30 meters and a height of 20 meters. What is the area of the plot?

A triangle has an area of 40 cm² and a base of 10 cm. What is its height?

Name: _____ 98

Curriculum Connection
SS7.2

Triangle and Parallelogram Toss Challenge

Answers

Record your answers below

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

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

Tally Chart

Record your makes in the tally chart below

Tallies – Made Shots	Total

Wrong Answers	Final Score

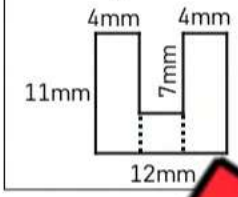
Name: _____ 99

Curriculum Connection
SS7.2

Area of Composite Polygons

Find the area of the polygons below by splitting them into separate shapes.

Example



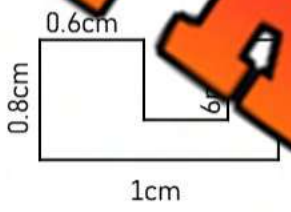
Area = area of rectangle 1 + area of rectangle 2 + area of rectangle 3

Rectangle 1:	Rectangle 2:	Rectangle 3:
A = 11 x 4	A = 4 x 4	A = 4 x 11
A = 44 mm²	A = 16mm²	A = 44mm²

Area = 44 + 44 + 16
A = 104mm²

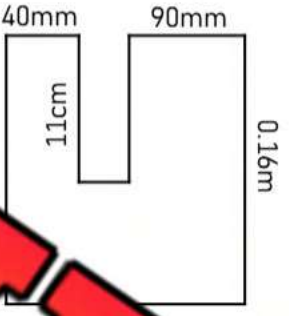
Instructio Find the area of the composite polygons below

1)



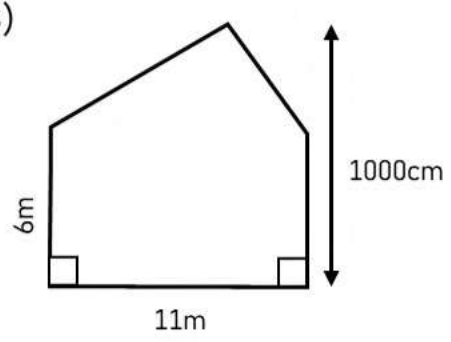
Area = _____

2)

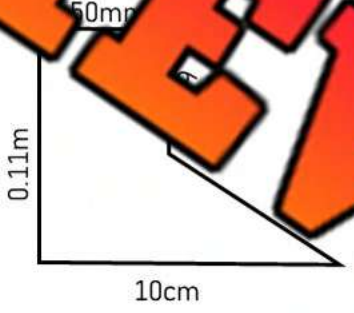


Area = _____

3)

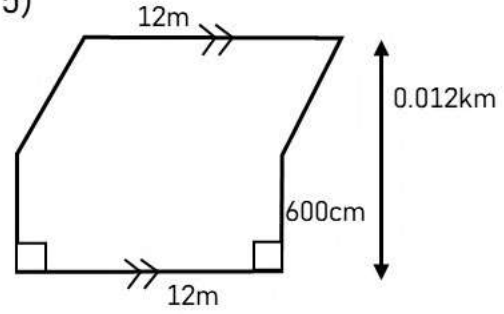


Area = _____



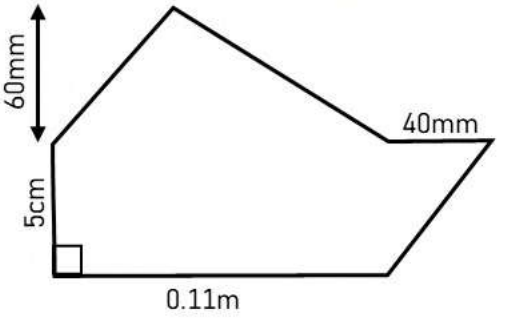
Area = _____

5)



Area = _____

6)



Area = _____

Curriculum Connection
SS7.2

Exit Cards

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

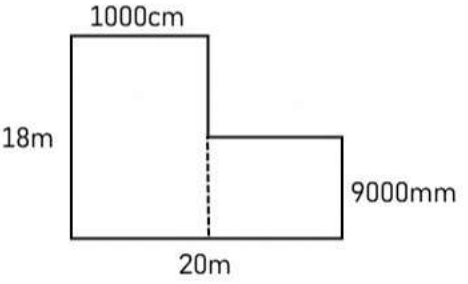
Name: _____

Find the area of composite shape

Area = _____

Name: _____

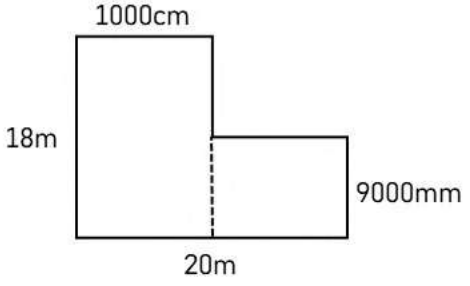
Find the area of composite shape



Area = _____

Name: _____

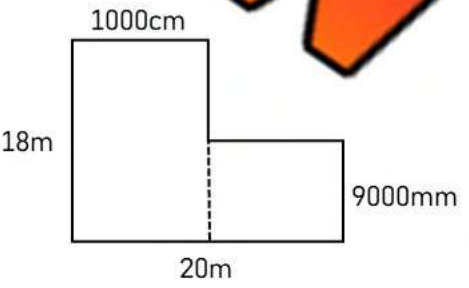
Find the area of composite shape



Area = _____

Name: _____

Find the area of composite shape



Area = _____

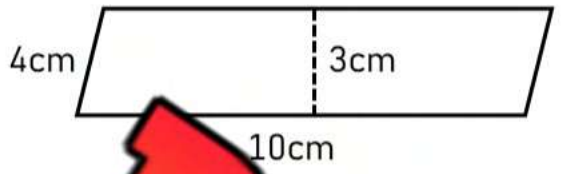
Name: _____ 102

Curriculum Connection
TQ

Area Quiz – Triangles and Parallelograms

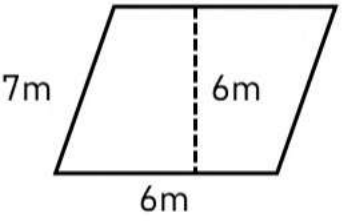
Part 1 Find the area of the parallelograms below

1)



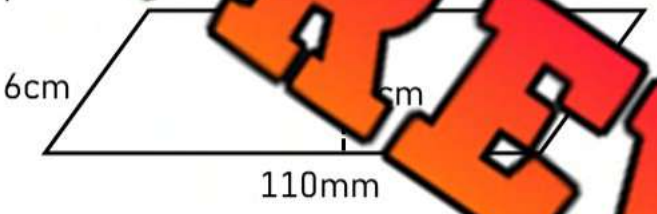
Area = _____

2)



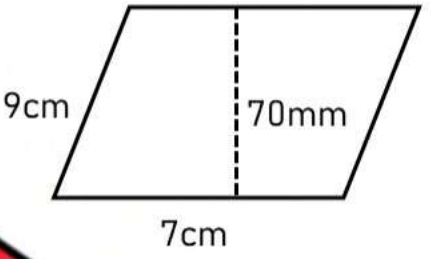
Area = _____

3)



Area = _____

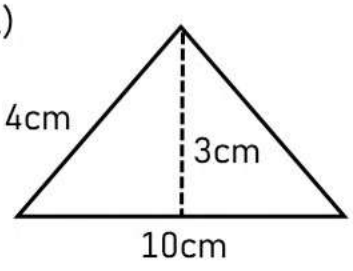
4)



Area = _____

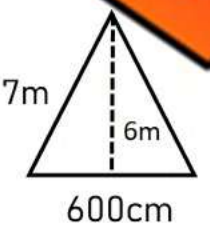
Part 2 Find the area of the triangles be

1)



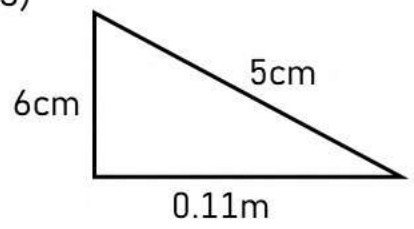
Area = _____

2)



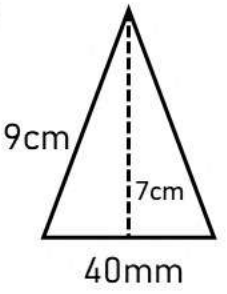
Area = _____

3)



Area = _____

4)

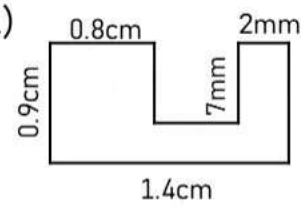


Area = _____

Curriculum Connection
TQ

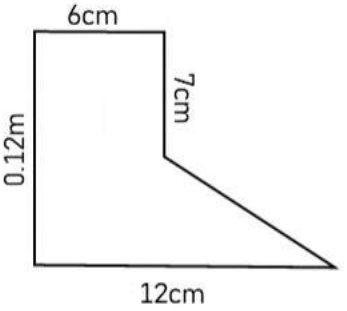
Part 3 Find the area of the composite polygons below

1)



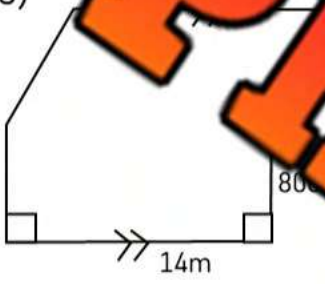
Area = _____

2)



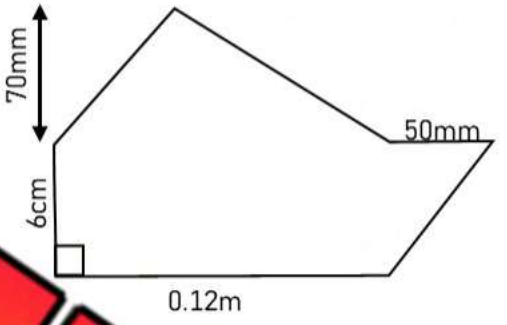
Area = _____

3)



Area = _____

4)

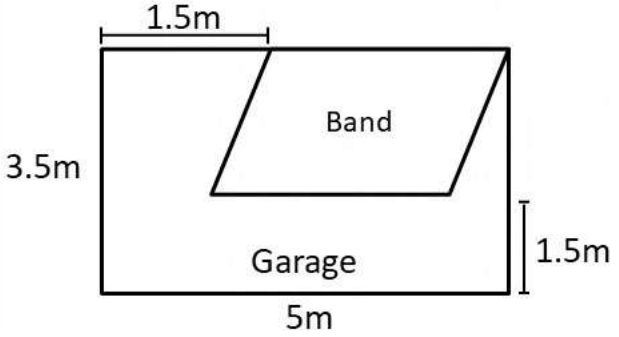


Area = _____

Part 4 Solve the word problems below. M re t r work

1) Jeremy's triangular picture frame has a base of 10cm ight m. What is the area of the triangular frame?

2) Brian and his garage band practice playing in his garage. He has a lot of stuff in his garage, so he taped off some area for them to play. The dimensions of his garage and area they play in is displayed in the diagram. What is the area of the space the band plays in?



Name: _____ 104

Curriculum Connection
SS7.3

Lines, Rays, and Line Segments

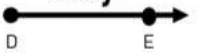
Point

A **point** is a dot. We often name points with a capital letter

Line

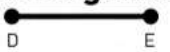
A **line** is straight and goes on forever in both directions (arrows). Lines can have points on them ($\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$)

Ray



A **ray** is a straight path that goes on forever in one direction (1 arrow). The ray above is $\overrightarrow{DE}$.

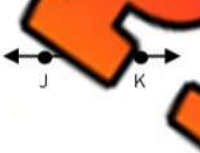
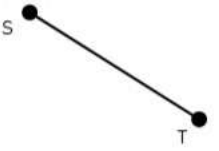
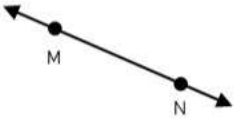
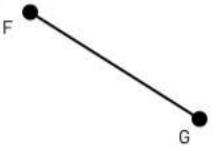
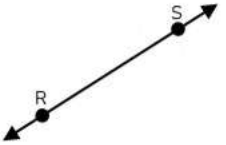
Line Segment



A **line segment** is a straight line between two points. The line segment above is $\overline{DE}$ or $\overline{ED}$.

Part 1

el whether the example is a point, line, ray or line segment

1) 		3) 	4) 
Line JK or KJ JK or KJ			
5) 	6) 		8) 
9) 	10) 	11) 	

Part 2

Construct a ray, line, point, and line segment. Label each.

1)	2)	3)	4)
Line Segment – AB	Point C	Line – QR	Ray - MN

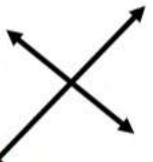
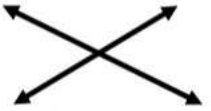
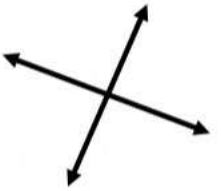
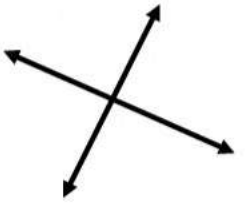
Name: _____ 105

Curriculum Connection
SS7.3

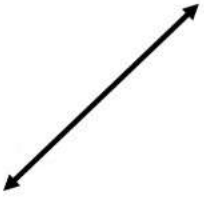
Parallel, Perpendicular and Intersecting Lines

= Parallel Lines = Perpendicular Lines = Intersecting Lines

Part 1 Label the lines parallel, perpendicular, or intersecting

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

Part 2 Draw a second line that is intersecting, perpen[illegible] par[illegible] the other line

1) 	2)	3) 	
Perpendicular	Parallel	Intersecting	Parallel
5) 	6) 	7) 	8) 
Intersecting	Perpendicular	Intersecting	Parallel

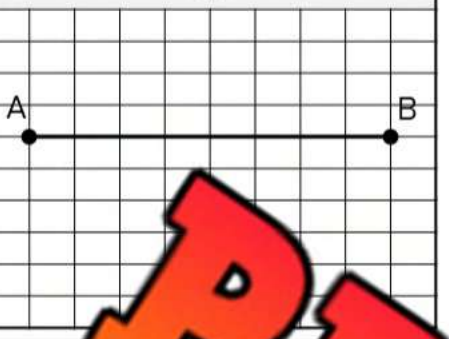
Name: _____ 106

Curriculum Connection
SS7.3

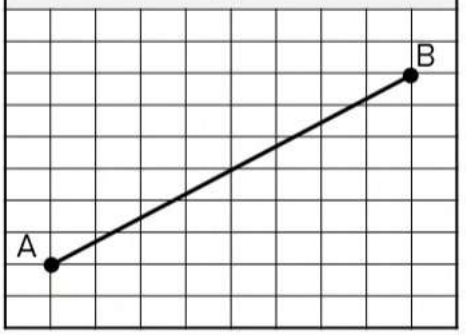
Perpendicular and Parallel Line Segments

Part 1 Construct perpendicular lines of the line segments $\overline{AB}$

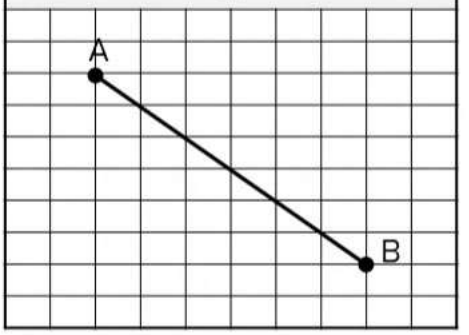
1)



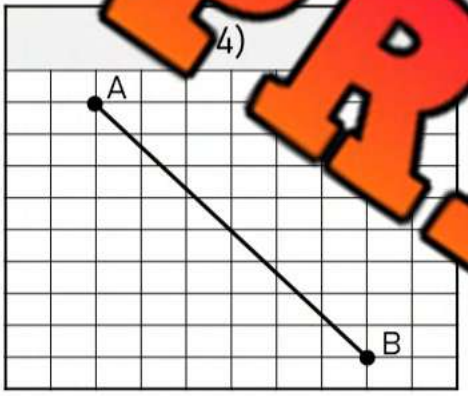
2)



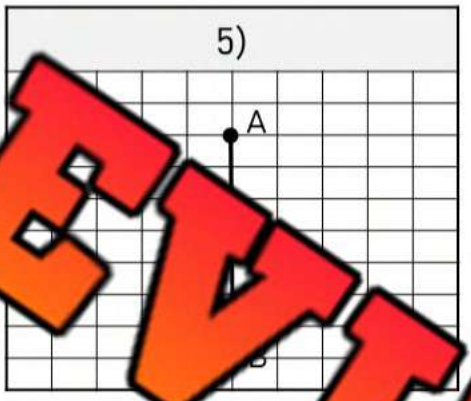
3)



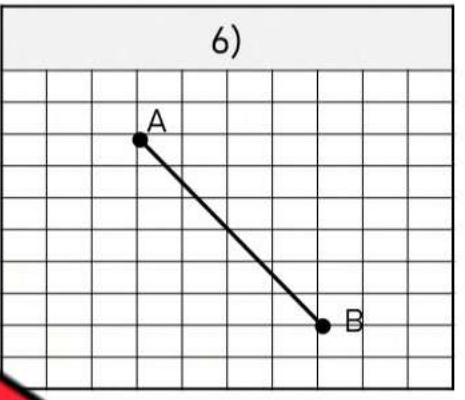
4)



5)

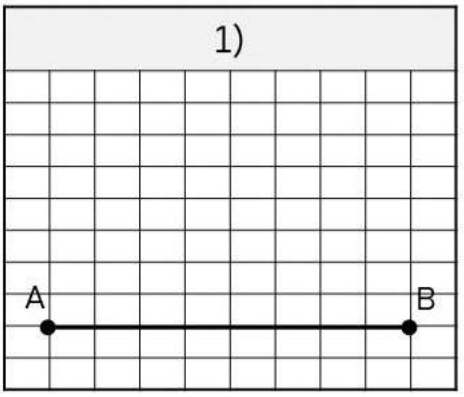


6)

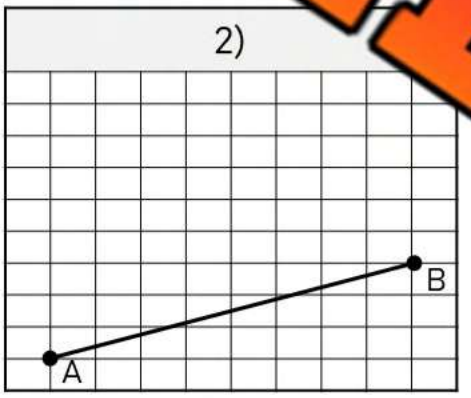


Part 2 Construct parallel lines of the lin ments

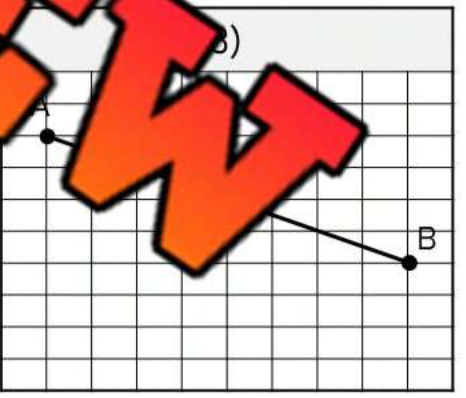
1)



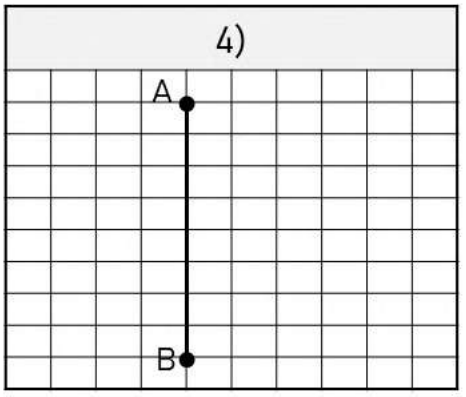
2)



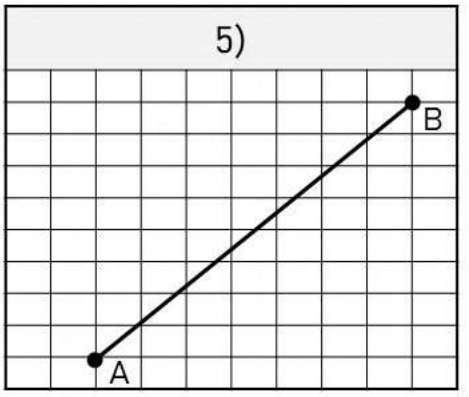
3)



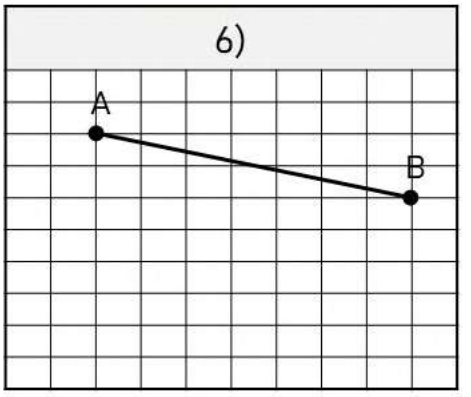
4)



5)



6)

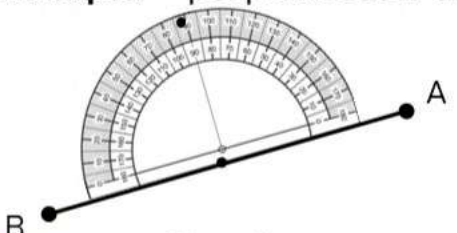


Name: _____ 107

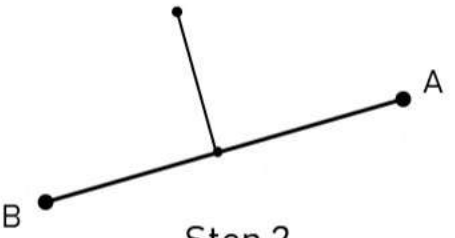
Curriculum Connection
SS7.3

Perpendicular Line Segments

Example - perpendicular line of the line segment $\overline{AB}$



Step 1



Step 2

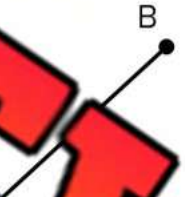
Instructi[illegible]uct perpendicular lines of the line segments $\overline{AB}$

1)

2)

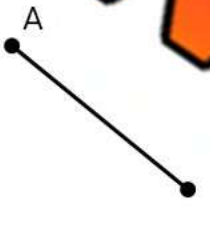
3)

4)



5)

6)



7)

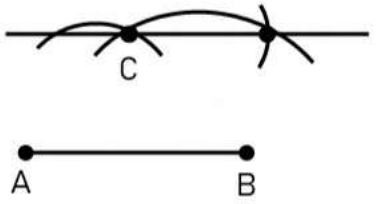
8)

Name: _____ 108

Curriculum Connection
SS7.3

Parallel Line Segments

Use a compass to draw an arc from points A, B, and C.

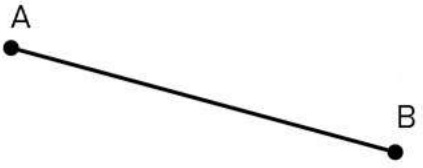


Instruction: Construct parallel lines of the line segments $\overline{AB}$

1)

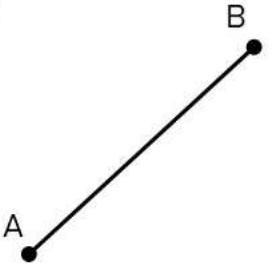
2)

3)



5)

6)



Name: _____ 109

Curriculum Connection
SS7.3

Constructing Quadrilaterals – Parallel and Perpendicular Lines

Instructions Construct the quadrilaterals below using parallel and perpendicular lines

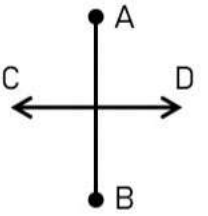
1)	2)
	Rectangle
3)	
Parallelogram (2 sets of parallel lines)	Trapezoid (bases have [illegible] lines)
5)	6)
Rhombus (parallel opposite sides)	Kite (diagonal lines are perpendicular)

Name: _____ 110

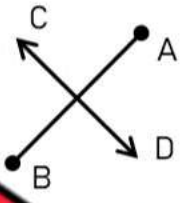
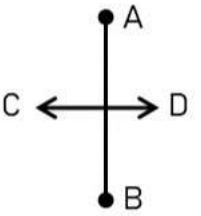
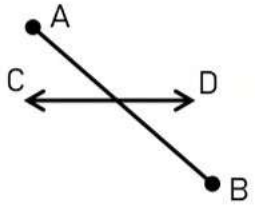
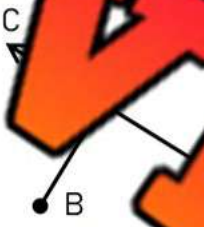
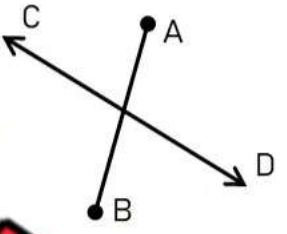
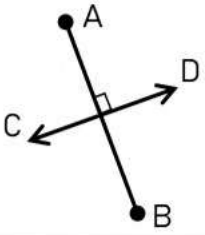
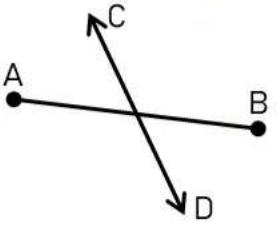
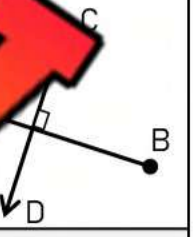
Curriculum Connection
SS7.3

Perpendicular Bisector

A **perpendicular bisector** is a line that cuts a line segment into two equal parts at 90°. This means the new line is **perpendicular** to the other line and it passes through the **middle** of the other line.



Part 1 Is the line $\overleftrightarrow{CD}$ a perpendicular bisector of the line segment?

1)  Yes No	2)  No	3)  Yes No
4)  Yes No	 Yes No	6)  No
7)  Yes No	8)  Yes No	 Yes No

Part 2 Write what the terms below mean in your own words

Term	Definition
Perpendicular	
Midpoint	

Name: _____ 111

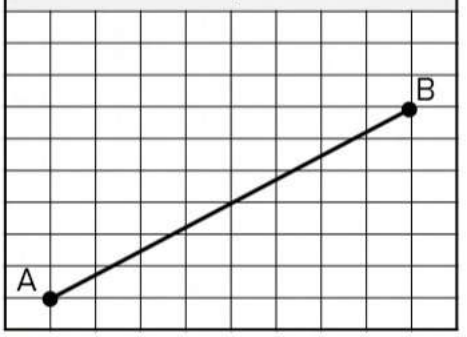
Curriculum Connection
SS7.3

Perpendicular Bisector

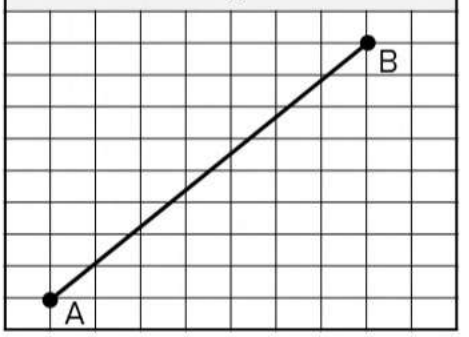
Directions Construct a perpendicular bisector of the line segment $\overline{AB}$

1)

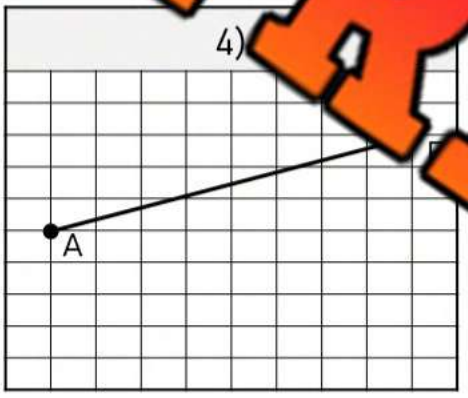
2)



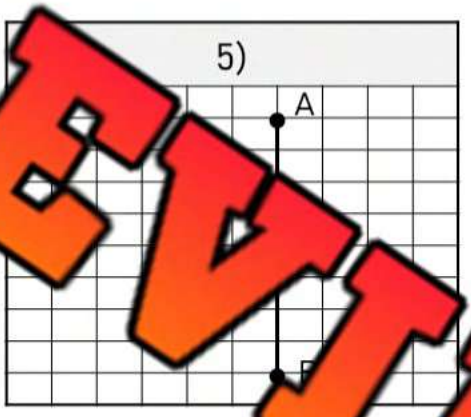
3)



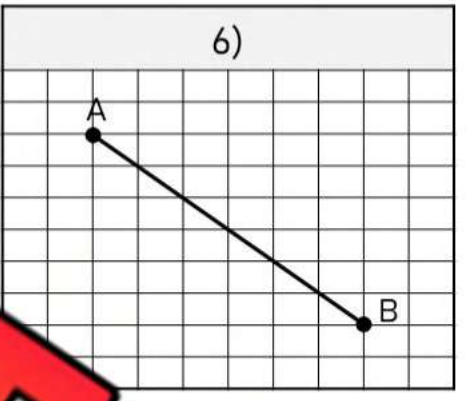
4)



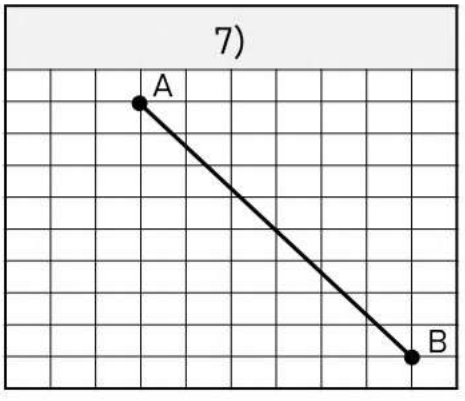
5)



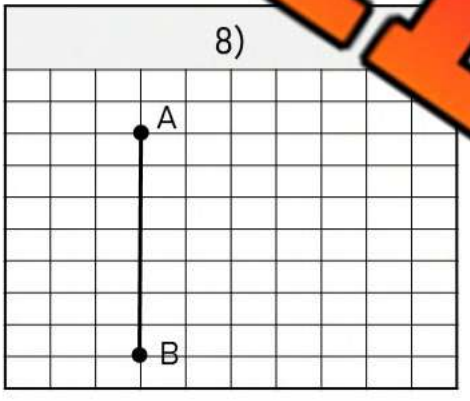
6)



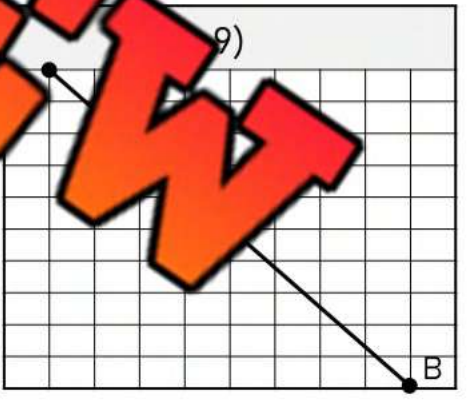
7)



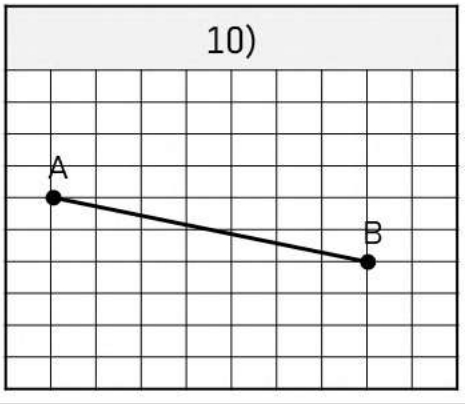
8)



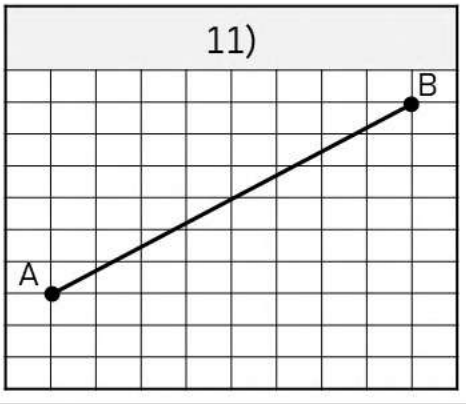
9)



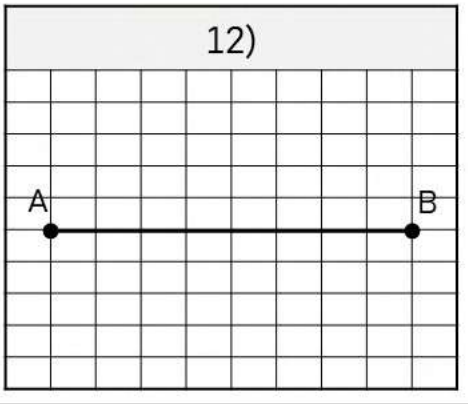
10)



11)



12)



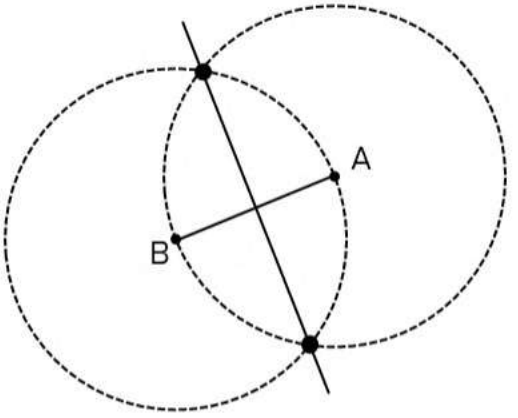
Name: _____ 112

Curriculum Connection
SS7.3

Perpendicular Bisector

Example - Perpendicular line bisector of the line segment AB

- Use a compass to sketch a circle around point A
- Use a compass to sketch a circle around point B
- Where the circles intersect, place a point
- Conne[illegible] two points to finish constructing your p[illegible]cular bisector



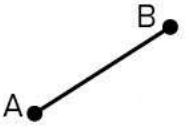
Instruc[illegible] Co[illegible]erpendicular bisectors of the line segment $\overline{AB}$

1)

2)

3)

4)

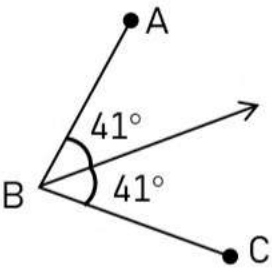


Name: _____ 114

Curriculum Connection
SS7.3

Angle Bisector

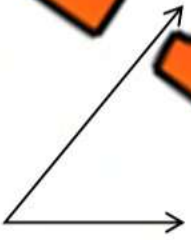
An **angle bisector** is a line that cuts an angle into two identical (congruent) parts. For example, if we construct an angle bisector on a 90° angle, we will have two 45° angles.



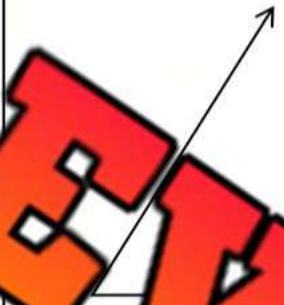
∠ABC =82°

Directions Construct an angle bisector of the angles below using a protractor

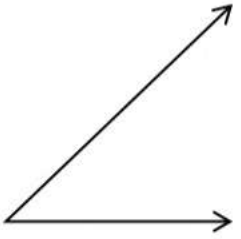
1)



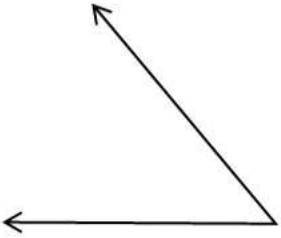
2)



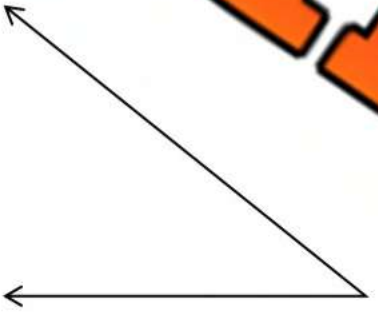
3)



4)

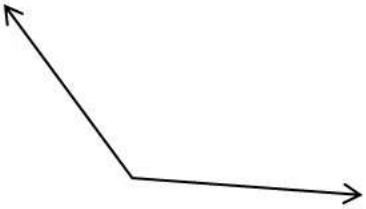


5)

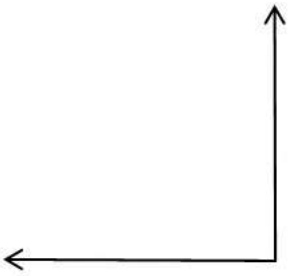


6)

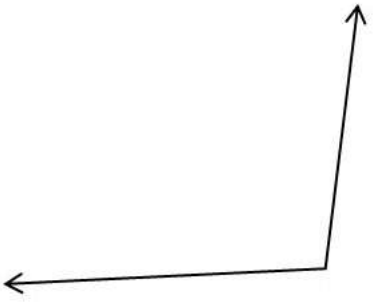
7)



8)



9)



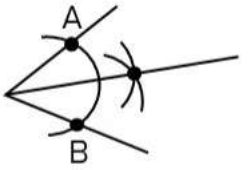
Name: _____ 115

Curriculum Connection
SS7.3

Angle Bisector

We can also use a compass to find an angle bisector.

- Draw an arc using point A as the anchor point
- Draw an arc using point B as the anchor point
- Place a point where your two arcs intersect
- Draw a line from the vertex to your new point



Directions Construct an angle bisector of the angles below using a compass

2)

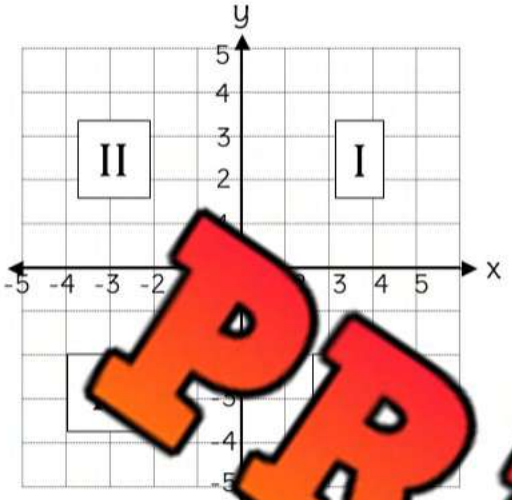
3)

Name: _____ 117

Curriculum Connection
SS7.4

Four Quadrants – Cartesian Plane

Part 1 Write which quadrant the points would be found



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

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

Quadrant	**[illegible]dinates** (x, y)
Quadrant I	
Quadrant II	
Quadrant III	
Quadrant IV	
Quadrant III	
Quadrant II	
Quadrant IV	
Quadrant I	

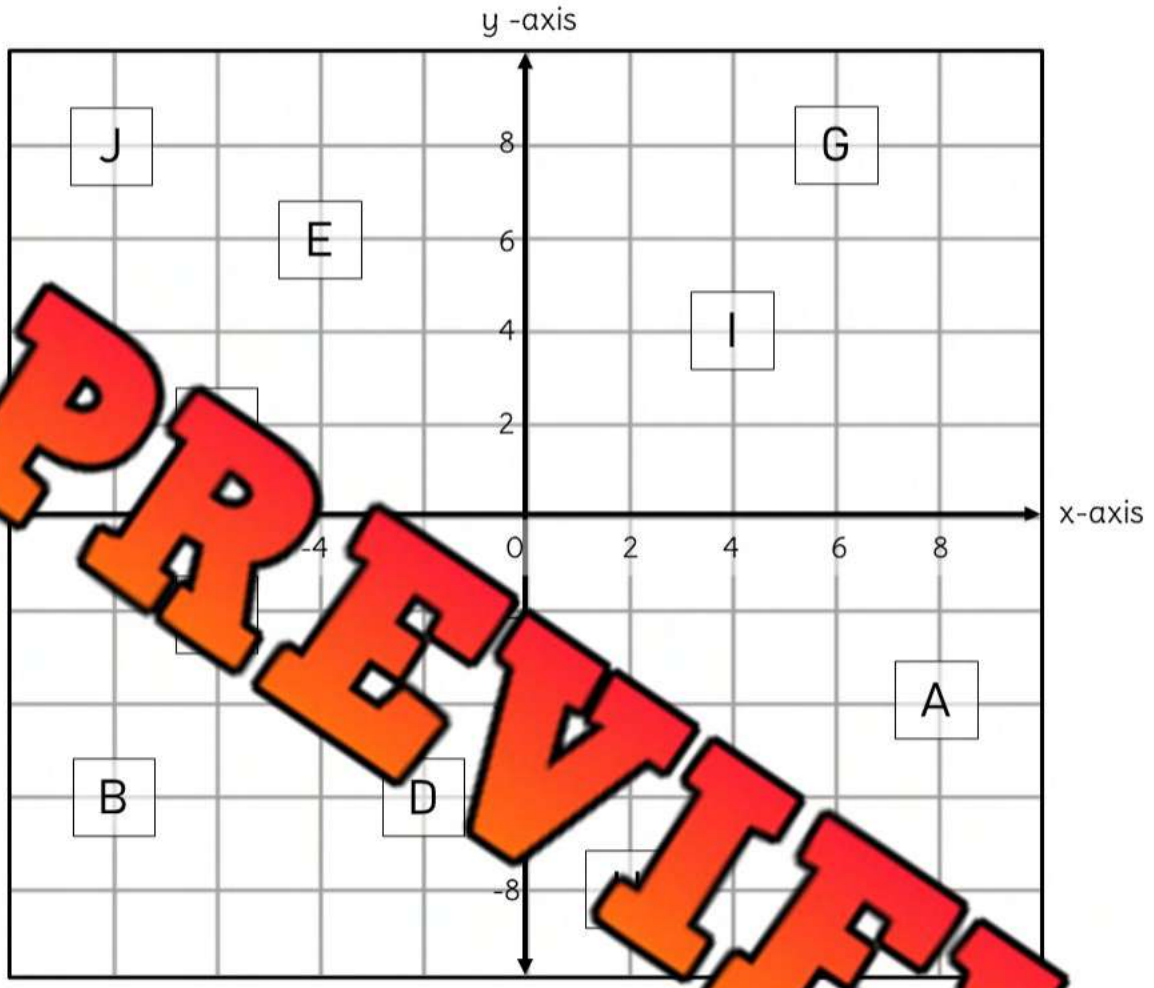
Part 3 Which quadrant number is associated with the descriptions below

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

Name: _____ 118

Curriculum Connection
SS7.4

Using 4 Quadrants on a Cartesian Plane



Instructions Write the coordinates for each object on the ca

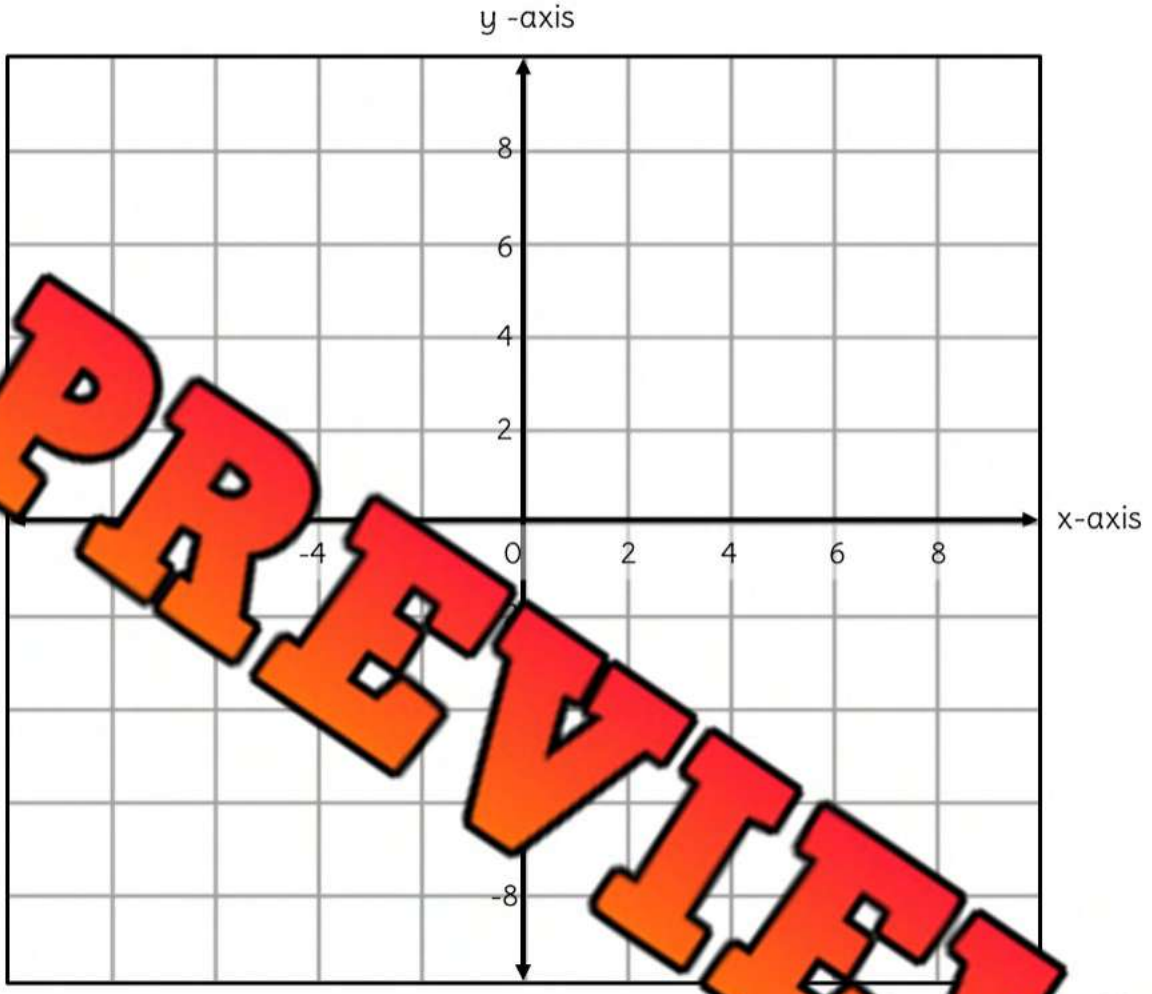
Symbol	Coordinates (x, y)
A	(8, -4)
B	(_____, _____)
C	(_____, _____)
D	(_____, _____)
E	(_____, _____)

Symbol	Coordinates (x, y)
F	(_____, _____)
G	(_____, _____)
H	(_____, _____)
I	(_____, _____)
J	(_____, _____)

Name: _____ 119

Curriculum Connection
SS7.4

Using 4 Quadrants on a Cartesian Plane



Instructions Write the letters on the grid according to the

Letter	Coordinates (x, y)
A	(-2, 4)
B	(-6, 6)
C	(8, -4)
D	(7, 4)
E	(-2, -2)

Letter	Coordinates (x, y)
F	(-5, 3)
G	(8, 8)
H	(-6, 1)
I	(3, -8)
J	(0, -7)

Name: _____ 120

Curriculum Connection
SS7.4

Plotting Ordered Pairs on Cartesian Plane

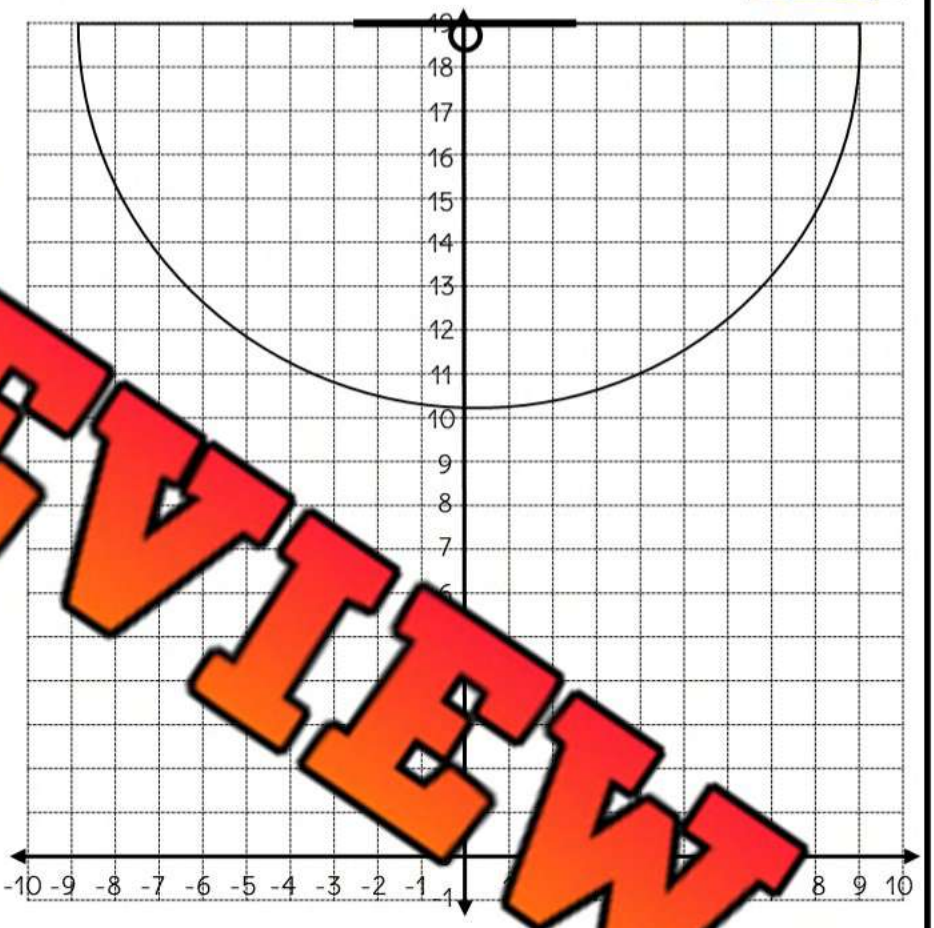
Directions Plot the ordered pairs on the cartesian plane

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

If the shot is made, plot a green dot using the co[illegible]ates.

If the shot [illegible] plot a red dot using th[illegible]

Shot M[illegible]e	[illegible]
(3, 9)	[illegible]2)
(-5, 10)	[illegible]13)
(1, 8)	(3, [illegible]
(-10, 18)	(-8, 17)
(-1,18)	(6, 10)
(4,1)	(-8, 12)
(2, 15)	(9, 15)
(-6, 11)	(6, 14)
(-2, 15)	
(1, 18)	



Questions Answer the questions below

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

Name: _____ 121

Curriculum Connection
SS7.4

Plotting Ordered Pairs on Cartesian Plane

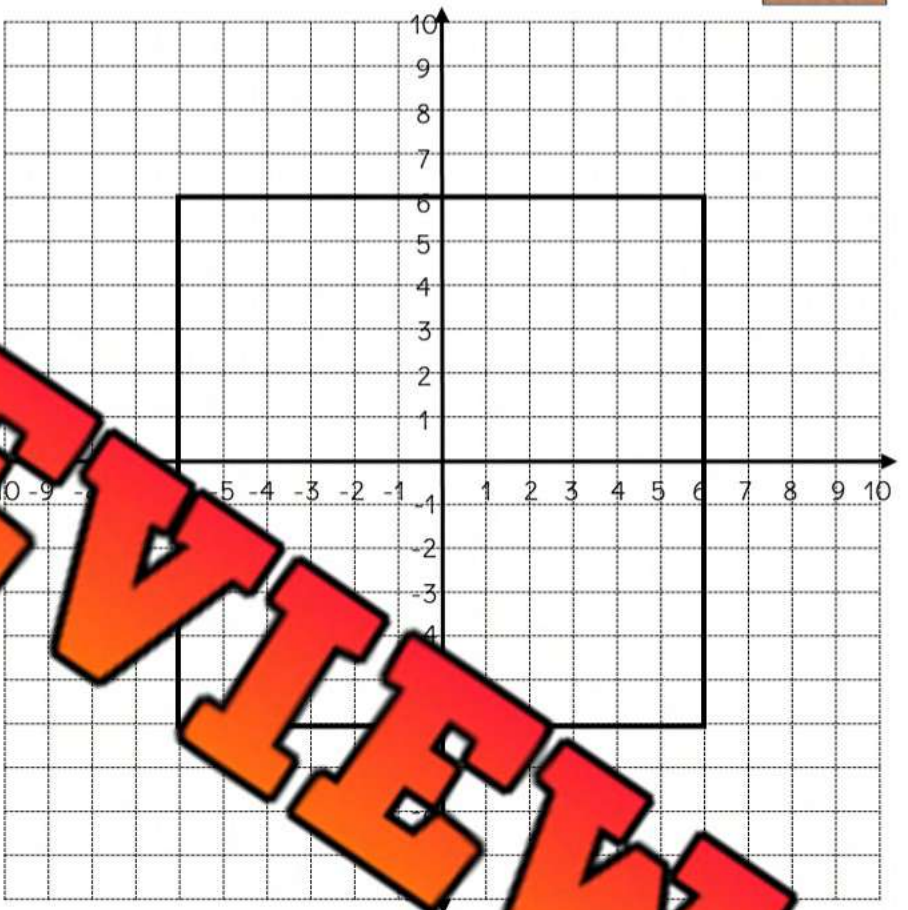
Directions Plot the ordered pairs on the cartesian plane

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

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

If the pitch i[illegible]lot a red dot using the co[illegible]s.

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



Questions Answer the questions below

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

Name: _____ 122

Curriculum Connection
SS7.4

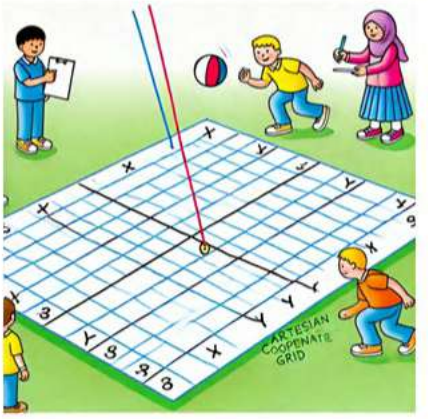
Title: Cartesian Coordinate Toss Challenge

Objective What are we learning about?

Students will learn to plot and identify points on the four quadrants of the Cartesian plane by tossing an object onto a large grid and recording the coordinates.

Materials What you will need for the activity.

- L… g…ner with a Cartesian coordinate g… n be dr… …e floor or taped on a table)
- Smal… objects… …or d…e
- Pencils
- Notebooks or …ing sh…



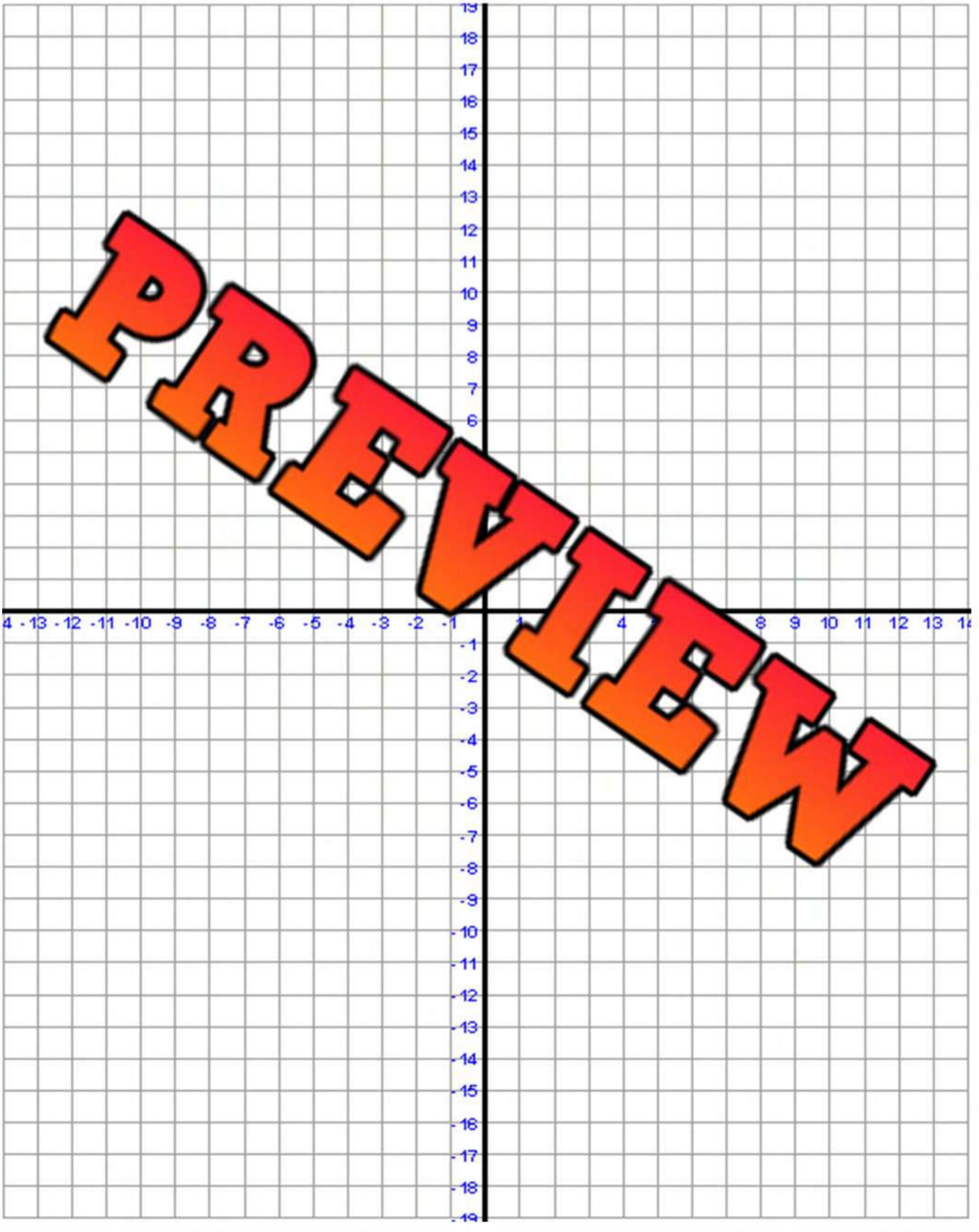
Instructions How you… …ple… …ity

1) Begin by explaining the Cartesian …, includi… …x-axis, y-axis, and the four quadrants. Demonstrate how to identify and … …oints … …oordinates (x, y).
2) Place the large grid paper with the Cartesia… …rdin… …floor or on a table where all students can access it. Alternative… …n draw… …ordinate plane on the floor inside the classroom using maski… …r ou… …sing sidewalk chalk. (You could also use small objects and have each g… …p us… … next page to throw their objects).
3) Divide the class into small groups. Each group will take turns tossing… …all object, like a coin or a dice, onto the grid.
4) When an object lands on the grid, the student who tossed the object must identify the coordinates (x, y) where the object landed and record them in their notebook or on a recording sheet.
5) Each group takes turns until all students have had multiple opportunities to toss the object and record coordinates.
6) After a few rounds, gather the students and ask them to share some of the coordinates they recorded. Discuss any patterns or interesting findings.
7) Optionally, use coloured markers to plot the recorded coordinates on the grid paper to create a visual representation of the points where the objects landed.

Name: _____ 123

Curriculum Connection
SS7.4

Grid Paper | Grid paper with x-axis and y-axis (Optional)



Name: _____ 124

Curriculum Connection
SS7.4

Cartesian Coordinate Toss Challenge

Answers | Record the coordinates below

Toss Number	Coordinates (x, y)	Quadrant
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

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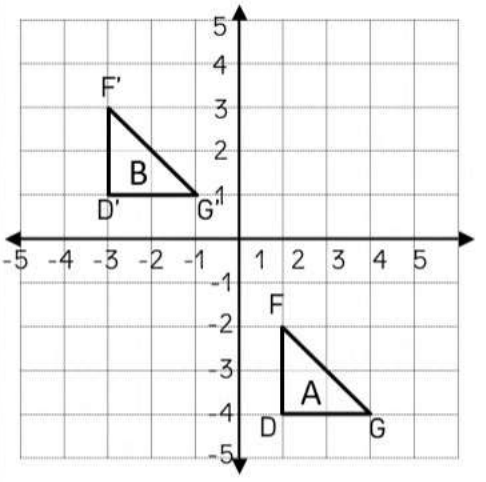
Curriculum Connection
SS7.5

Translations – Mapping Rules

Mapping Rules for Translations

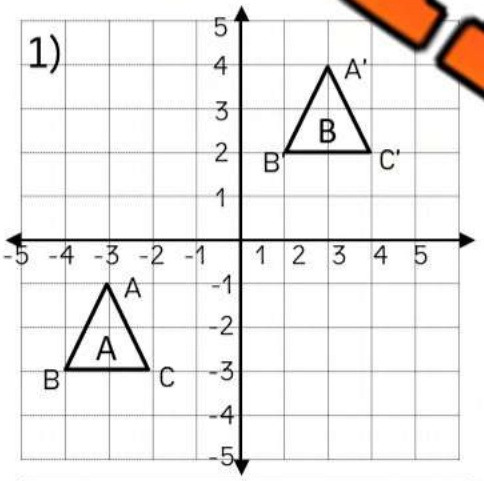
Each point on a shape slides according to the mapping rule.
The rule is (x, y) → (x + a, y + b)

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

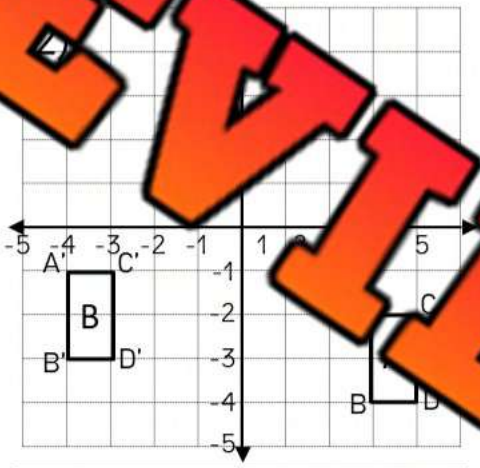


Instructions For each mapping rule that translates figure A to figure B

1)

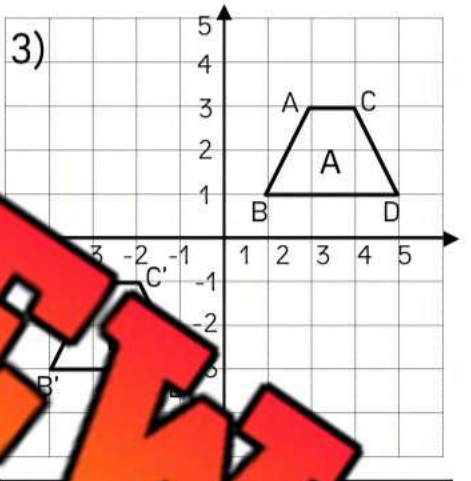


Mapping Rule	(x☐__, y☐__)



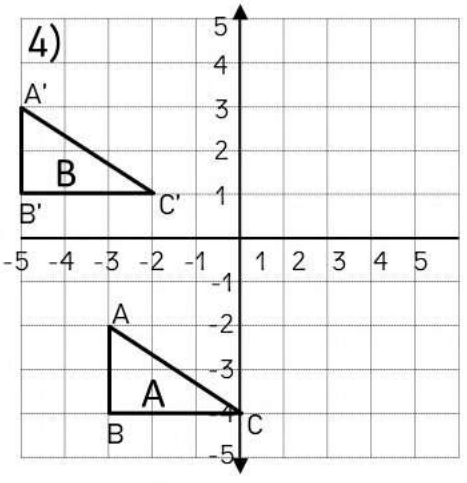
Mapping Rule	(x☐__, y☐__)

3)



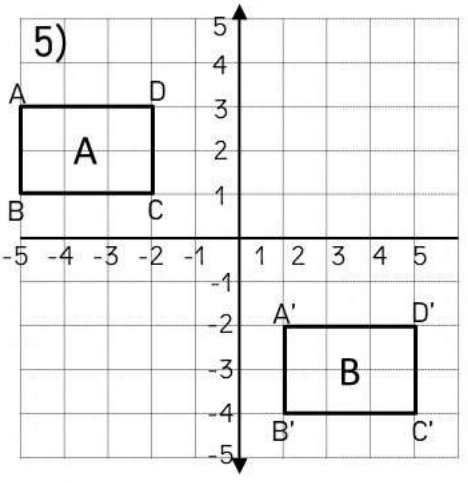
Mapping Rule	(x☐__, y☐__)

4)



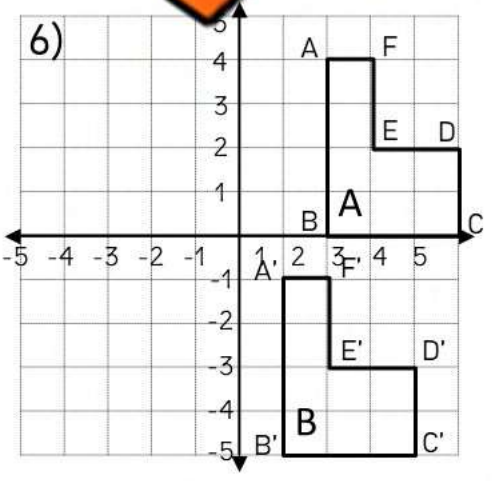
Mapping Rule	(x☐__, y☐__)

5)



Mapping Rule	(x☐__, y☐__)

6)



Mapping Rule	(x☐__, y☐__)

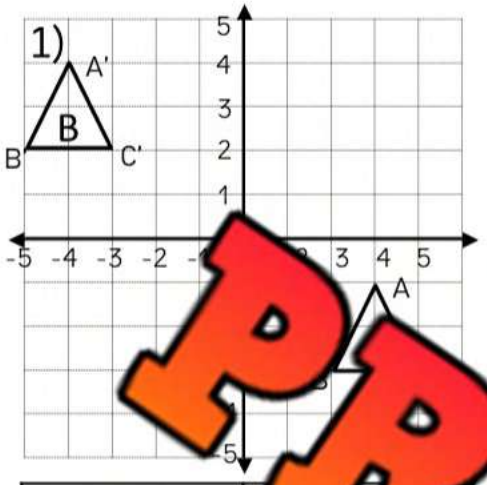
Name: _____ 129

Curriculum Connection
SS7.5

Translations – Mapping Rules

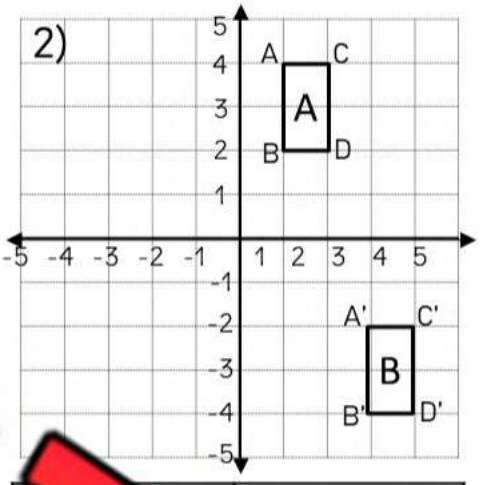
Instructions | Fill in the mapping rule

1)



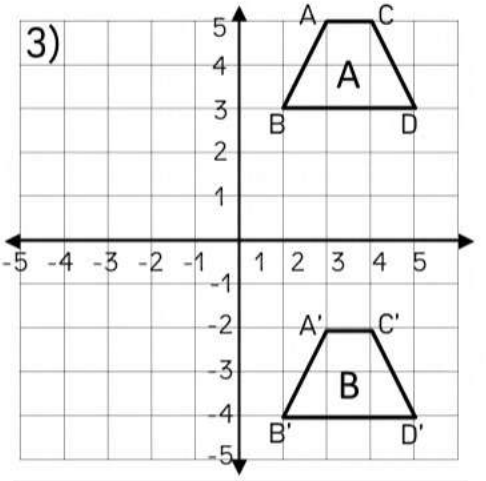
Mapping Rule

2)



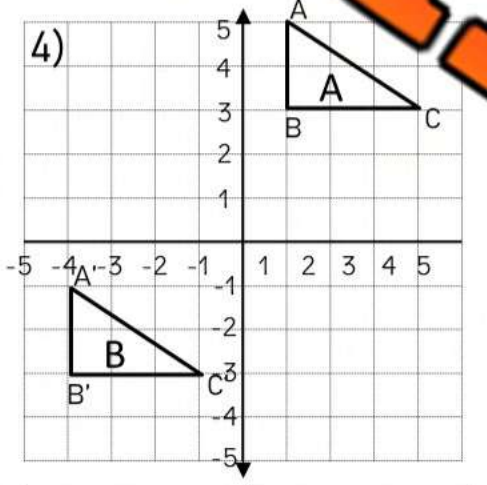
Mapping Rule

3)



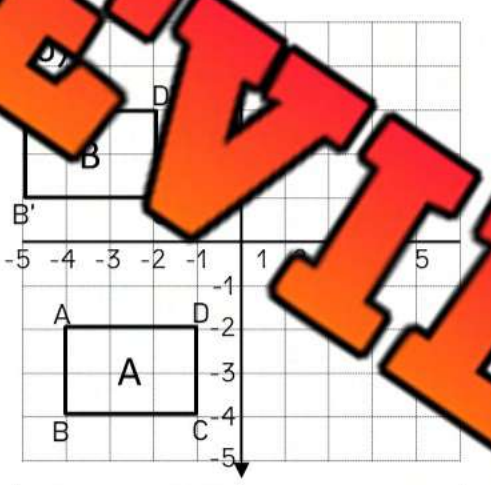
Mapping Rule

4)



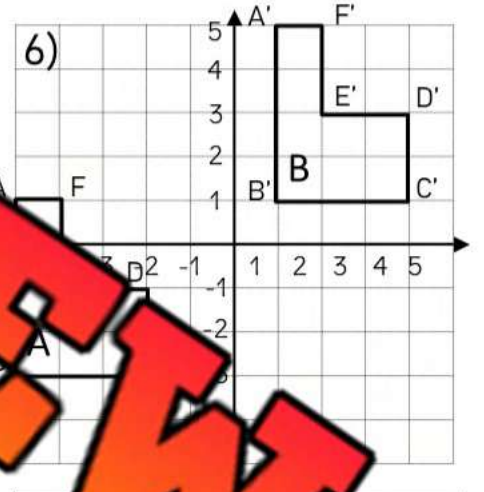
Mapping Rule

5)



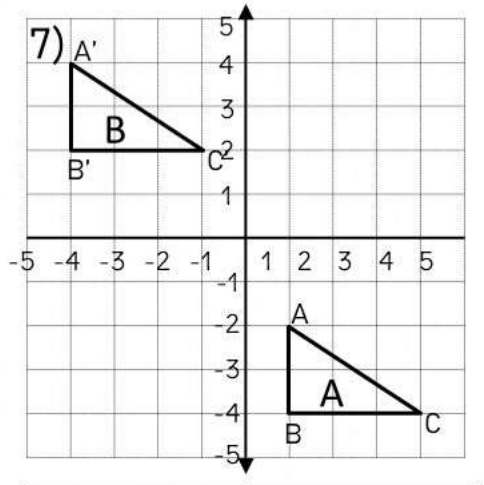
Mapping Rule

6)



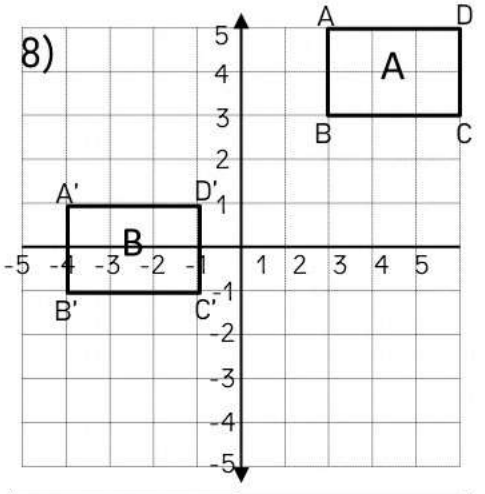
Mapping Rule

7)



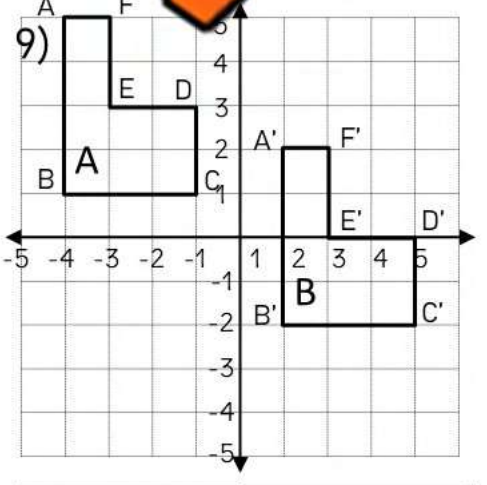
Mapping Rule

8)



Mapping Rule

9)



Mapping Rule

Name: _____ 131

Curriculum Connection
SS7.5

Math Activity: Translation Relay Race

Objective

What are we learning about?

To help students understand and describe translations using mapping rules on a Cartesian plane through a fun and engaging relay race activity.

Materials

What you will need for the activity.

- Grap
- R
- ed penci kers
- Penc and e
- Translatio

Instructions

How y plete tivity

1. Explain Translations: Start b expla tions on the Cartesian plane involve moving shapes without rot resizi n. Introduce the concept of mapping rules (e.g., (x, y) → (x+3, y).
2. Distribute Materials: Provide each team wi -draw ap per and a set of translation task cards with mapping rules.
3. Form Teams: Divide the class into small teams, each be desk with their graph paper and task cards.
4. Translation Task: The first student in each team picks a transla ta nd then plots the point on the grid at the given coordinates - e.g., (2, 3).
5. Perform Translation: The student then applies the mapping rule from the task card to the point's coordinates and draws the new position on the grid.
6. Pass to Next Student: The student then goes to the end of the line, and the next student steps up.
7. Repeat Process: The next student repeats the process.
8. Continue Relay: Continue the relay until all team members have had a turn or all task cards are used.
9. Verification and Discussion: The teacher verifies the translations, and the class discusses the different translations and observations.

Name: _____ 132

Curriculum Connection
SS7.5

Task Cards | Cut out the cards below

Card 1:

Start: (-2, 3)
Mapping Rule: (x, y) → (x+7, y+3)

Card 6:

Start: (-10, -3)
Mapping Rule: (x, y) → (x+3, y-1)

Card 7:

Start: (2, 4)
Mapping Rule: (x, y) → (x-1, y+4)

Card 3:

Start: (9, -1)
Mapping Rule: (x, y) → (x-1, y+6)

Card 8:

(-1, 2)
→ (x+5, y+3)

Card 4:

Start: (0, 0)
Mapping Rule: (x, y) → (x+7, y+7)

Ca

Start: (3, -5)
Mapping Rule: (x, y) → (x+6, y-3)

Card 5:

Start: (-4, 2)
Mapping Rule: (x, y) → (x-3, y+5)

Card 10:

Start: (4, -1)
Mapping Rule: (x, y) → (x-12, y+6)

Name: _____ 133

Curriculum Connection
SS7.5

Task Cards | Cut out the task cards below

Card 11:

Start: (0, -4)
Mapping Rule: (x, y) → (x+5, y+2)

Card 16:

Start: (4, 4)
Mapping Rule: (x, y) → (x+3, y+1)

Card 12:

Mapping Rule: (x, y) → (x+1, y+3)

Card 17:

Start: (0, -3)
Mapping Rule: (x, y) → (x+5, y+4)

Card 13:

Start: (-5, 1)
Mapping Rule: (x, y) → (x+2, y+5)

Card 18:

Start: (2, 2)
Mapping Rule: (x, y) → (x-8, y-8)

Card 14:

Start: (-2, -5)
Mapping Rule: (x, y) → (x+7, y+4)

Card 19:

Start: (5, 1)
Mapping Rule: (x, y) → (x+3, y+3)

Card 15:

Start: (-4, 1)
Mapping Rule: (x, y) → (x+6, y+4)

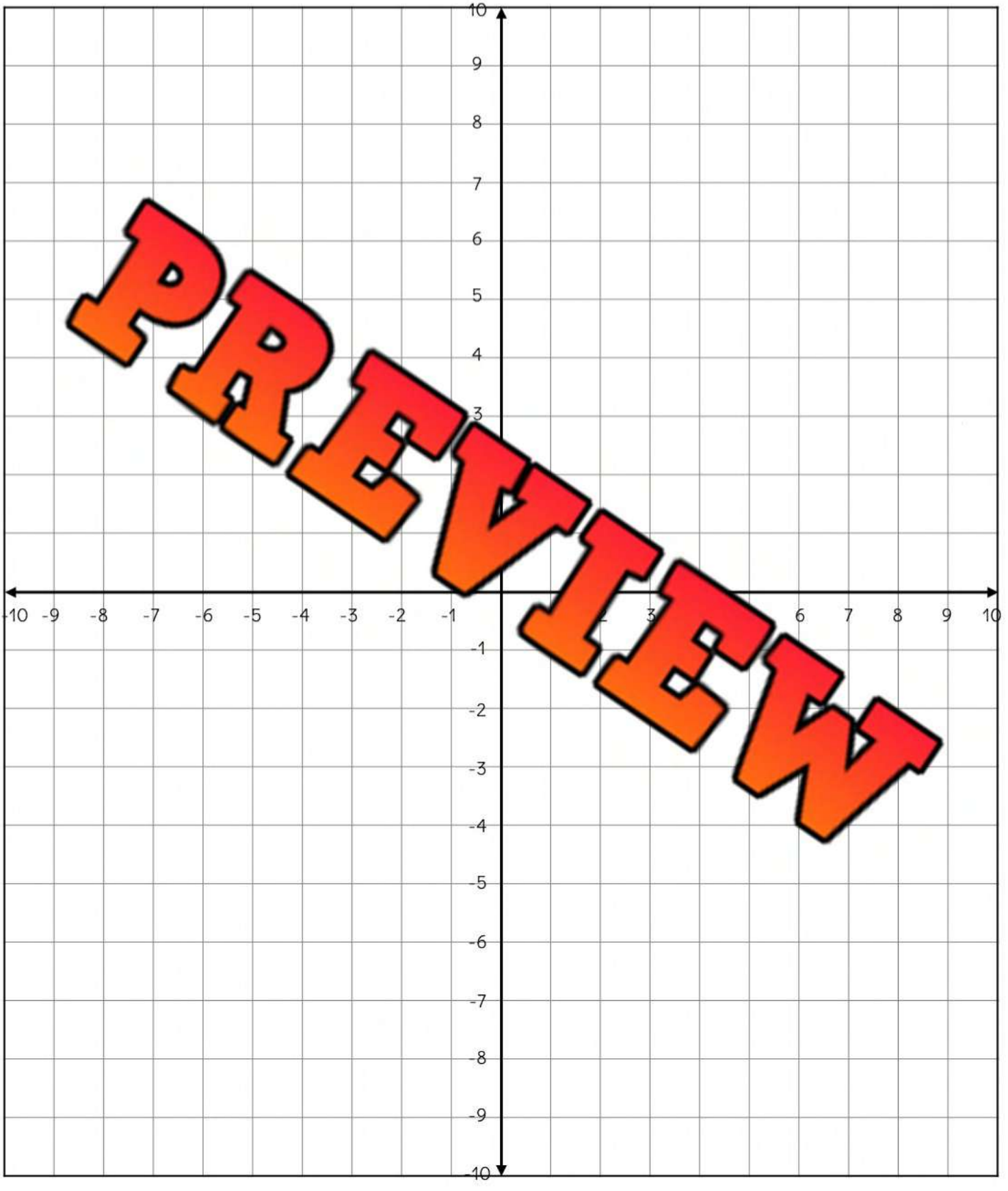
Card 20:

Start: (-3, 0)
Mapping Rule: (x, y) → (x+4, y+4)

Name: _____ 134

Curriculum Connection
SS7.5

Grid Paper | Use the cartesian plane to perform the translations

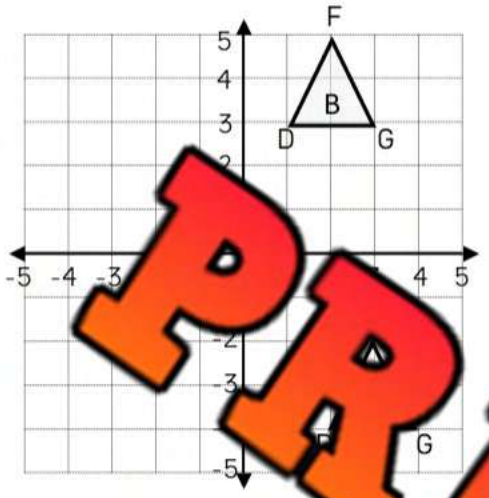


Name: _____ 135

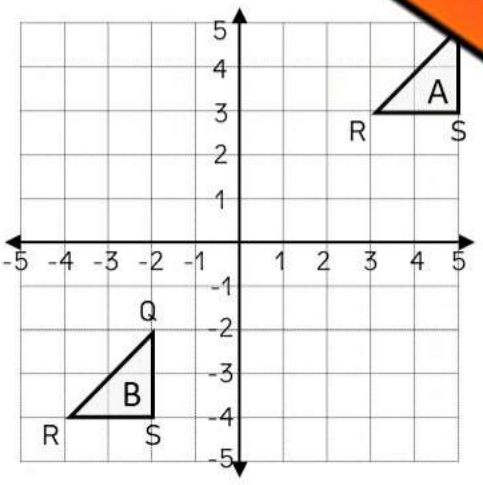
Curriculum Connection
SS7.5

Transformations -Translations

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

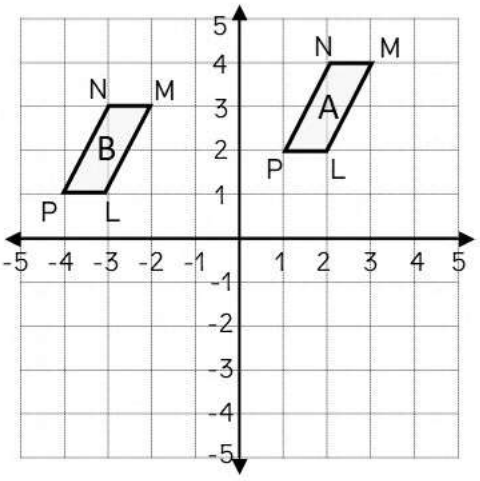


Coordinates A	Coordinates B
D(__, __) F(__, __) G(__, __)	D(__, __) F(__, __) G(__, __)
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x – 4, y – 5)	**Coordinates C**



Coordinates B
(x + a, y + b)
C

Translate Shape B to Shape C
(x, y + 6)



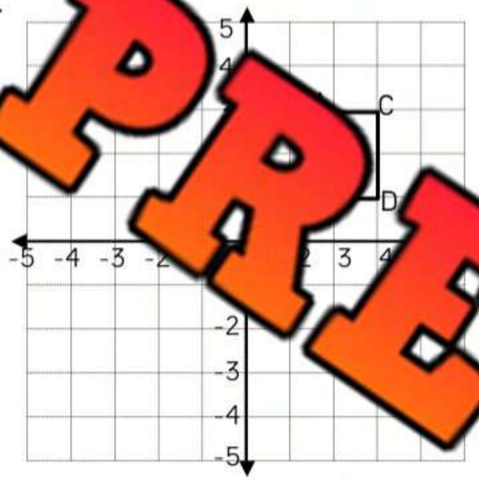
Coordinates A	Coordinates B
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x + 4, y – 5)	**Coordinates C**

Exit Cards

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

Name: ____________________

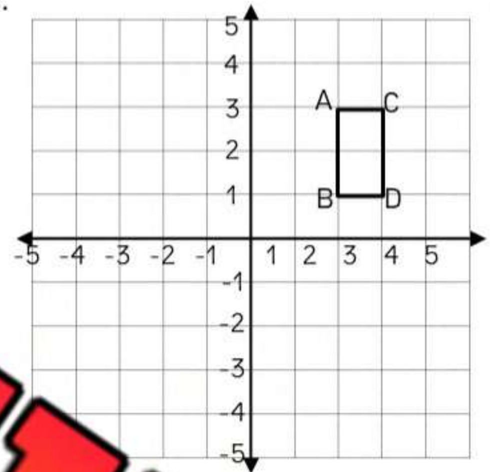
Translate the shape using the mapping rule.



Mapping Rule	(x + 3, y – 5)

Name: ____________________

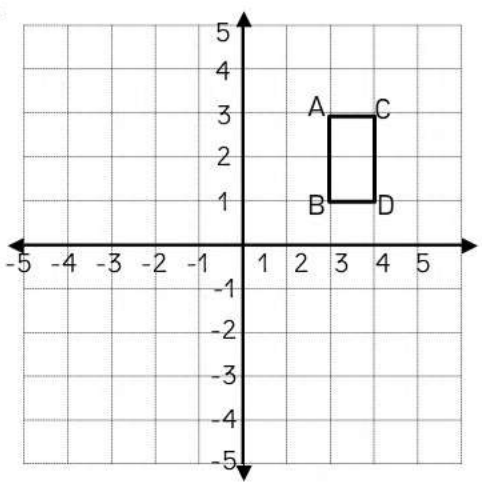
Translate the shape using the mapping rule.



Mapping Rule	(x + 3, y – 5)

Name: ____________________

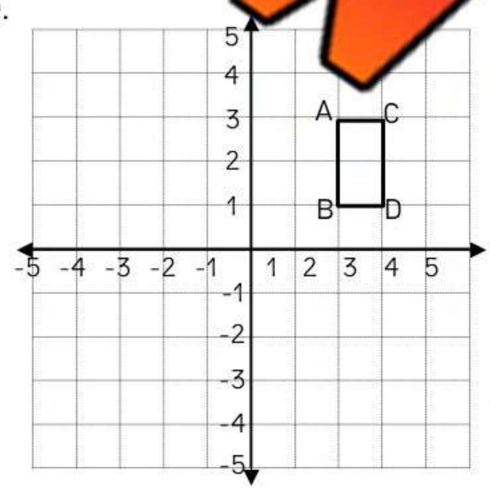
Translate the shape using the mapping rule.



Mapping Rule	(x + 3, y – 5)

Name: ____________________

Translate the shape using the mapping rule.



Mapping Rule	(x + 3, y – 5)

Name: _____ 137

Curriculum Connection
SS7.5

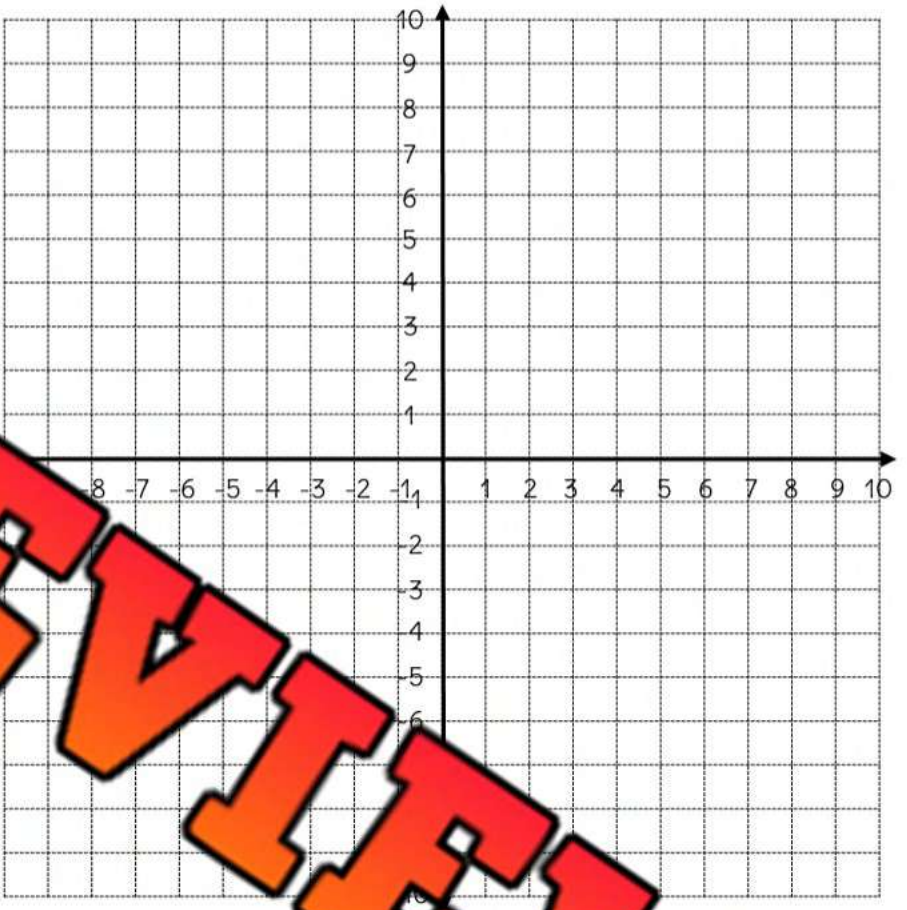
Translations – New Coordinates

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

Shape A
P(2,5), Q(2,1), R(8,3), S(9,5)
Translate Shape A
(x [illegible] – 5)

[illegible] B
F(-9, [illegible] G(-6 [illegible]
Translate [illegible]
(x + 4, y – 6)

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



Part 2 Give the coordinates of each point after the [illegible]nsla[illegible]

	Original Coordinate	Translation – Mapping Rule	New C[illegible]ates
1)	P(3, -4)	(x - 6, y + 4)	P(-3, 0)
2)	S(-5, 8)	(x + 3, y - 5)	
3)	Q(-9, -5)	(x + 2, y - 7)	
4)	L(10, 5) P(-3, -8)	(x - 5, y + 8)	
5)	T(-8, 7) Y(-9, -5)	(x + 8, y + 5)	
6)	S(-14, -16) R(15, 12)	(x - 11, y - 6)	
7)	N(-21, 11) K(20, -14)	(x - 9, y + 13)	
8)	P(28, -21) E(-25, 20)	(x + 17, y + 22)	

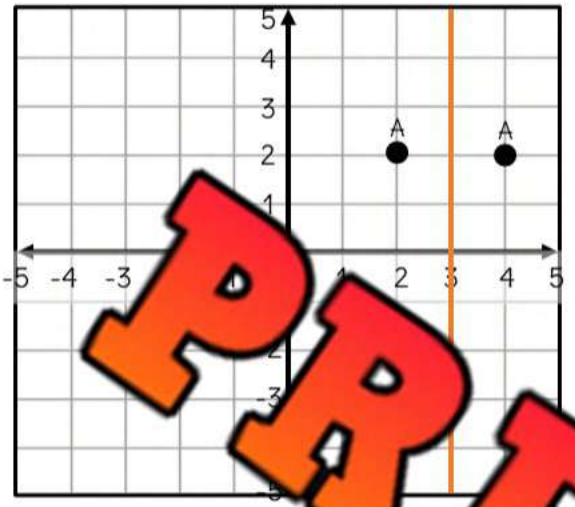
Name: _____ 139

Curriculum Connection
SS7.5

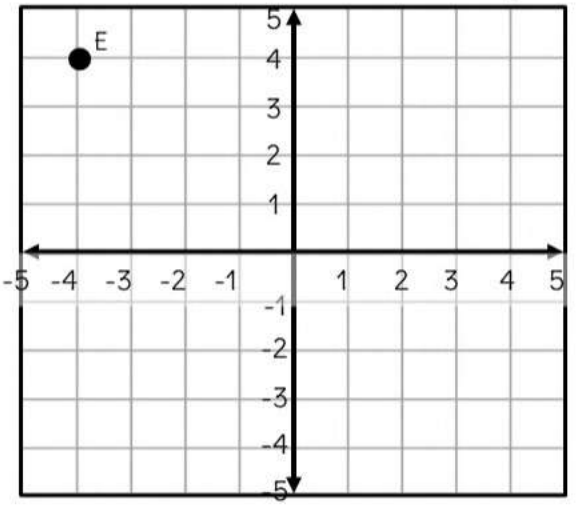
Reflecting a Point Using a Mirror Line

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

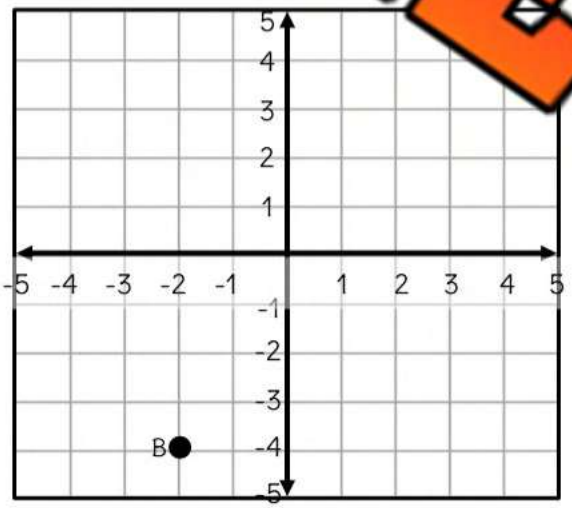
1) Reflection across the line x = 3



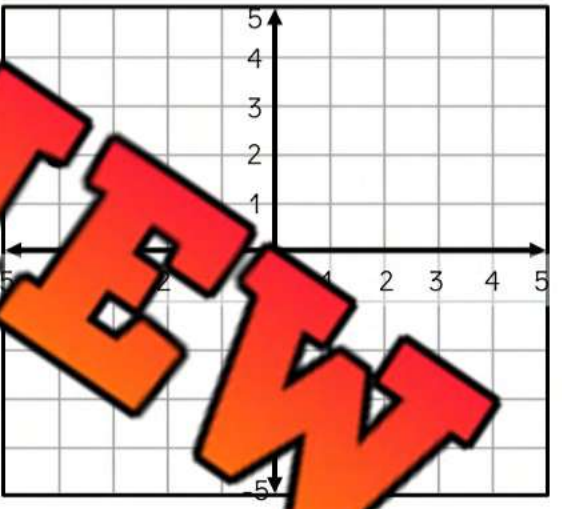
2) Reflection across the line y = 2



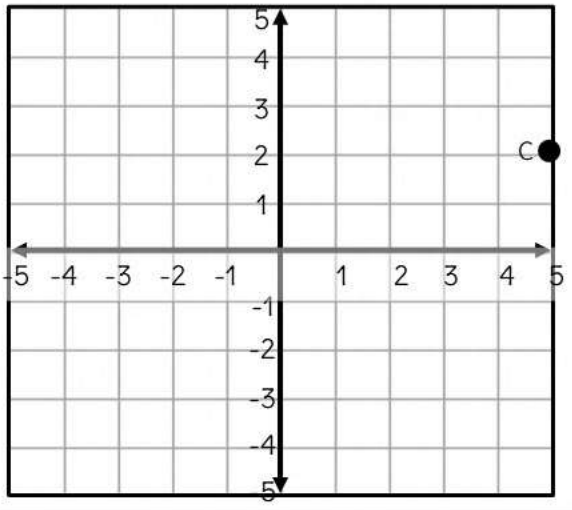
3) Reflection across th[illegible]



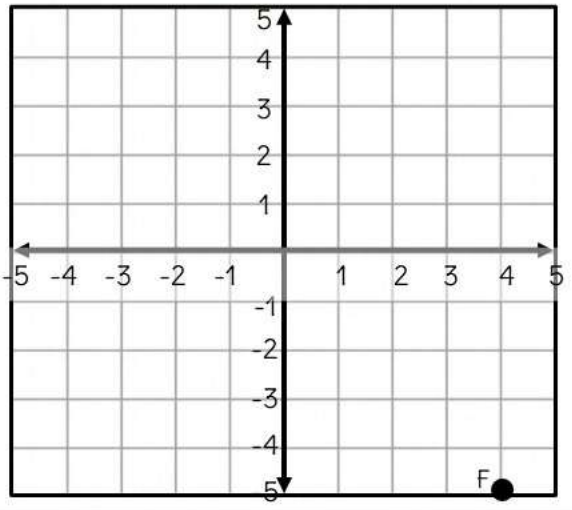
4) Reflection across the line x = -1



5) Reflection across the line x = 2



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



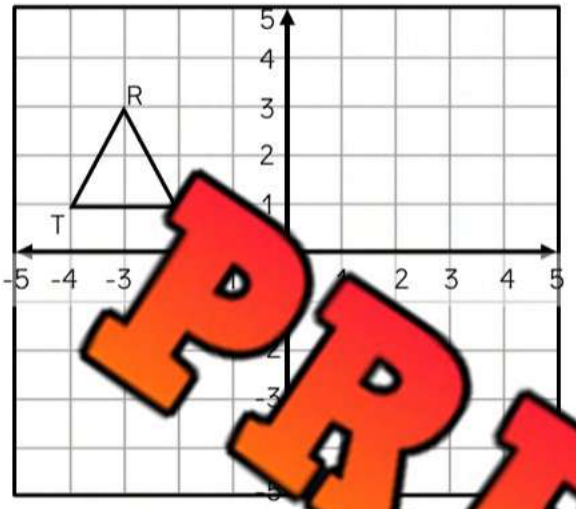
Name: _____ 141

Curriculum Connection
SS7.5

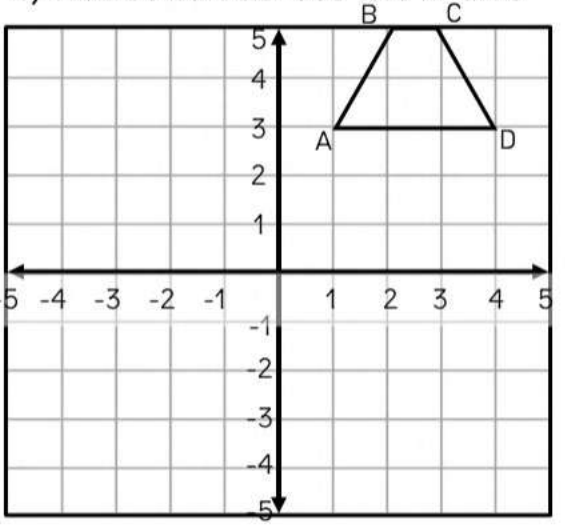
Reflecting a Shape Using a Mirror Line

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

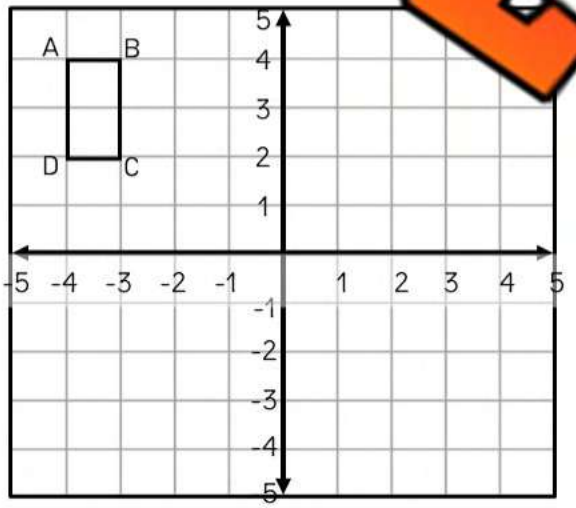
1) Reflection across the y-axis



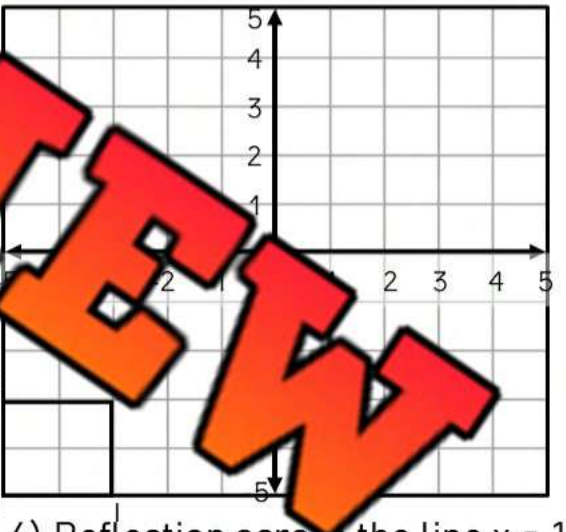
2) Reflection across the x-axis



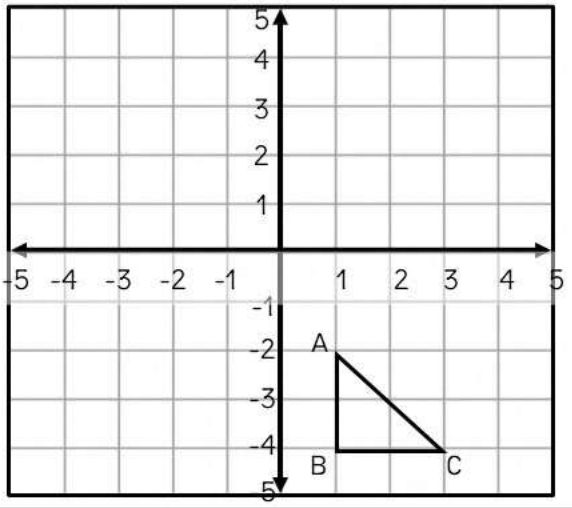
3) Reflection across the [illegible]



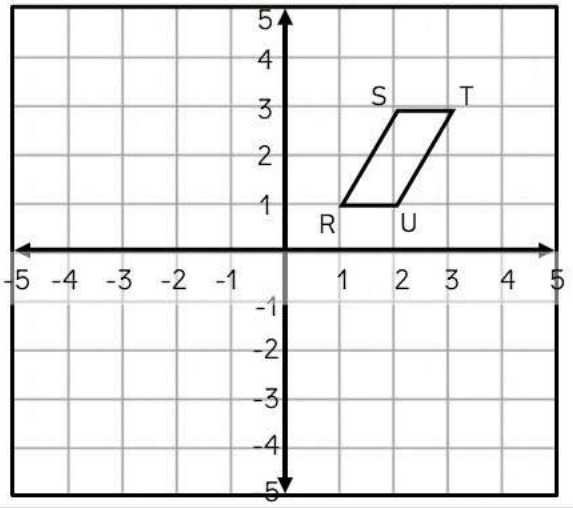
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection across the line x = 1



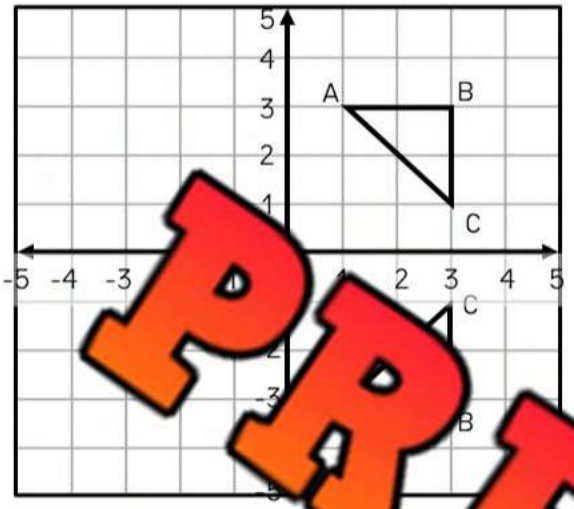
Name: _____ 142

Curriculum Connection
SS7.5

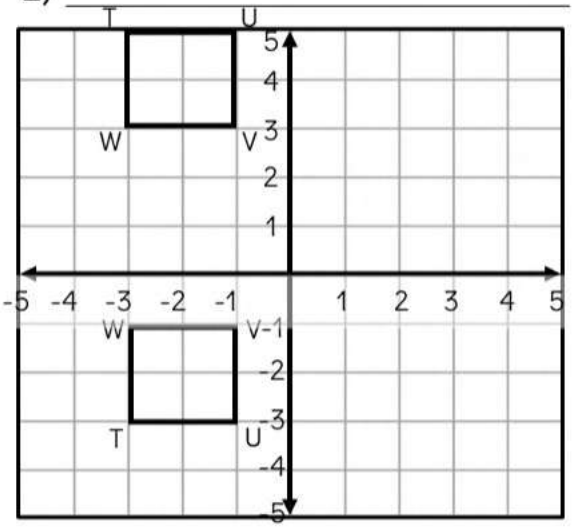
Reflections – Determine the Rule

Instructions Describe the rule for the reflection line – Ex. Reflection across the line x = 2

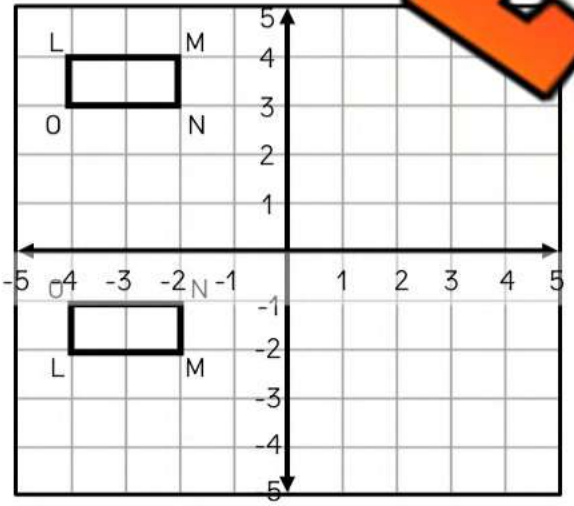
1) _____



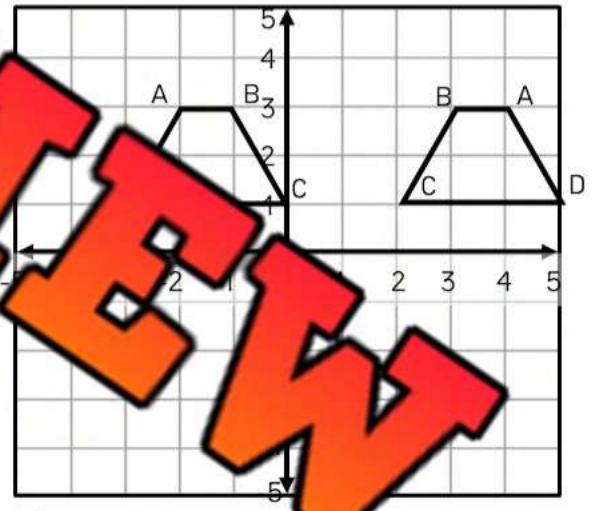
2) _____



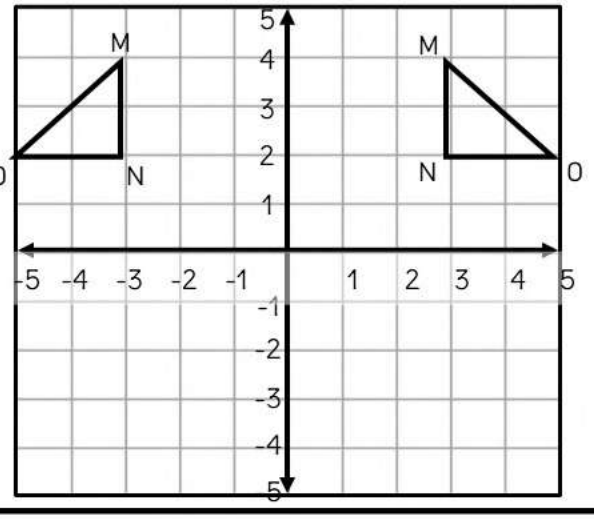
3) _____



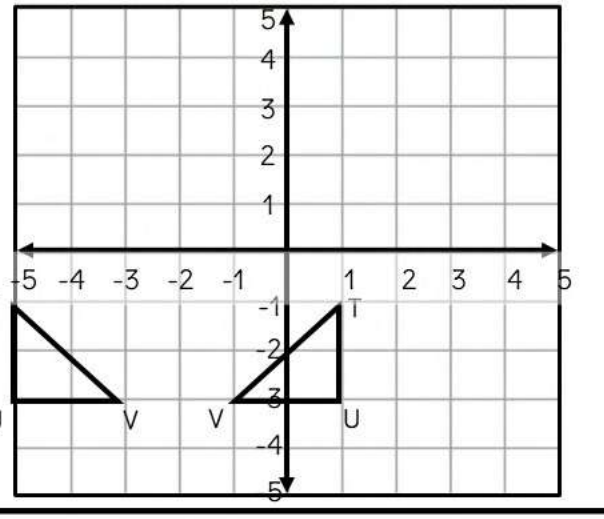
4) _____



5) _____



6) _____



Name: _____ 143

Curriculum Connection
SS7.5

Reflections – Mapping Rules

Mapping Rules for Reflections

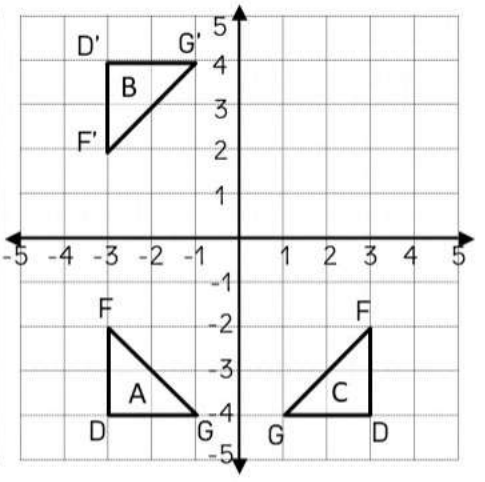
Each point on a shape moves according to the mapping rule.

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

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

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

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



Instructions Use the mapping rules to write the new coordinates

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

Name: _____ 144

Curriculum Connection
SS7.5

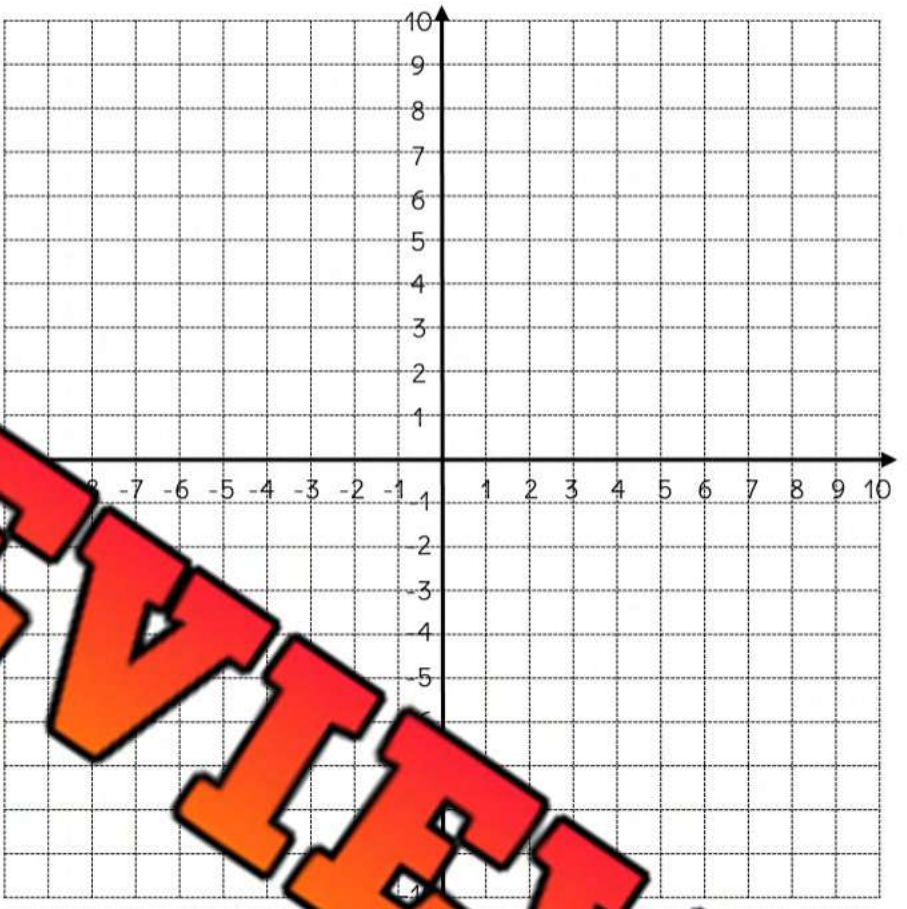
Reflections – Coordinates

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

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

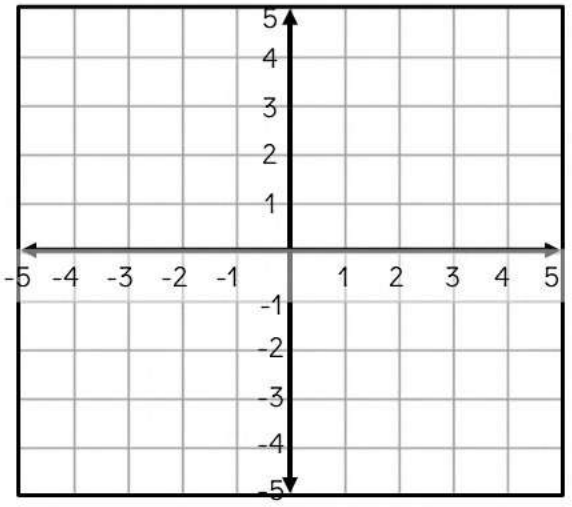
Shape B
F(-6,), G(-4,)
Reflect over the x-axis
New Coordinates
F(,), G(,), H(,)

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

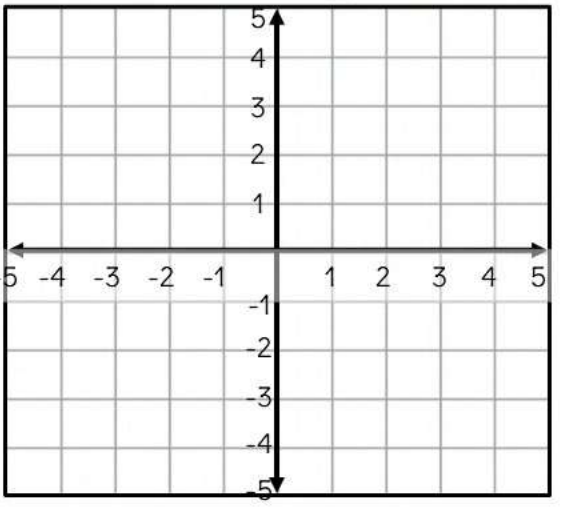


Part 2 Draw your own shape and then perform the reflecti

1) Reflection across the y-axis



2) Reflection acros line x = -1



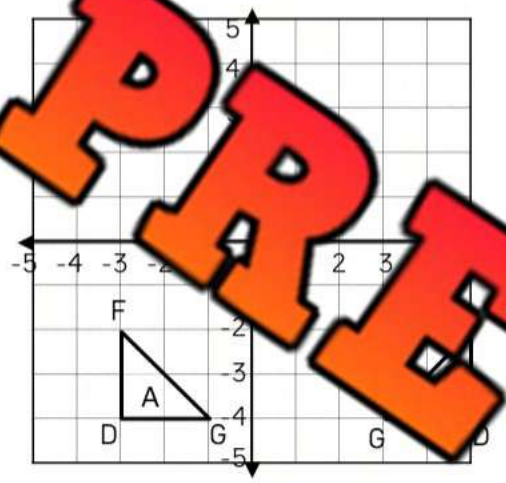
Curriculum Connection
SS7.5

Exit Cards

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

Name: _____

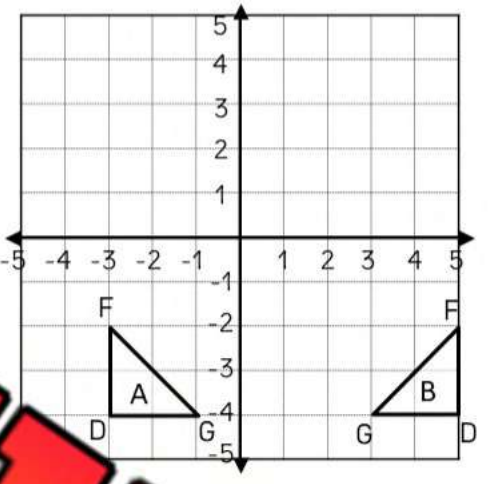
Describe the rule for the reflection line



_____

Name: _____

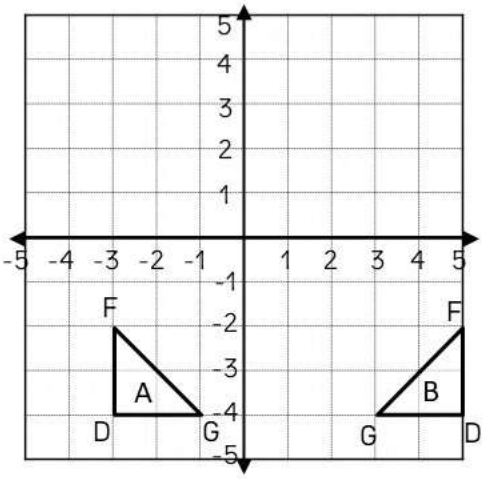
Describe the rule for the reflection line



_____

Name: _____

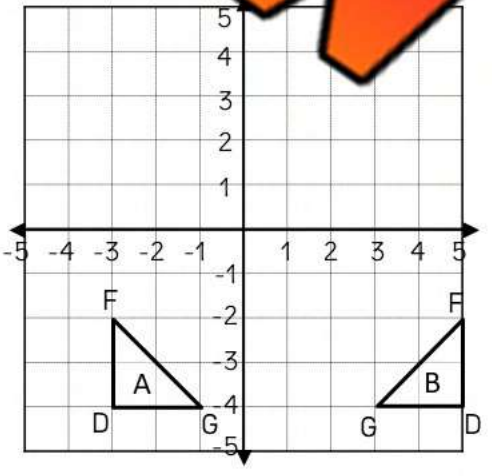
Describe the rule for the reflection line



_____

Name: _____

Describe the rule for the reflection line



_____

Name: _____ 151

Curriculum Connection
SS7.5

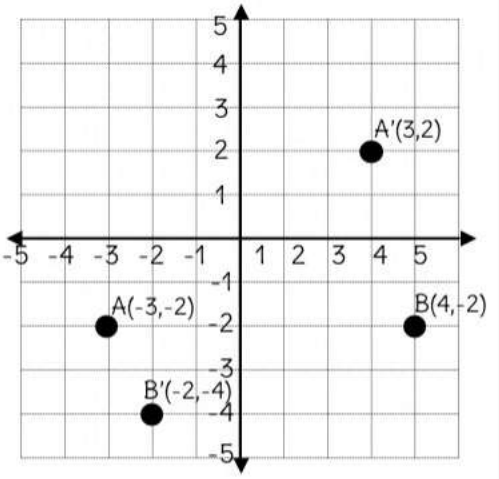
Rotating a Point

Mapping Rules for Rotations

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

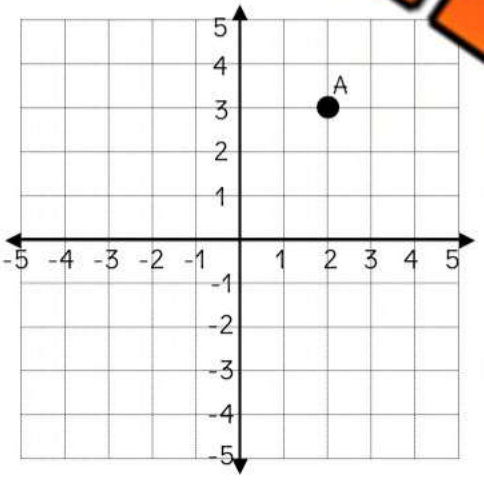
- a shape rotated 90° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-y, x)$.
- a shape rotated 180° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-x, -y)$.
- a shape rotated 270° counterclockwise has a mapping rule of: $(x, y) \rightarrow (y, -x)$.

In the example, A was rotated 180° counter-clockwise
In the example, B was rotated 90° clockwise.



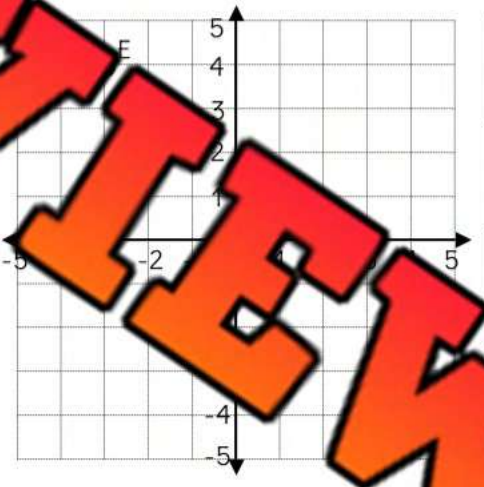
Instructions Graph the new position after rotating around the origin

1) 180° rotation



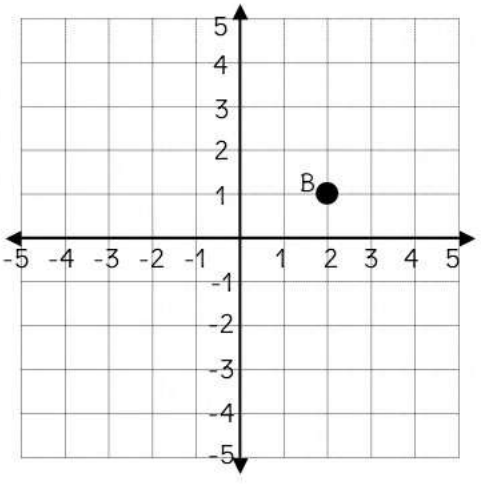
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° clockwise rotation



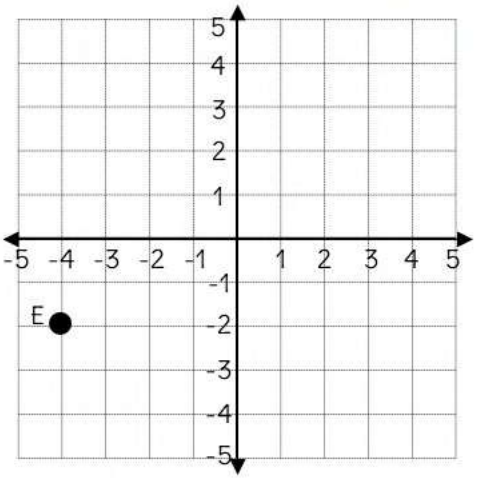
Original Coordinates
E(,)
Rotated Coordinates
(,)

3) 90° counterclockwise rotation



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

4) 90° clockwise rotation



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

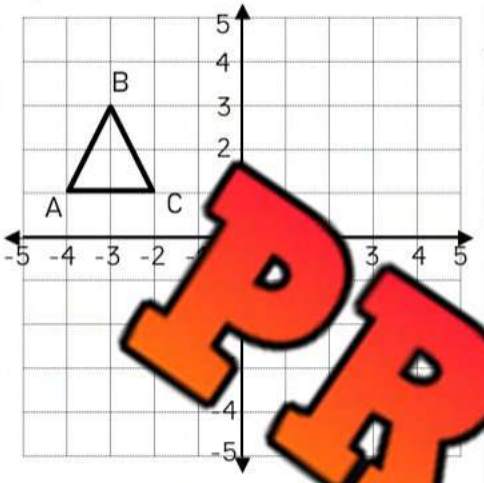
Name: _____ 153

Curriculum Connection
SS7.5

Rotating Shapes

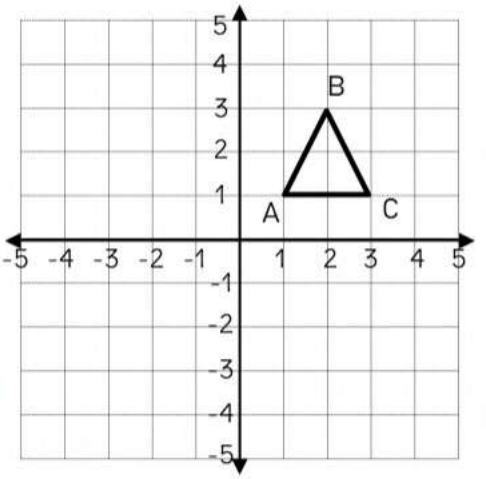
Instructions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



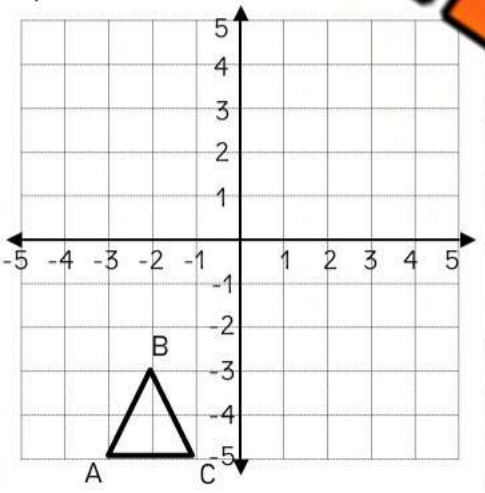
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

2) 90° counterclockwise rotation



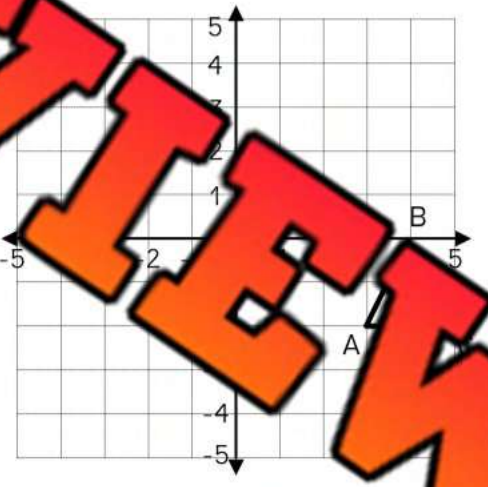
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

3) 180° rotation



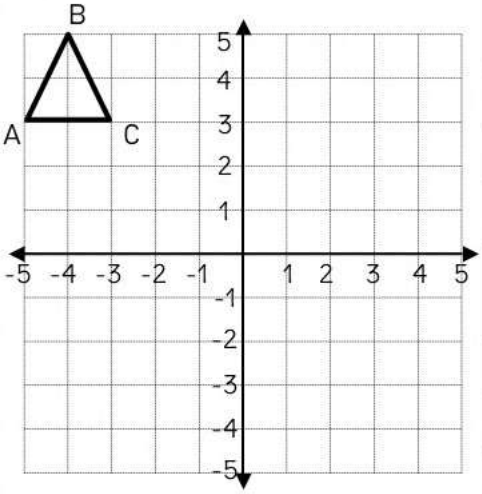
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

4) 270° clockwise rotation



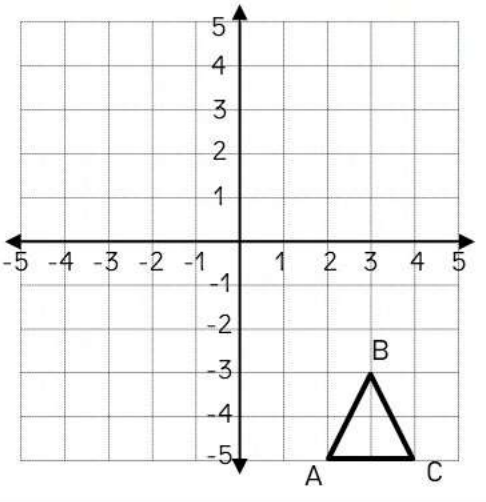
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

5) 90° clockwise rotation



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

6) 90° counterclockwise rotation



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

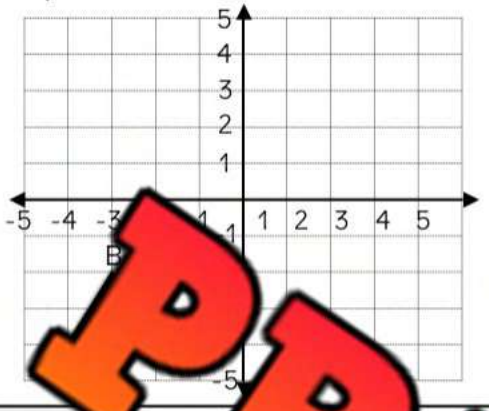
Name: _____ 154

Curriculum Connection
SS7.5

Rotating Shapes

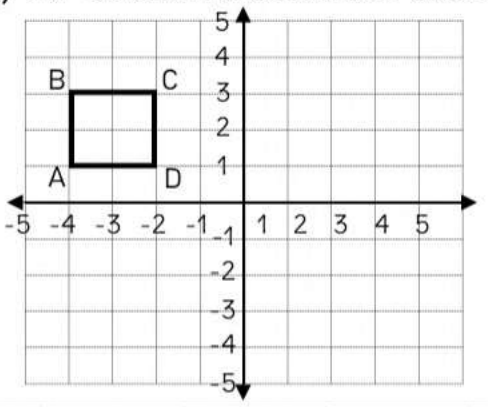
Instructions Graph the new position of each shape after the given rotation

1) 180° rotation



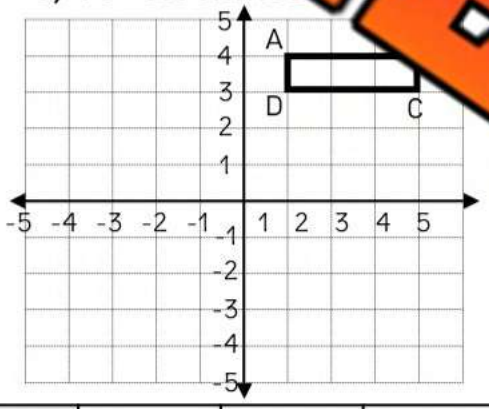
Original	A(,)			
Rotated	A(,)			

2) 90° counterclockwise rotation



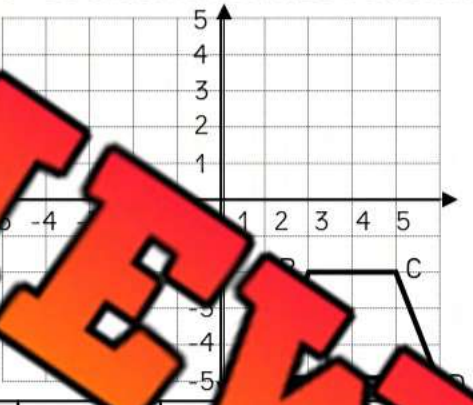
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

3) 90° clockwise rotation



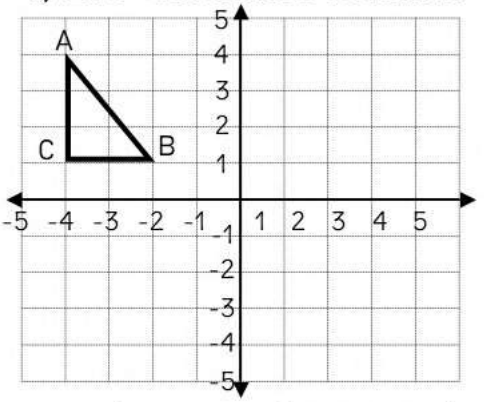
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

4) 90° counterclockwise rotation



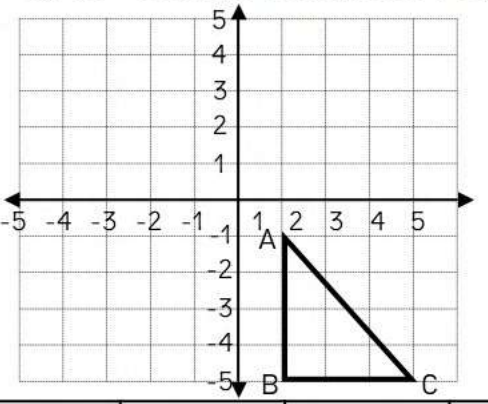
Original	A(,)	B		(,)
Rotated	A(,)	B(,)		D(,)

5) 270° clockwise rotation



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

6) 90° counterclockwise rotation



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

Name: _____ 155

Curriculum Connection
SS7.5

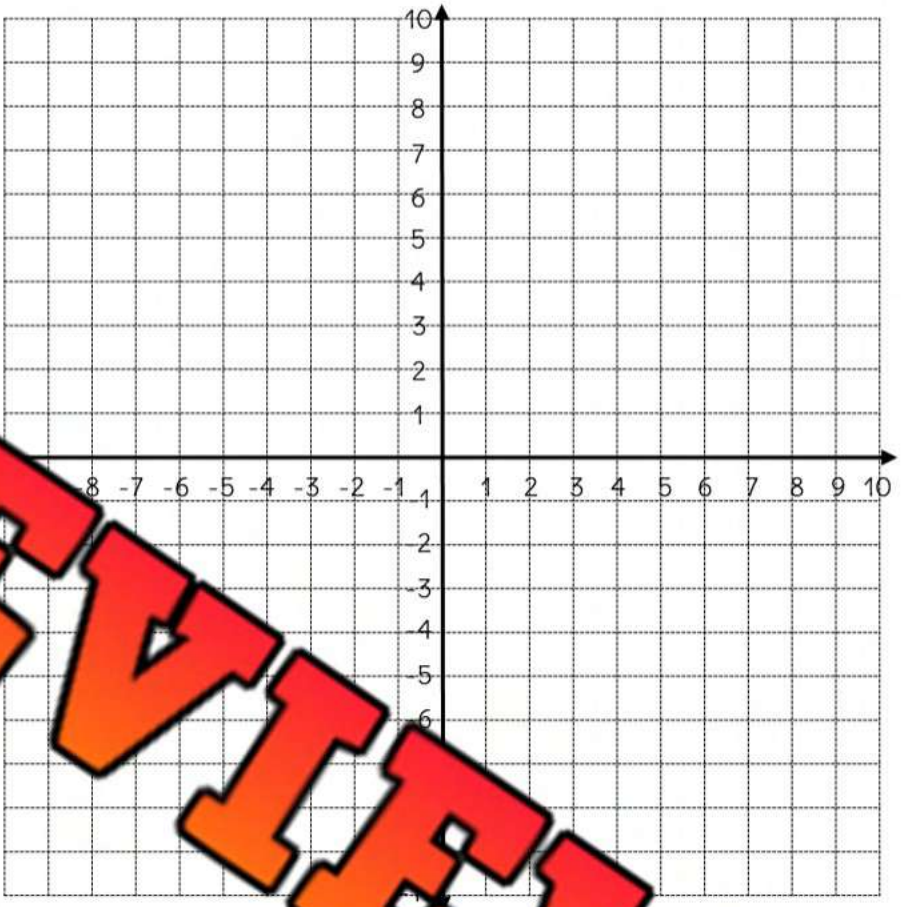
Rotations – Coordinates

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

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

F(G(-9,5
180°
New Coord
F(,), G(,), H(

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



Part 2 Provide the coordinates of each point after the rota

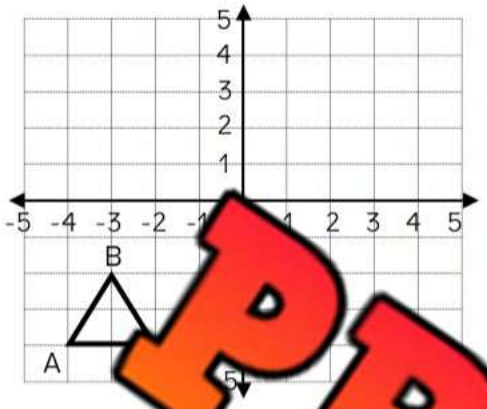
	Original Coordinate	Rotations Across The Line...	New dinates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(3, -6)	180° rotation	
3)	Q(-4, 9)	360° rotation	
4)	P(-7, -11)	270° counterclockwise rotation	
5)	T(-5, 1) Y(-4, -7)	90° clockwise rotation	
6)	S(-7, -5) R(8, 2)	180° rotation	
7)	N(-5,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

Name: _____ 161

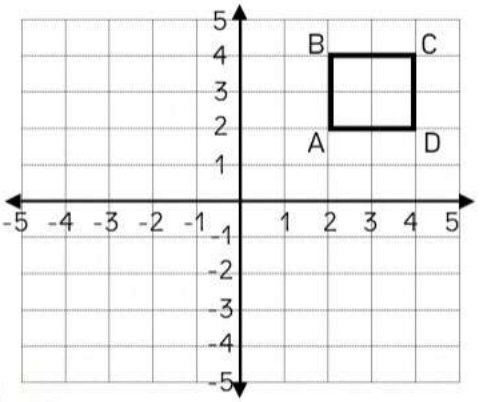
Curriculum Connection
SS7.5

Performing Multiple Transformations

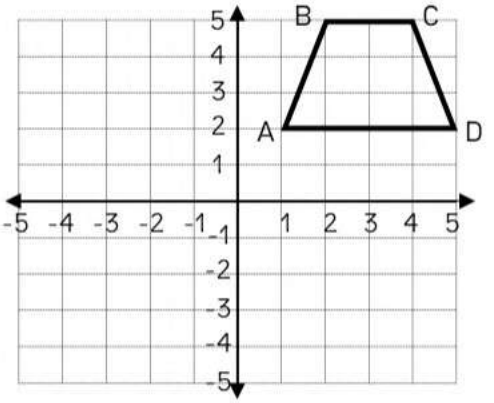
Instructions Complete the following combination of transformations



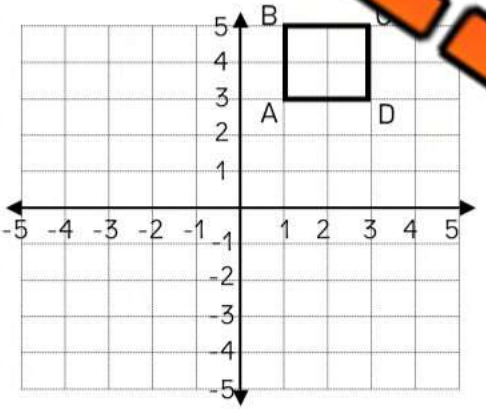
1) 180° rotation, [illegible] down 3



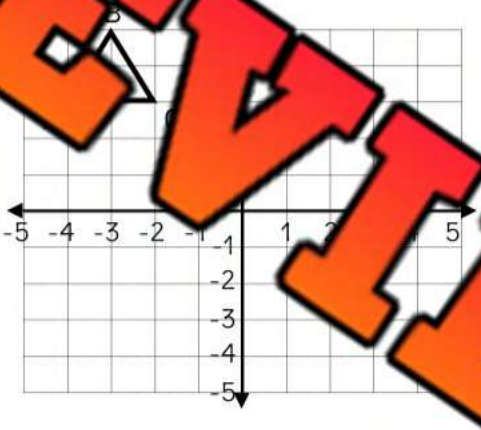
2) [illegible]ct across the x-axis [illegible]te left 4



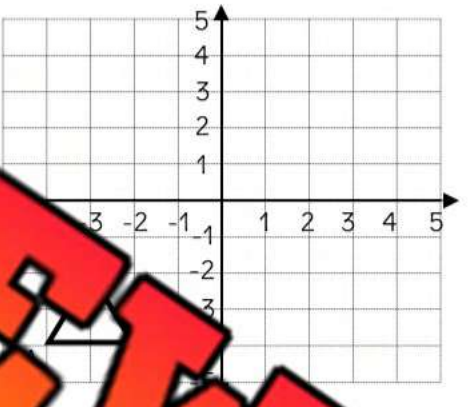
3) Rotate 90° clockwise and reflect across the y-axis



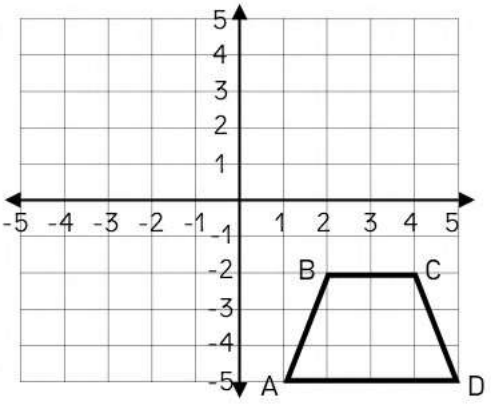
4) 90° counterclockwise rotation, translate right 3



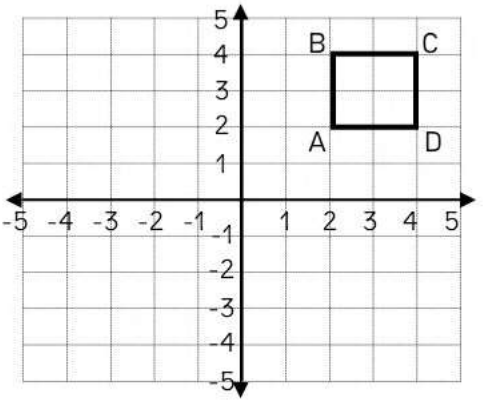
5) Translate down 3 and reflect across the y-axis



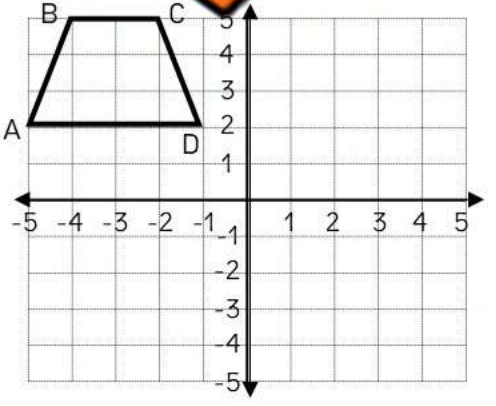
6) R[illegible]-axis [illegible]up 4



7) 180° rotation, translate down 5



8) Reflect across the x-axis and translate left 6



9) Rotate 90° clockwise and reflect across the x-axis

Name: _____ 162

Curriculum Connection
SS7.5

Math Activity: Transformation Battleship

Objective

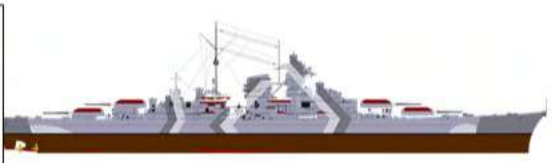
What are we learning about?

Students will apply their knowledge of coordinate planes and geometric transformations (translations, reflections, and rotations) in a strategic game of battleship.

Materials

What you will need for the activity.

- Graph
- Pen
- P
- Col ed pen ers



Instructions

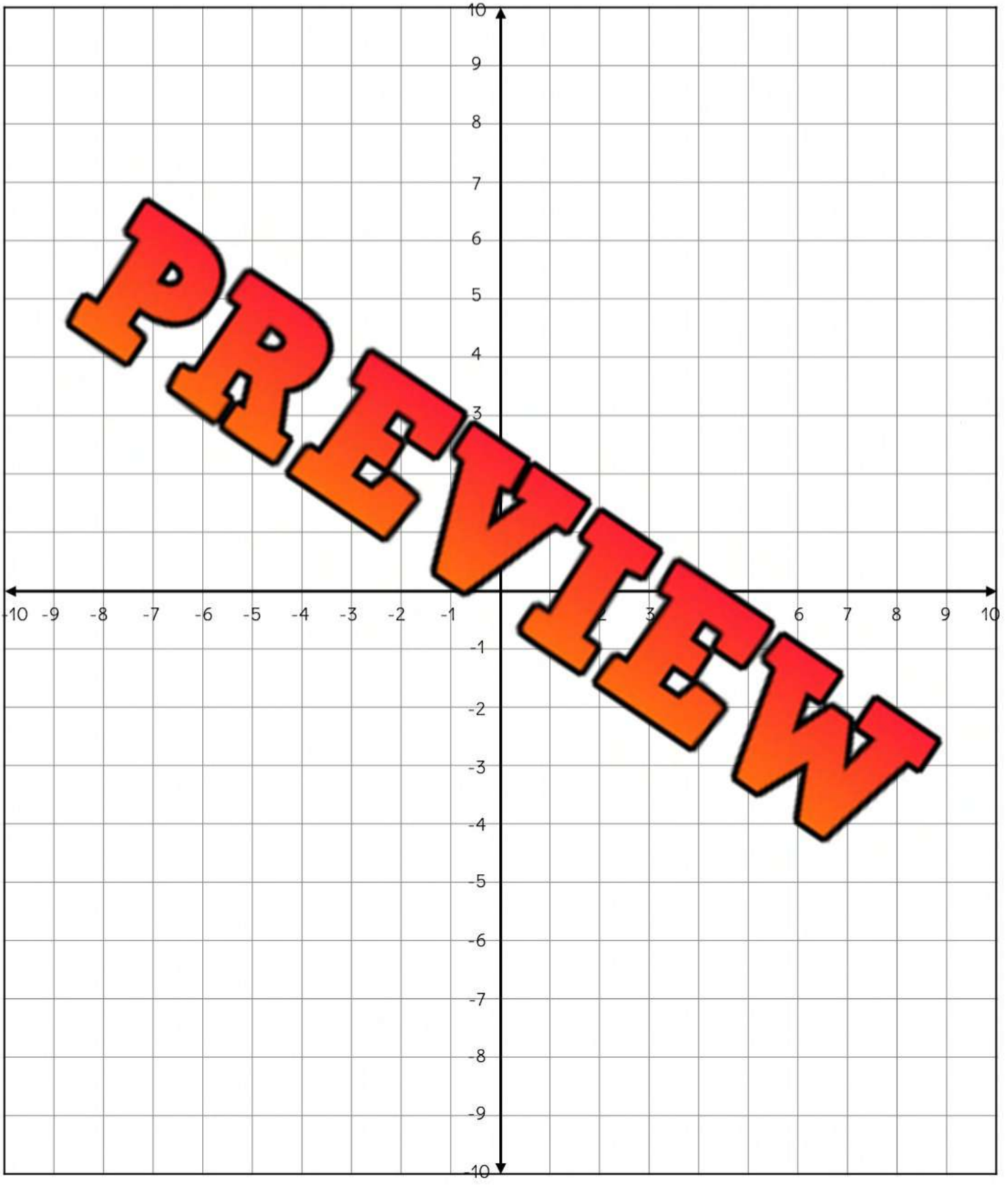
u will the activity

1. Divide the students in ach ts two pieces of graph paper. One will be used for their own ship the sed to track their opponent's ships. Have students draw a coord e or piece of graph paper, labeling the x-axis and y-axis from -10 to
2. Each student draws 3 ships on their coordi ne. S uld be rectangles. In the end, students should create 3 ships th r 15
3. Before starting the game, each student must appl of tra ations to each of their 3 ships so that they have 6 in total. Th cho least one translation, one reflection, and one rotation for each sh
4. Students take turns calling out coordinates to "fire" at their op r example, a student might call out (3, -2). Their opponent checks thei ian plane to see if any part of a ship occupies that coordinate. If a ship is hit, t ponent says "hit" and marks the hit on their tracking graph paper. If there is no ship at that coordinate, the opponent says "miss." To sink a ship, you must call out all four corners (vertexes).
5. Each student tracks their hits and misses on their opponent's ships using the second piece of graph paper. They can use different coloured pencils or markers to indicate hits and misses.
6. The game continues until one student has successfully hit all the points of their opponent's ships. That student is declared the winner.
7. After the game, have a discussion about the transformations used. Ask students to share how they transformed their ships and what strategies they used to place and find the ships.

Name: _____ 163

Curriculum Connection
SS7.5

Grid Paper | Cartesian Plane



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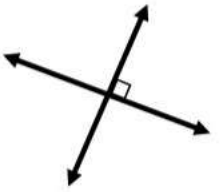
Unit Test - Geometric Constructions & Transformations

Part 1 Construct a ray, line, point, and line segment. Label each.

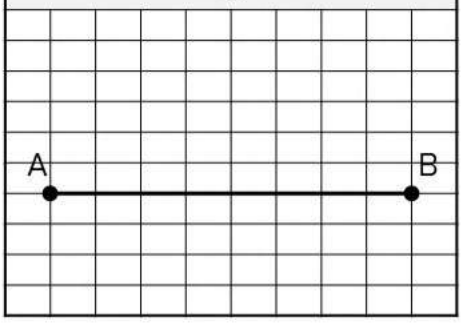
1)	2)	3)	4)
Line Seg[illegible]	Point C	Line – QR	Ray - MN

Part 2 Lab[illegible]s parallel, perpendicular, or intersecting

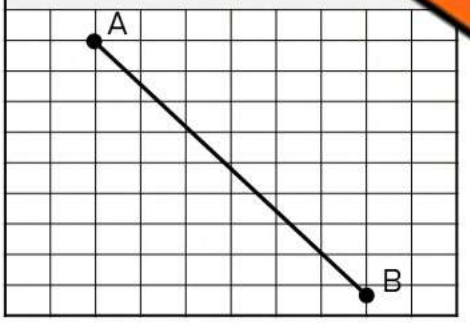
1)	2)	3)	4)
			

Part 3 Construct perpendicular lines [illegible] line [illegible] $\overline{AB}$

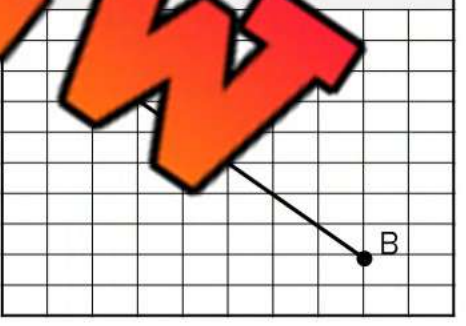
1)



2)



3)



Part 4 Construct perpendicular lines of the line segments $\overline{AB}$

1)

2)

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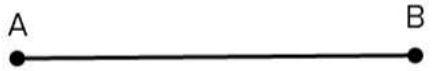
Part 5 Construct parallel lines of the line segment $\overline{AB}$

1)



2)

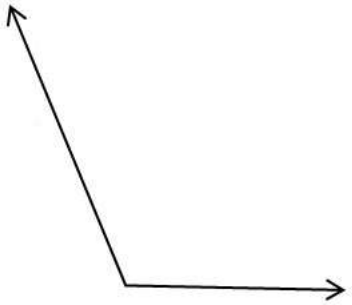
Part 6 Use a compass to construct a perpendicular bisector of the line segment $\overline{AB}$

1)

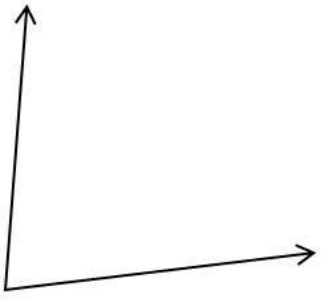
2)

Part 7 Construct an angle bisector of the angle below using

1)



2)



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Part 8 Write which quadrant the points would be found in

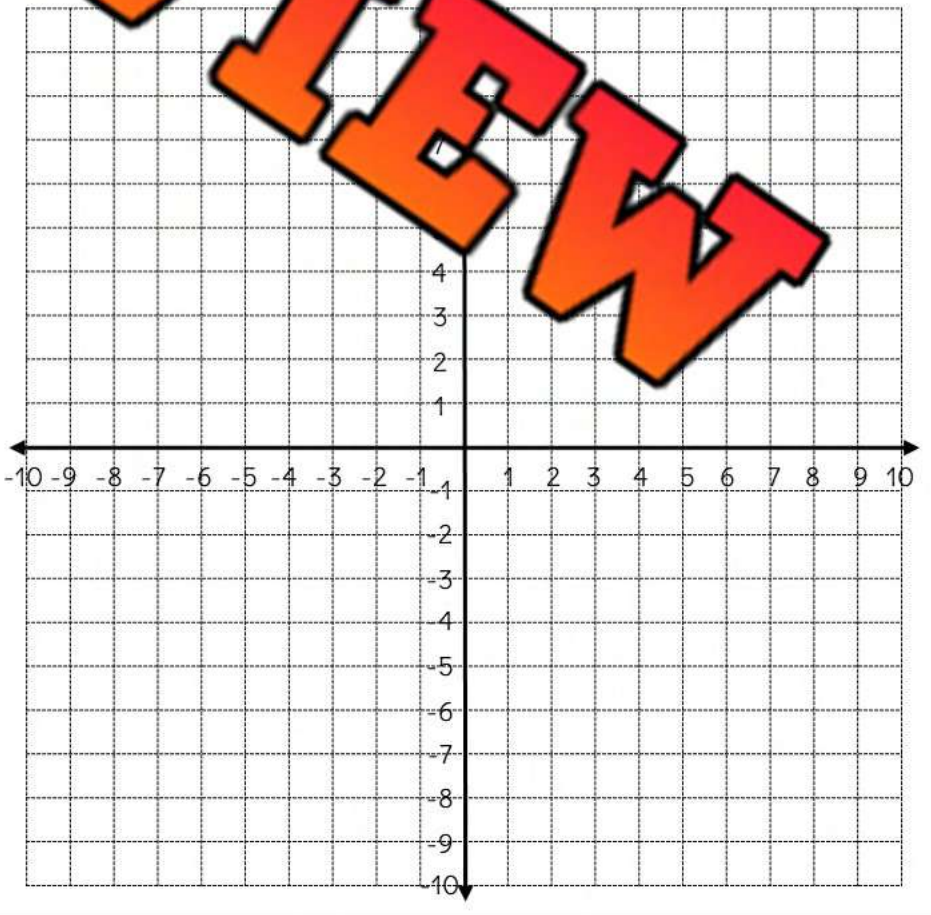
Coordinates (x, y)	**Quadrant (I, II, III, IV)**
(4, -3)	
(-5, -4)	
(2, 5)	
(-2, 3)	

Part 9 ich quadrant number is associated with the descriptions below

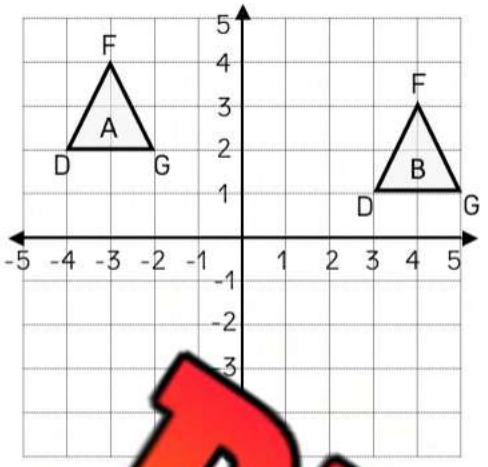
	Description	**Quadrant**
1)	B ositive e	
2)	Both neg v	
3)	An x positive and y at e	
4)	An x negative value itive v	

Part 10 Plot the points of the c es c cartesian plane

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



Part 11 — 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



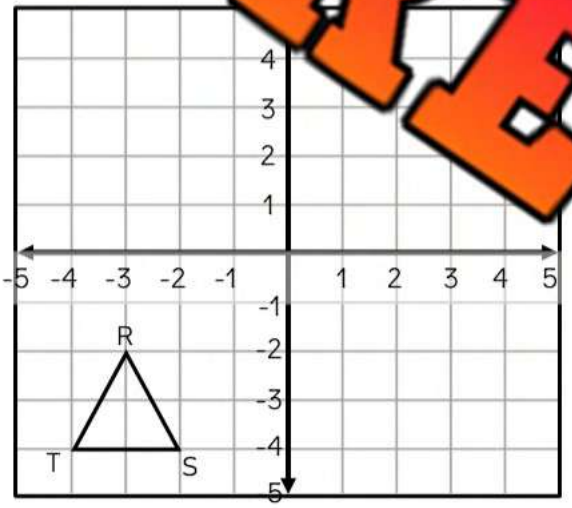
Coordinates A	Coordinates B

Describe the translation

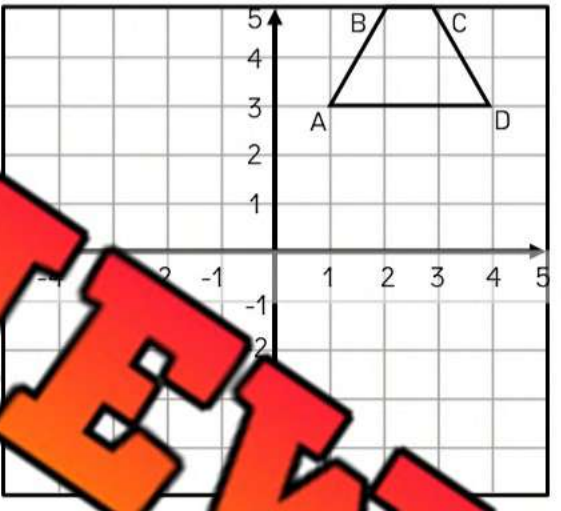
Translate Shape C from Shape B Left 3 units and down 4 units	Coordinates C

Part 1 — Graph the new position of each shape after the given reflection

1) Reflection across the line y =

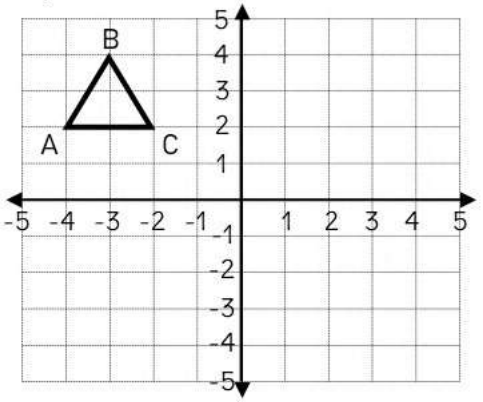


2) Reflection across the line x = 1



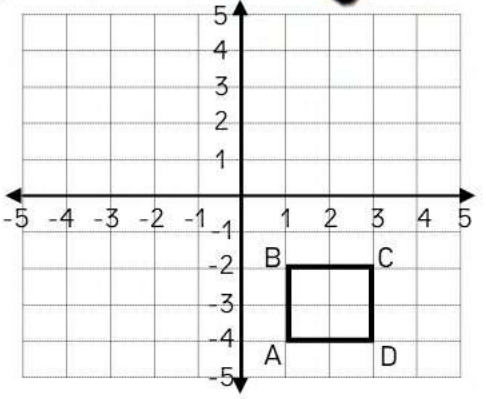
Part 13 — Graph the new position of each shape after the given

1) 180° rotation



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

2) 90° counterclockwise rotation



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