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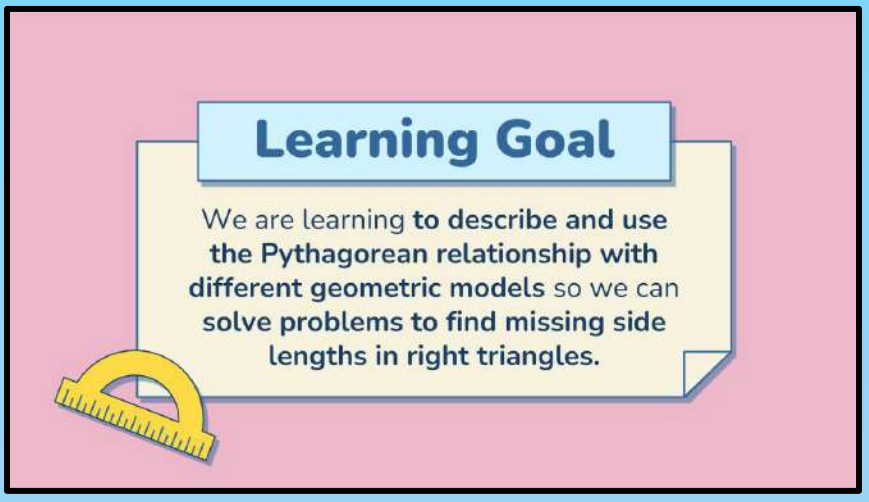
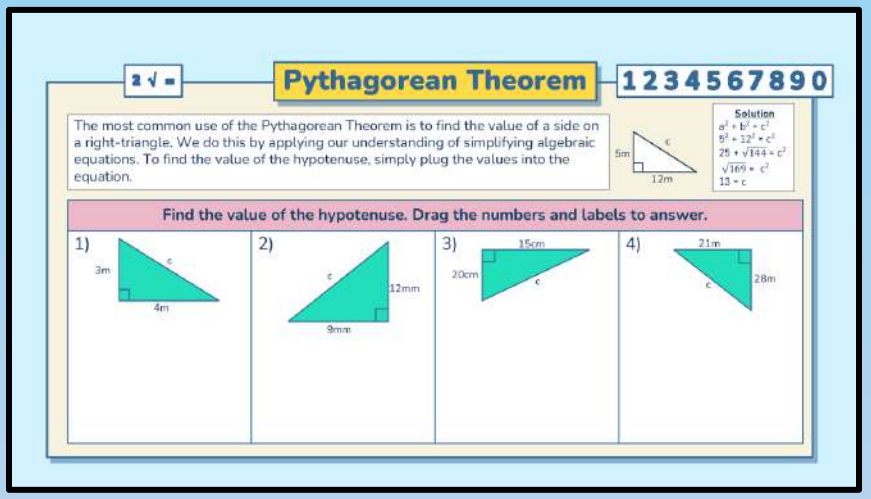
Google Slides Lessons Preview

Saskatchewan Math Curriculum
Shape & Space – Grade 8

3-Part Lesson Format

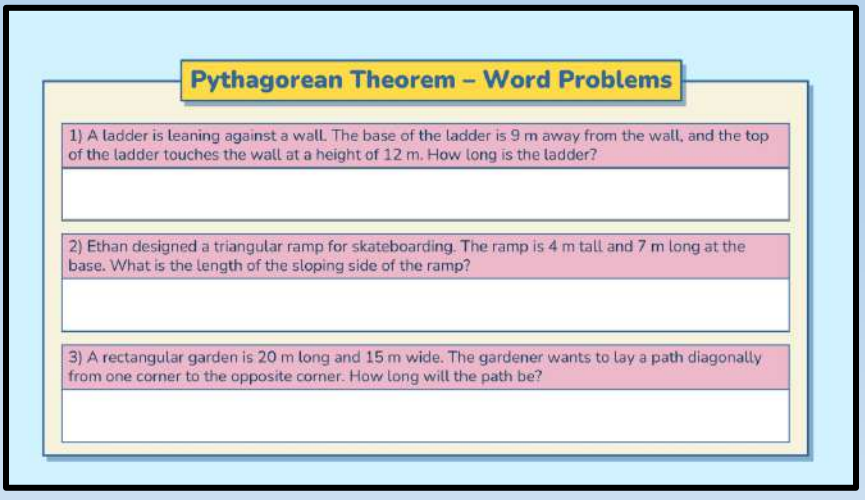
Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!



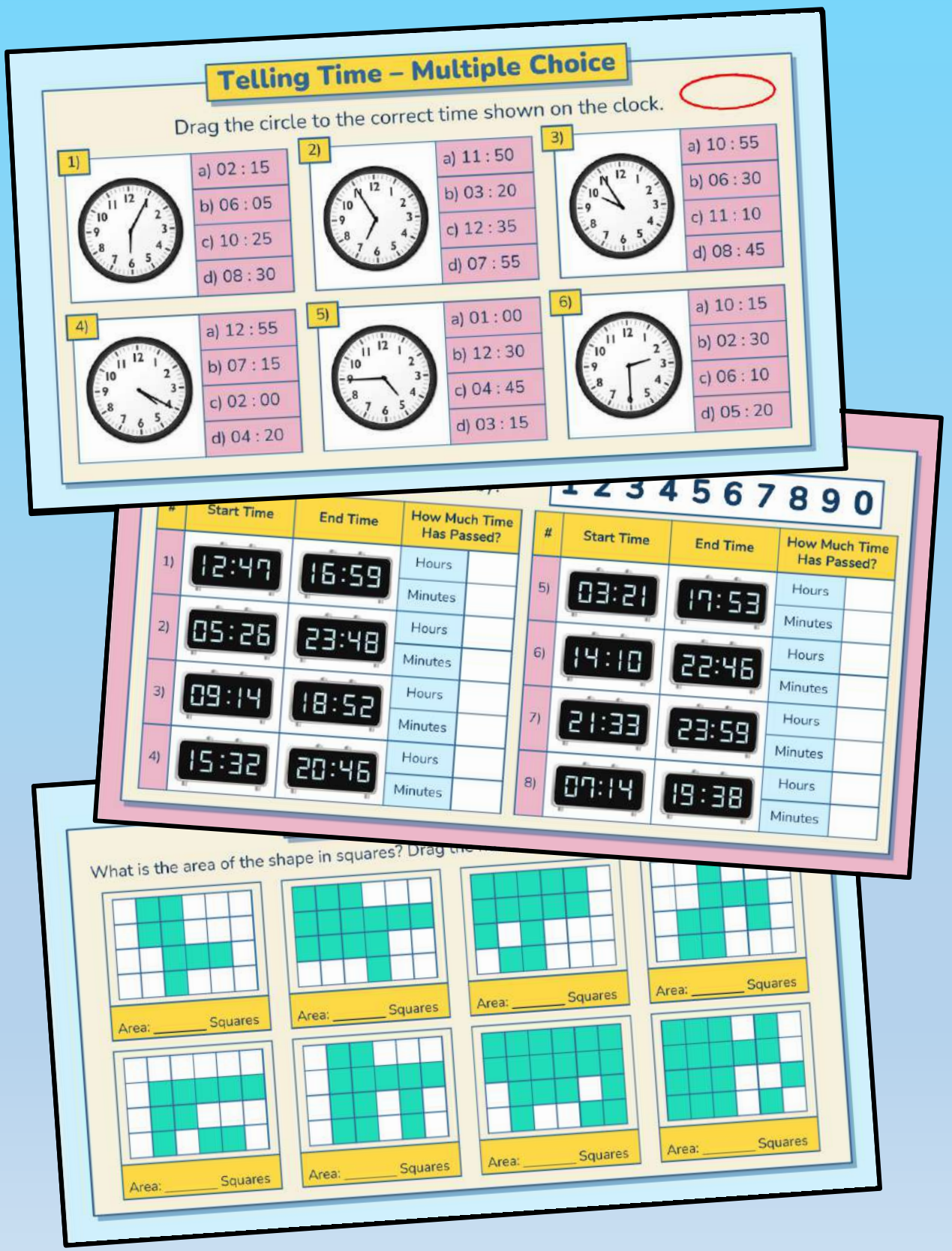


Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

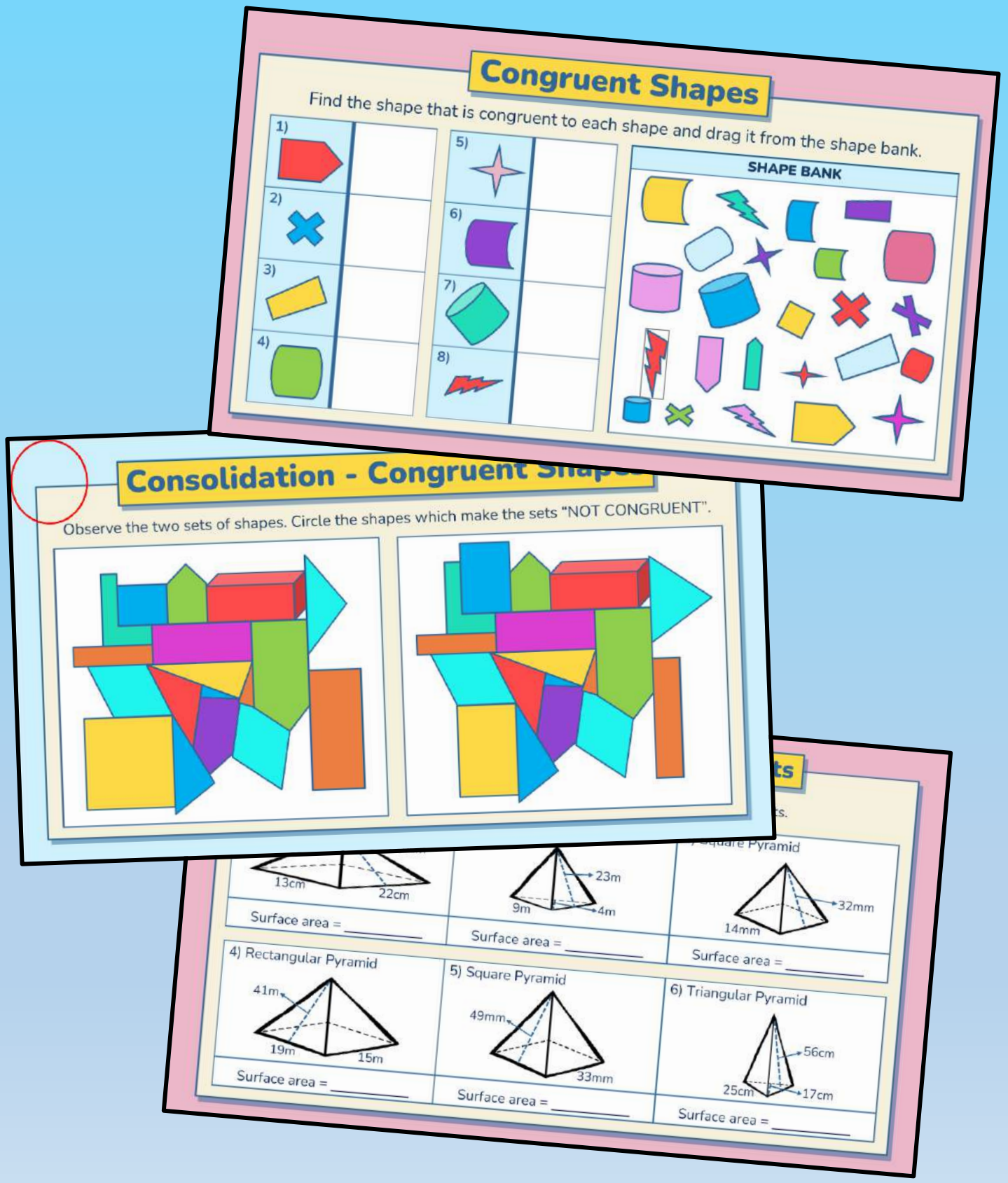
Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!



Saskatchewan Math Curriculum
Shape & Space – Grade 8



Saskatchewan Math Curriculum
Shape & Space – Grade 8



Workbook Preview

Grade 8

SHAPE AND SPACE

Measurement

	Curriculum Expectations	Pages
SS8.1	Demonstrate understanding of the Pythagorean Theorem concretely or pictorially and symbolically and by solving problems.	5-28
SS8.	Demonstrate understanding of the surface area of 3-D objects limited to right prisms and cylinders	
SS8.3	Demonstrate understanding of volume limited to right prisms and cylinders (concretely, pictorially, or symbolically) by: · relating area to volume · generalizing strategies and formulae · analyzing the effect of orientation · solving problems	84-128
SS8.4	Demonstrate an understanding of tessellation by: · explaining the properties of shapes that make tessellating possible · creating tessellations · identifying tessellations in the environment.	133-169, 172-184
TQ	Tests and quizzes	29-30, 129-132, 170-171, 188-189

Name: _____ 5

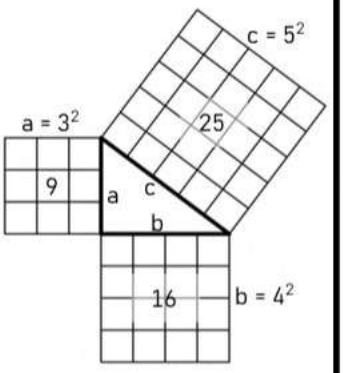
Curriculum Connection
SS8.1

Intro – Pythagorean Theorem

The properties of a right triangle can be used to find an unknown side length. The longest side of a right triangle is always opposite the 90° angle and is called the **hypotenuse.**

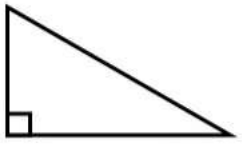
The formula for calculating the length of the hypotenuse is: $a^2 + b^2 = c^2$

- If side a is 3 units long, then a square on this side has an area of 3^2 or 9.
- If side b is 4 units long, then a square on this side has an area of 4^2 or 16.
- If the area of side c is equal to the combined areas of the squares of sides a and b, then the square on side c must have an area of 25 square units (9 + 16). This means the length of side c must be $\sqrt{25}$.



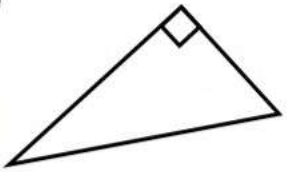
Part 1 — Label the triangles: a, b, and c

1)



2)

4)



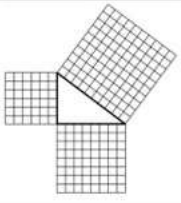
Part 2 — Evaluate

	Question	Answer
1)	3^2	
2)	8^2	
3)	10^2	
4)	$\sqrt{36}$	

	Question	Answer
5)	$\sqrt{144}$	
6)	$\sqrt{16}$	
7)	7^2	
8)	$\sqrt{81}$	

Part 3 — Label the triangles: a, b, c and fill in the blanks to find their values

1)

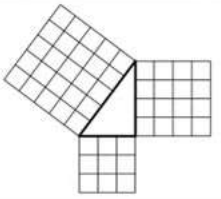


$a^2 + b^2 = c^2$

___ + ___ = ___

Hypotenuse = _____

2)



$a^2 + b^2 = c^2$

___ + ___ = ___

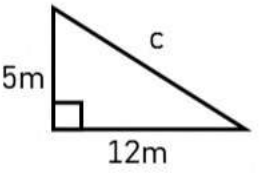
Hypotenuse = _____

Name: _____ 6

Curriculum Connection
SS8.1

Pythagorean Theorem – Missing Side

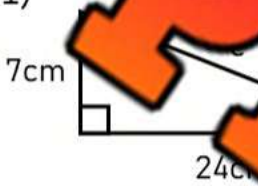
The most common use of the Pythagorean Theorem is to find the value of a side on a right-triangle. We do this by applying our understanding of simplifying algebraic equations. To find the value of the hypotenuse, simply plug the values into the equation.



Solution

$a^2 + b^2 = c^2$
$5^2 + 12^2 = c^2$
$25 + 144 = c^2$
$\sqrt{169} = \sqrt{c^2}$
$13 = c$

Instruction Find the value of the hypotenuse

1)


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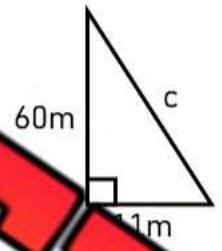

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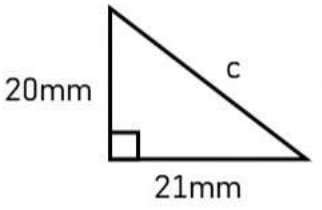

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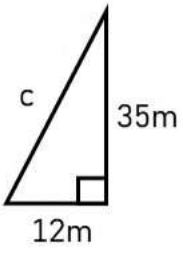

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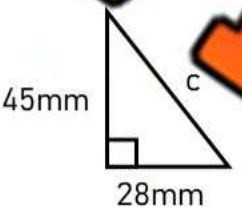

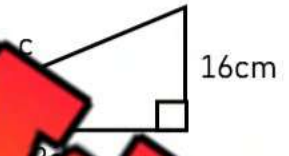

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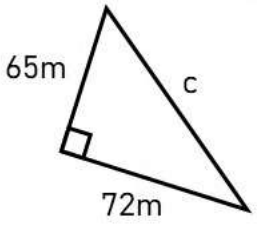

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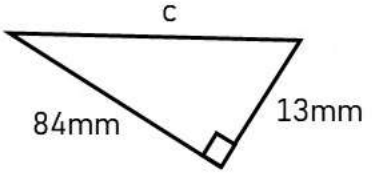

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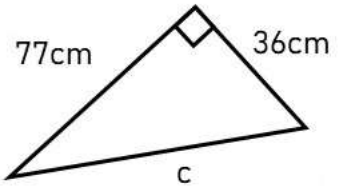
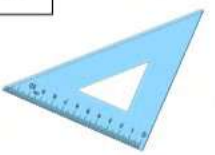


Name: _____ 7

Curriculum Connection
SS8.1

Pythagorean Theorem – Word Problems



Instructions Answer the questions below

1)	In a right-angled triangle, the lengths of the two shorter sides are 3 cm and 4 cm. What is the length of the hypotenuse?
2)	ht tria e leg that measures 8 meters and another leg that measur Wh the length of the hypotenuse?
3)	A building is 30 meters tall, and r is le ainst the top of the building. If the base of the ladder is 25 metres away fro bui ow long is the ladder?
4)	A rectangular billboard is 15 meters tall and 20 meters wide. dia ole runs from the bottom corner to the top corner. How long is the pole?
5)	A rectangular garden is 12 meters long and 8 meters wide. If a diagonal path is drawn across the garden, what is the length of the path?

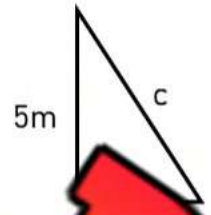
Name: _____ 9

Curriculum Connection
SS8.1

Pythagorean Theorem – Missing Side

Instructions Find the value of the hypotenuse. Round the answer to the nearest tenth

1)



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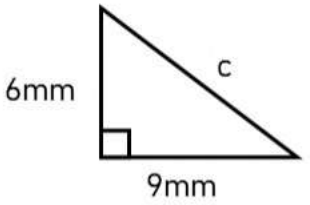

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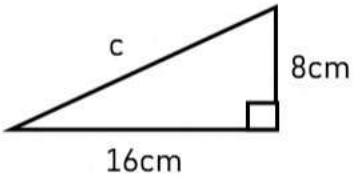
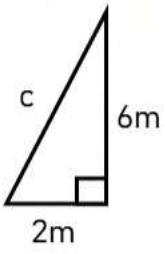


4)



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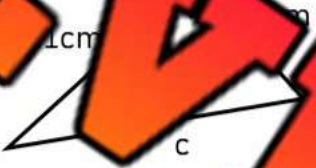

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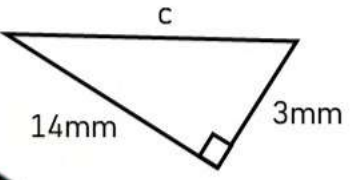

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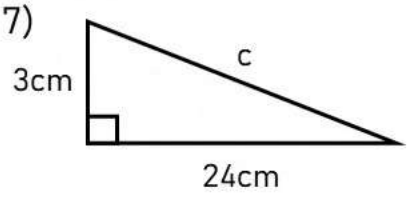

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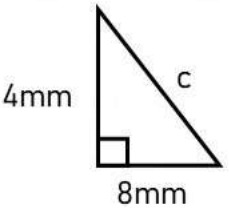

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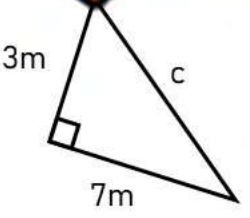


Curriculum Connection
SS8.1

Exit Cards

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

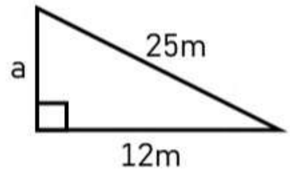
Name: ______________________

1) Find the value of the missing side.

2) A rectangular park measures 45m by 60m. A diagonal path cuts across the park. Find the length of the path to the nearest tenth.

Name: ______________________

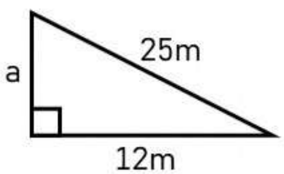
1) Find the value of the missing side.



2) A rectangular park measures 45m by 60m. A diagonal path cuts across the park. Find the length of the path to the nearest tenth.

Name: ______________________

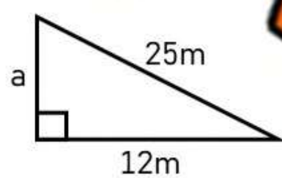
1) Find the value of the missing side.



2) A rectangular park measures 45m by 60m. A diagonal path cuts across the park. Find the length of the path to the nearest tenth.

Name: ______________________

1) Find the value of the missing side.



2) A rectangular park measures 45m by 60m. A diagonal path cuts across the park. Find the length of the path to the nearest tenth.

Name: _____ 12

Curriculum Connection
SS8.1

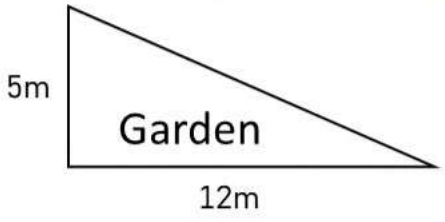
Pythagorean Theorem – Word Problems

Instructions Answer the word problems below

1) Find the hypotenuse of a right triangle with a base of 10cm and a height of 6cm.

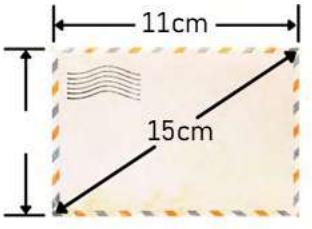
2) Lil[illegible]outh and 3 km east. Calculate how far Lily is away from her [illegible]ng point.

3) Julian built a triangular [illegible]en u[illegible]t[illegible]ensions below. If he wanted to put a fence around his garden, h[illegible]wou[illegible]e fence need to be?



4) Ivy's house is a rectangular shape that is 15m wide by 9m [illegible]g. [illegible]ng is the diagonal of her house (from corner to corner)?

5) An envelope has the dimensions below. What is the height of the envelope?



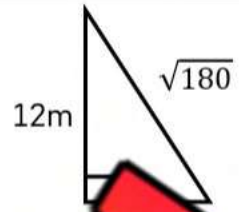
Name: _____ 13

Curriculum Connection
SS8.1

Pythagorean Theorem – Missing Side

Instructions Find the value of the missing side. Record your answer as a square root

1)



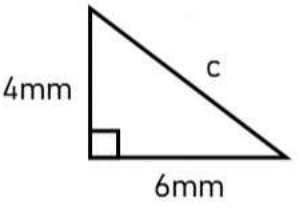
a^2 c^2

14^2 $36 = c^2$

$\sqrt{180} = \sqrt{c^2}$

$c = \sqrt{180}$

2)



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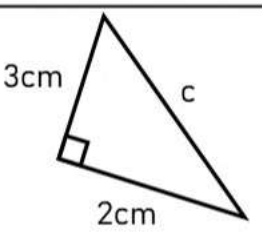
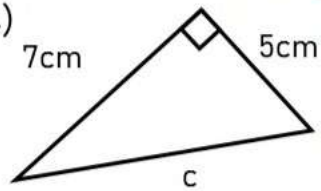


4)



5)

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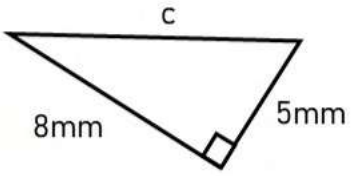

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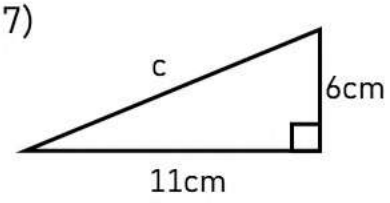

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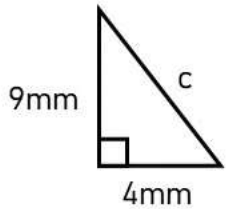

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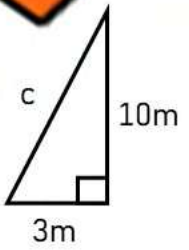


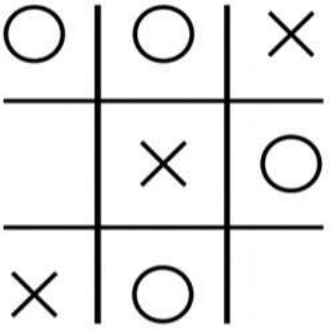
Name: _____ 15

Curriculum Connection
SS8.1

Math Tic-Tac-Toe: Pythagorean Challenge

Objective — What are we learning about?

Students will practice using the Pythagorean Theorem to find the missing side of right triangles in a fun, competitive game of tic-tac-toe. This activity will reinforce their problem-solving skills and teamwork.



Materials — What you will need for the activity.

- Whiteboard / paper
- Markers or pencils
- Pre-written Pythagorean theorem problems (one for each cell of the tic-tac-toe grid)

Instructions — How you will complete the activity

1) **Preparation**: Hand out Tic-Tac-Toe worksheets to each pair of students. Each worksheet should have a large tic-tac-toe grid with a different Pythagorean Theorem problem in each cell. One side of the right triangle is missing in each problem.

2) **Instructions**:
   - Students will play individually against each other, with one playing "X" and the other "O."
   - The student playing "X" will go first. They will choose a cell, solve the Pythagorean Theorem problem in that cell, and check their answer with their partner. If the solution is correct, they place an X in that cell.
   - If the answer is incorrect, they do not place their mark, and it becomes the "O" player's turn. The "O" player will then choose a cell, solve the problem, and check their answer. If correct, they place an O in that cell.
   - The game continues with alternating turns.

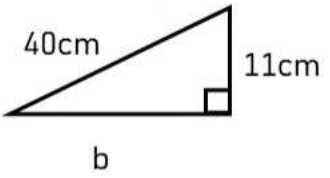
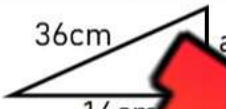
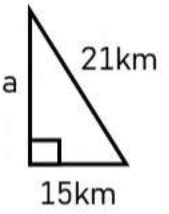
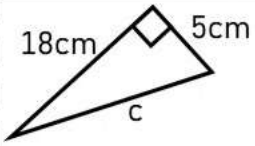
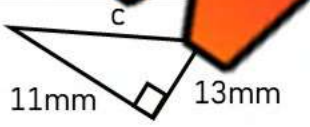
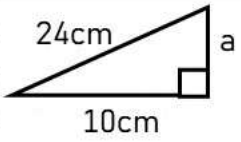
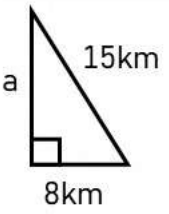
3) **Winning the Game**: The first player to get three marks in a row (horizontally, vertically, or diagonally) wins the game.

4) **Discussion**: After the game, students should discuss with their partner the different strategies they used to solve the problems and any challenges they faced during the activity.

Name: _____ 16

Curriculum Connection
SS8.1

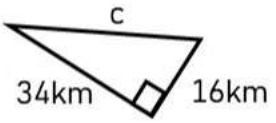
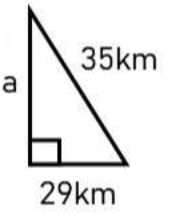
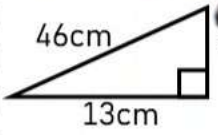
Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

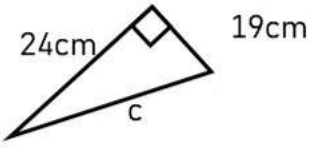
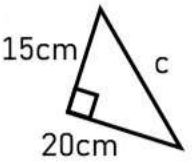
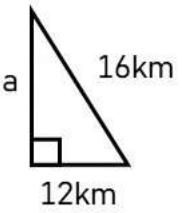
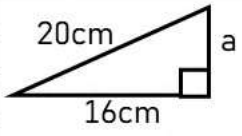
Lily walked 5 km south and 12 km east. How far is she from her starting point?		Jacob's rectangular garden measures 18 m by 24 m. Find the diagonal length.
	Lucas paddled his kayak 4 km north and 3 km east. How far is he from his starting point?	
David climbs 12m up a tree and moves 5m to the right on a branch. What is his diagonal distance from the tree base?		The base of a TV screen measures 48cm, and the height is 36cm. Find the diagonal size of the screen.
A rectangular rug is 9 m wide and 12 m long. What is the diagonal length?	Ella's garden is a rectangle measuring 20m by 15m. Find the diagonal length.	
	Daniel cycled 9km west and 12 km north. How far is he from his starting point?	
	Find the hypotenuse: right triangle with legs of 12cm and 16cm.	

Name: _____ 18

Curriculum Connection
SS8.1

Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

Chris's living room measures 5 m by 12 m. Find the diagonal length.	Lisa climbs 3 m up a ladder and moves 4 m sideways on a scaffold. What is her diagonal distance from the ground?	A triangle has legs of 5 cm and 12 cm. What is the hypotenuse?
A rectangular field is 12m wide and 35 long. What the diag length		
	and 60 nd th of t diagonal.	Ava jogged 7 km west and 24 km south. How far is she from her starting point?

		mm m
Nathan walked 3km north and 4km east. Calculate the distance from his starting point.		Hannah hiked 15km east and 20 km south. How far is she from the starting point?
	Mia flew her drone 8m upward and 15 m to the right. Calculate the diagonal distance.	Jamie's rectangular swimming pool measures 20m by 25m. Find the diagonal length.

Name: _____ 19

Curriculum Connection
SS8.1

Pythagorean Theorem – Word Problems

Instruction Answer the word problems below

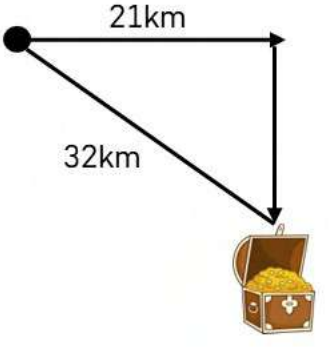
1) Robert has a 4m ladder that he is using to get as high as possible to hang his Christmas lights. He puts the ladder 2 metres away from the wall.

a) Label the dimensions on the diagram

b) How [illegible] the top of the ladder off the ground?

2) Howard has a huge [illegible]er to [illegible]very tall bookshelf. He needs to climb 9m to find the boo[illegible] wa[illegible] the top of the ladder to be at the height of the book he wants [illegible] sho[illegible] put the ladder away from the bookshelf?

3) A pirate is on a treasure hunting missing. His GPS tells him he is 32km away from the treasure. He decides to travel 21km due east. The GPS now tells him that the treasure is due south from where his boat is. How far south does he need to travel to find the treasure?



Name: _____ 20

Curriculum Connection
SS8.1

Pythagorean Theorem – Word Problems

Instruction Answer the questions below

1)	Jake's treehouse has a rope ladder that runs diagonally. It measures 26 meters long. The distance from the base of the tree to the bottom of the ladder on the ground is 10 meters. How far above the ground is the entrance to the treehouse?
2)	A rectangular playground has a diagonal length of 85 meters. If the width of the playground is 77 meters, find the length of the playground.
3)	A zip line is stretched between two trees with a distance of 24 meters between them. The zip line is anchored at a height of 3 meters on one tree and at a height of 8 meters on the other tree. How far apart horizontally are the two points?
4)	A tightrope walker is practicing on a rope that measures 25 meters long. The rope is tied between two poles that are 24 meters apart horizontally. If the tightrope walker walks down the rope, how many metres down is it from start to finish?

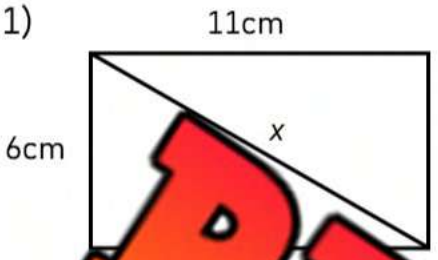
Name: _____ 22

Curriculum Connection
SS8.1

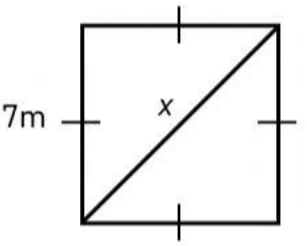
Pythagorean Theorem – Missing Side

Instruction Find the value of x.
Round the answer to the nearest tenth or leave as a square root

1)



2)



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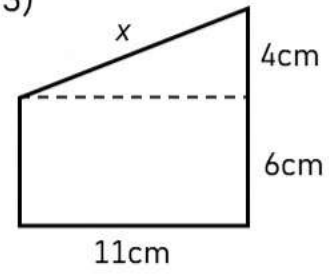
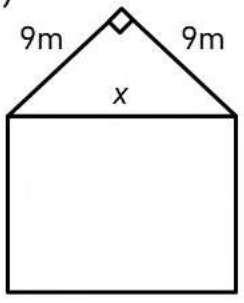
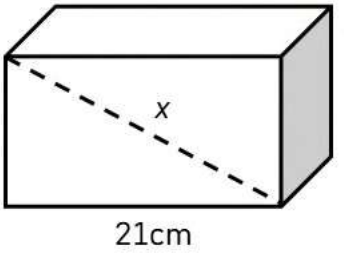


5)



6)



Name: _____ 23

Curriculum Connection
SS8.1

Pythagorean Theorem – Word Problems

Instruction Answer the word problems below

1) TVs are measured diagonally from corner to corner. Jeffrey wants a 150cm TV. He likes the look of one that has a base of 140cm and a height of 54cm. Is the TV 150cm diagonally?

2) To get from point A you need to walk around the pond. To avoid the pond, you walk 50 and 44 . To the nearest metre, how many metres would you have saved if you could've walked through the pond?

3) A baseball diamond is a square with sides of 30m. What is the distance between first base and third base?

4) The local fire department has been called to a burning building. They need their ladder to reach the 4th floor, which is 22m high. They know that the ladder will need to be at least 12m away from the building. If they brought a 25m ladder, will they reach the fourth floor?

Curriculum Connection
SS8.1

Exit Cards

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

Name: _____

Real-life Pythagorean theorem problems, Find the value of the missing side.

1) A tree is 20 m tall and casts a shadow 15 m long on the ground. What is the distance from the top of the tree to the end of the shadow?

2) A ramp is used to load equipment onto a truck. The ramp is 2 m high and 4 m long along the ground. What is the length of the ramp itself?

Name: _____

Real-life Pythagorean theorem problems, Find the value of the missing side.

1) A tree is 20 m tall and casts a shadow 15 m long on the ground. What is the distance from the top of the tree to the end of the shadow?

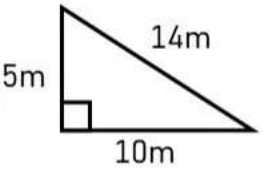
2) A ramp is used to load equipment onto a truck. The ramp is 2 m high and 4 m long along the ground. What is the length of the ramp itself?

Name: _____ 26

Curriculum Connection
SS8.1

Identify Right Triangles – Pythagorean Theorem

We can use the Pythagorean Theorem to find out if a triangle is a right triangle or not. If we have all the measurements of the triangle, we can plug them into the equation. If the equation is true, the triangle is a right triangle and if it is false, it is not.



Solution

$a^2 + b^2 = c^2$

$5^2 + 10^2 = 14^2$

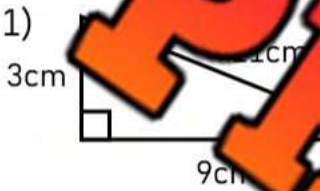
$25 + 100 = 196$

$125 \neq 196$

This equation is false, therefore this is not a right triangle

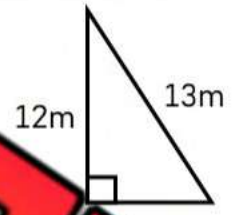
Questions Is the triangle a right triangle?

1)



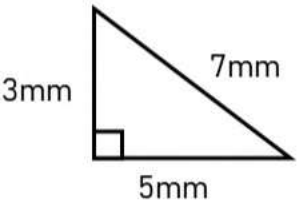
Yes No

2)



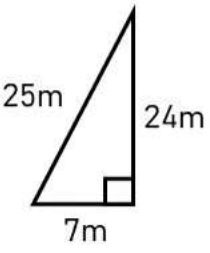
No

3)



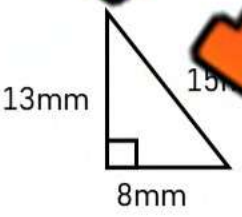
Yes No

4)



Yes No

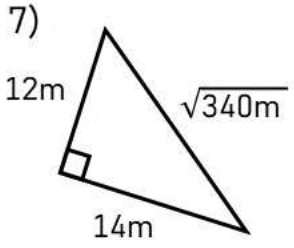
5)



Yes No

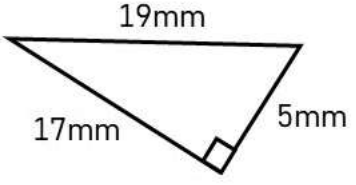
Yes No

7)



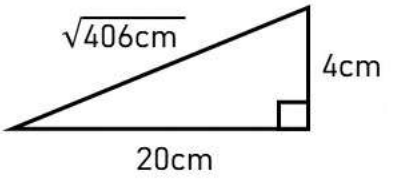
Yes No

8)



Yes No

9)



Yes No

Name: _____ 28

Curriculum Connection
SS8.1

Pythagorean Theorem – Word Problems

Instructions Answer the questions below

1)	A triangular garden has sides measuring 35 meters, 45 meters, and 55 meters. Is the triangle a right triangle?
2)	A triangular pool has sides that measure 12 meters, 16 meters, and 20 meters. Is the triangle a right triangle?
3)	Three friends are standing at three different points in a triangular field. The distances between them are 9 meters, 12 meters, and 15 meters. Is the triangle a right triangle?
4)	A kite has a width of 18 meters and a height of 24 meters. The diagonal between the two non-adjacent corners measures 30 meters. Is the triangle a right triangle?

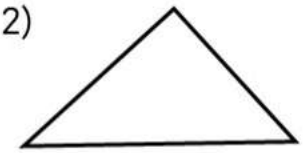
Name: _____ 29

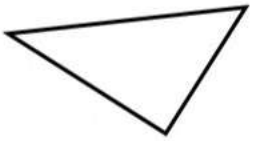
Curriculum Connection
TQ

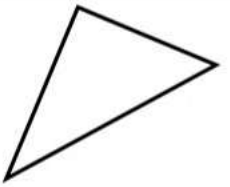
Pythagorean Theorem – Quiz

Part 1 Label the sides of the right triangles: a, b, and c

1) 

2) 

3) 

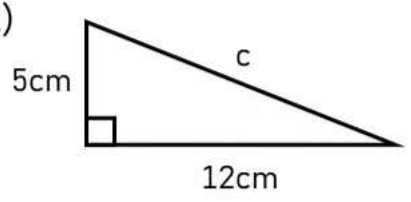
4) 

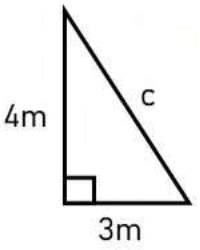
Part 2 Va

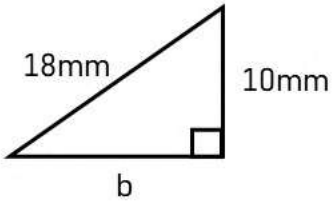
	Quest	Ans
1)	7^2	
2)	9^2	
3)	$\sqrt{16}$	

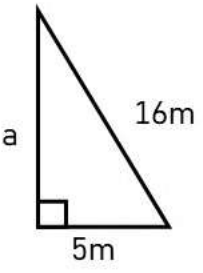
	Question	Answer
4)	$\sqrt{121}$	
5)	$\sqrt{64}$	
	6^2	

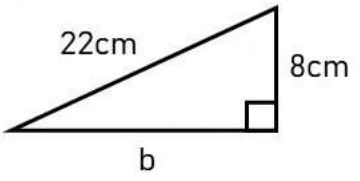
Part 3 Find the value of the missing side l m

1) 

2) 

4) 

5) 

6) 

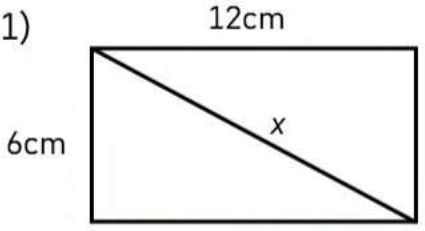
Name: _____ 30

Curriculum Connection
TQ

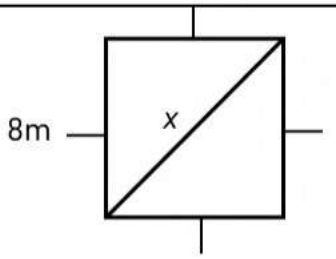
Part 4

Find the value of x.
Round the answer to the nearest tenth or leave as a square root

1)



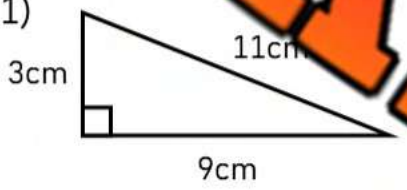
2)



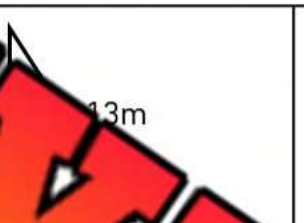
Part 5

Is the triangle a right triangle?

1)

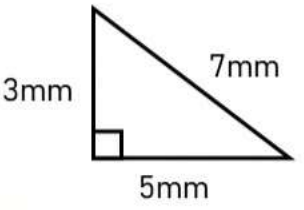


Yes No



Yes No

3)



No

Part 6

Is the triangle a right triangle?

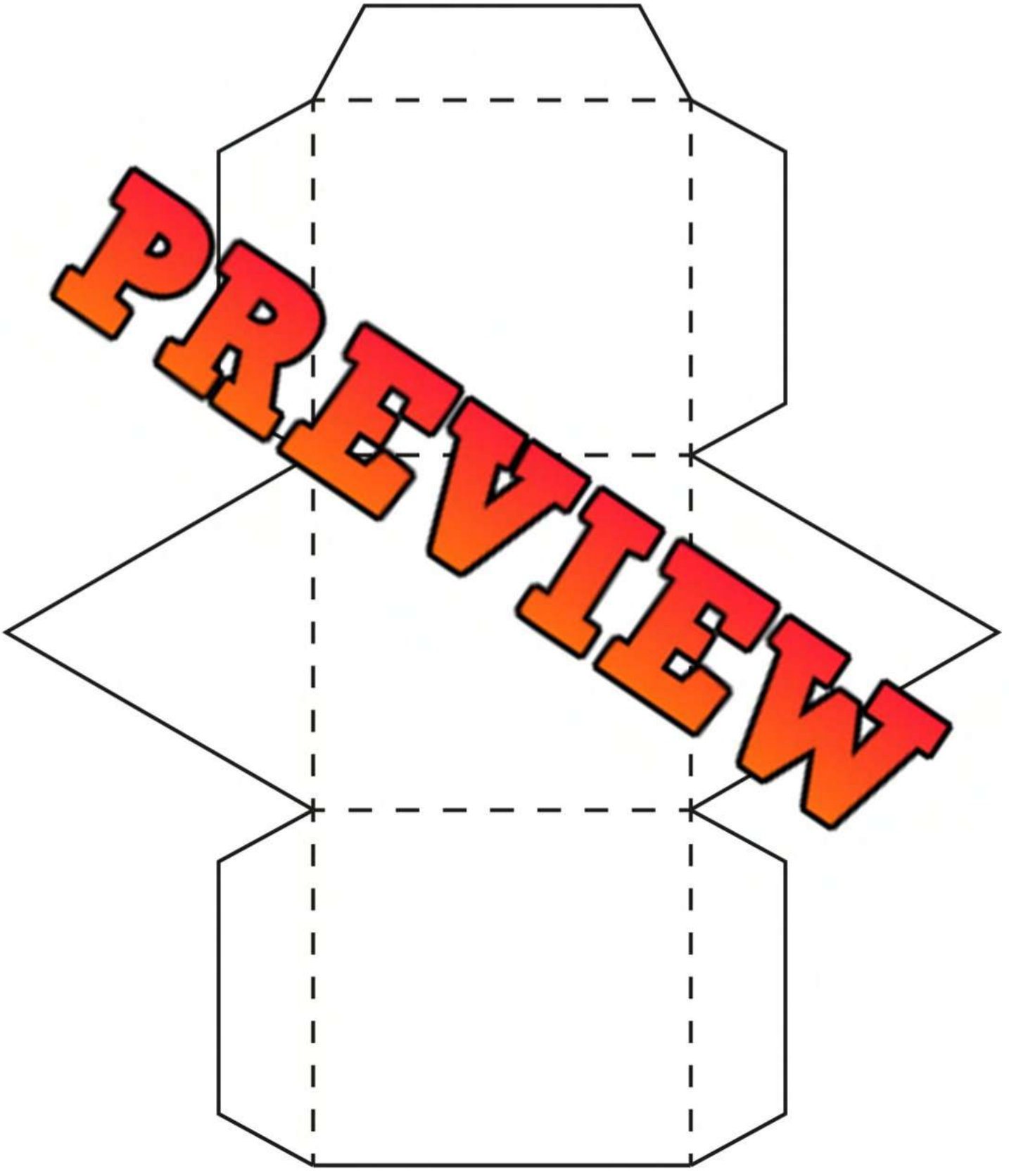
1) A 14m ladder is leaning against a house. The bottom of the ladder is [illegible]es from the house. How high does the ladder reach to the nearest tenth?

2) A building casts a shadow of 10m on the ground. The length from the top of the building to the end of the shadow is 26m. How tall is the building?

Name: _____ 31

Curriculum Connection
SS8.2

3D Model – Triangle Based Prism Net



Name: _____ 33

Curriculum Connection
SS8.2

3D Model – Cube Net

Name: _____ 36

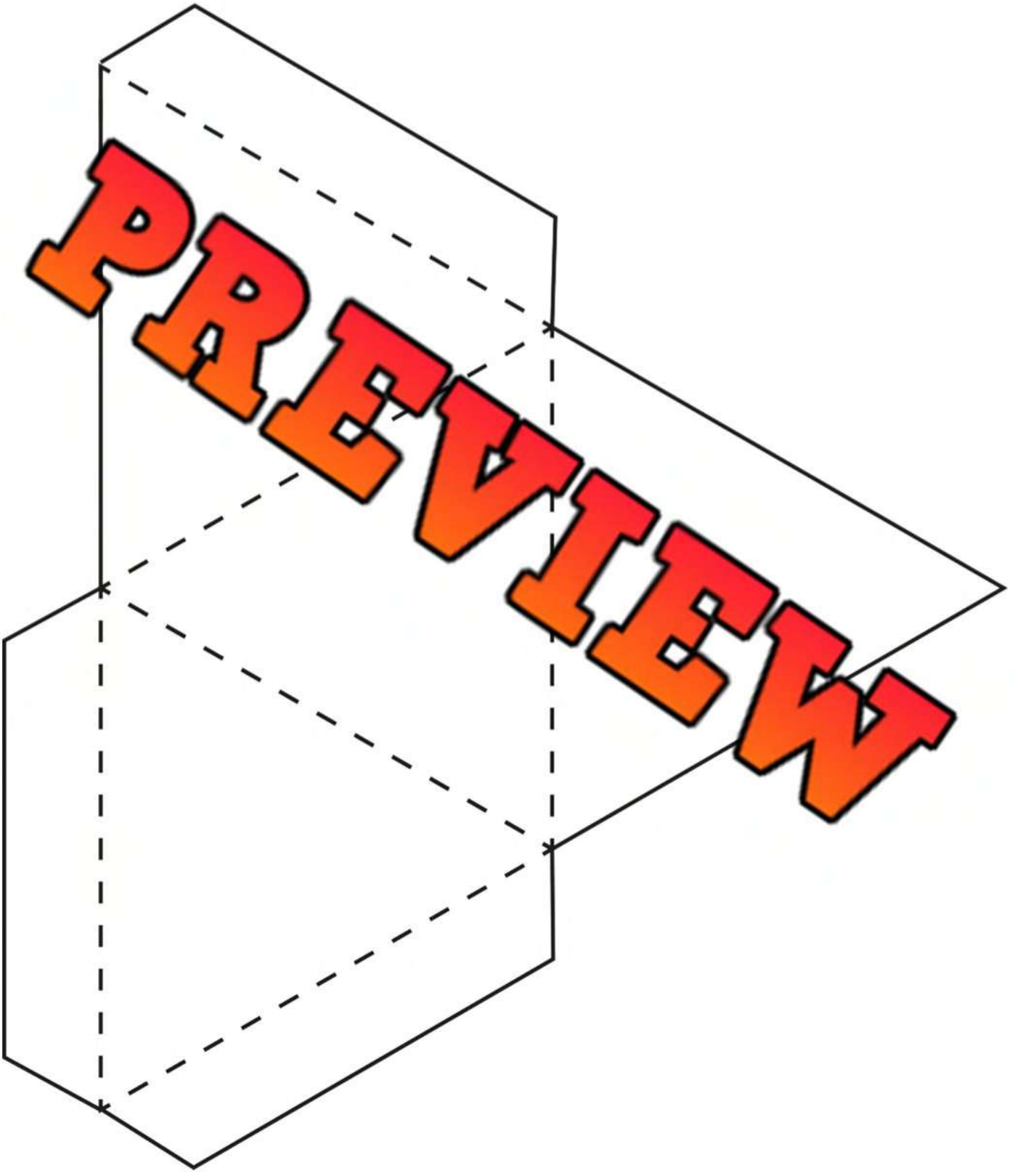
Curriculum Connection
SS8.2

3D Model – Cone Net

Name: _____ 38

Curriculum Connection
SS8.2

3D Model – Triangle Based Pyramid Net



Name: _____ 44

Curriculum Connection
SS8.2

3D Models – Investigating Nets

Name of 3D Shape	Prism or Pyramid	Shape of Base	Faces

Name: _____ 45

Curriculum Connection
SS8.2

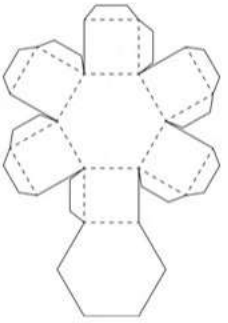
Nets Representing 3D Objects

Instruction Identify and circle the 3D object formed by each net

1)

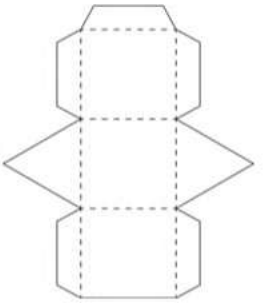
- Rectangular
- Cylinder
- Cube

2)



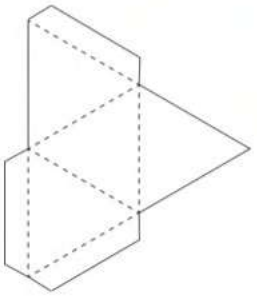
- Rectangular Prism
- gonal Prism
- l Prism

3)



- Rectangular Prism
- Pentagonal Prism
- Triangular Prism

4)

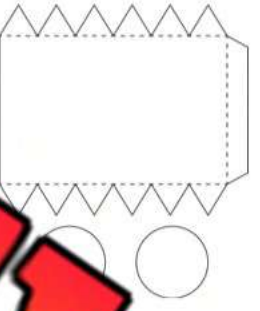


- Rectangular Pyramid
- Pentagonal Pyramid
- Triangular Pyramid

5)

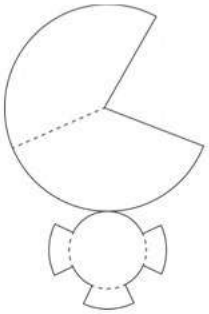
- Rectangular Pyramid
- Square Pyramid
- Triangular Pyramid

6)



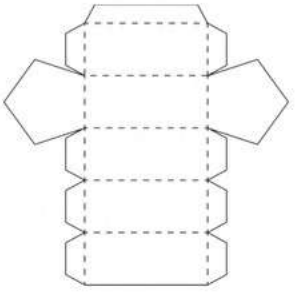
- Re
- C
- Cone

7)



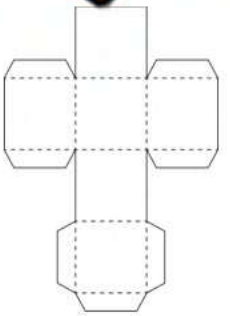
- Rectangular Prism
- Cylinder
- Cone

8)



- Rectangular Prism
- Pentagonal Prism
- Cube

9)



- Rectangular Prism
- Pentagonal Prism
- Cube

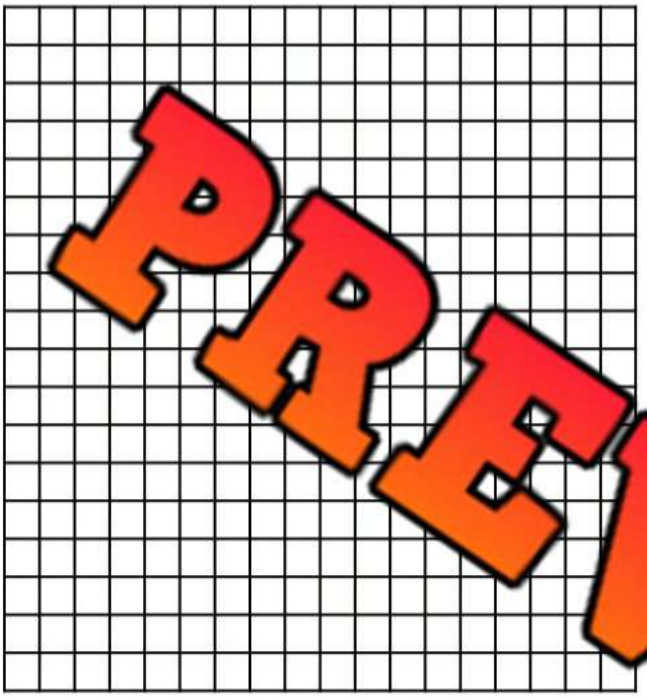
Name: _____ 46

Curriculum Connection
SS8.2

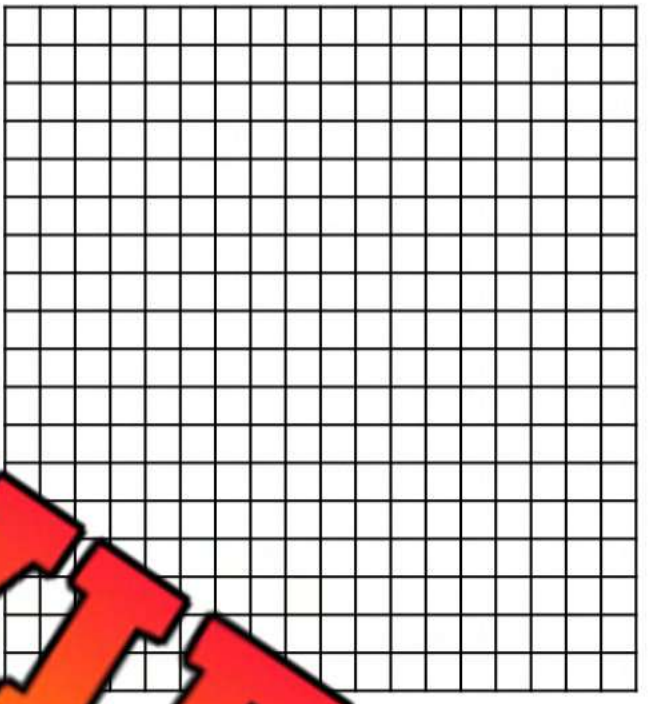
Drawing Nets – 3D Objects

Instructions Draw the 3D objects using the grids below

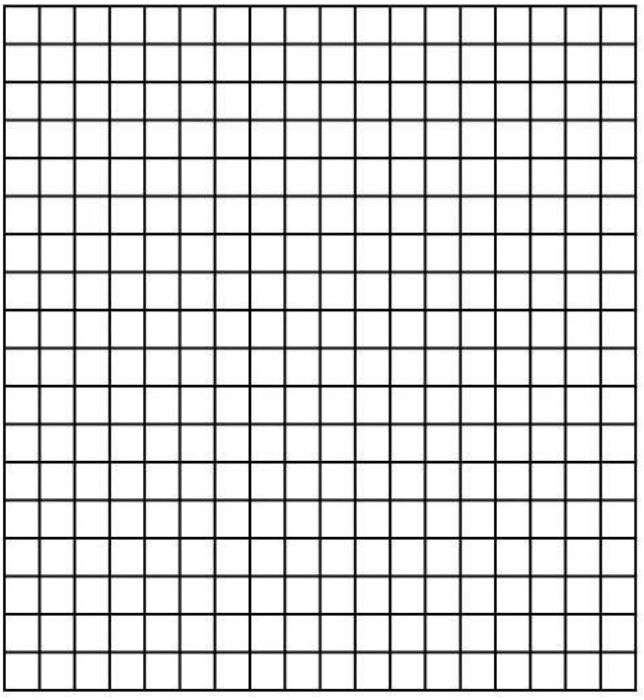
1) Rectangular Prism



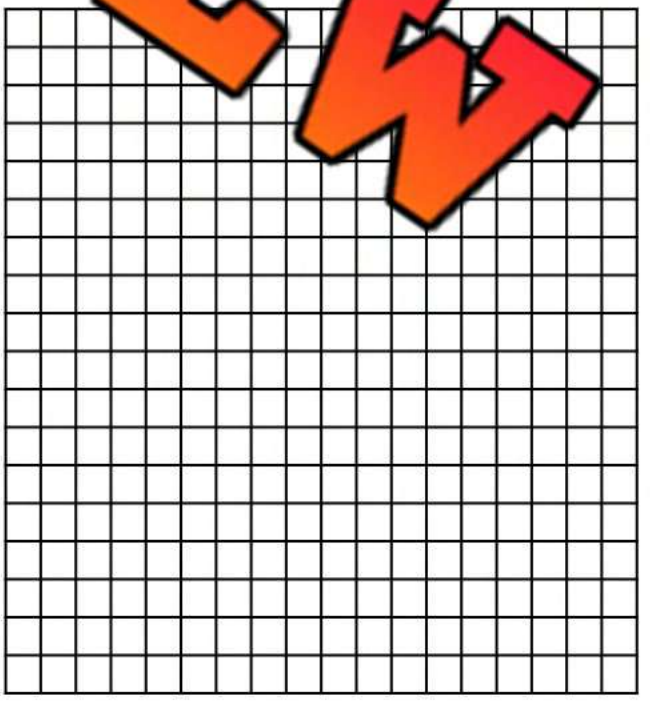
2) Rectangular Prism



3) Triangular Prism



4) T[illegible]sm



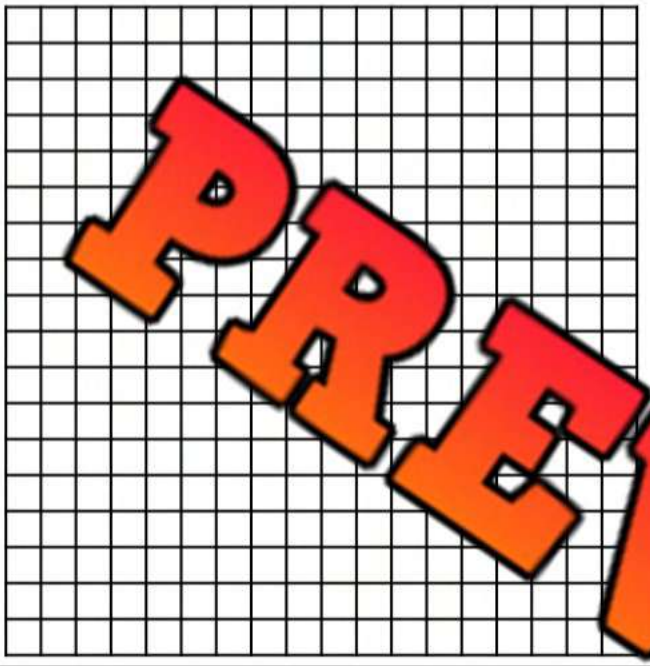
Curriculum Connection
SS8.2

Exit Cards

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

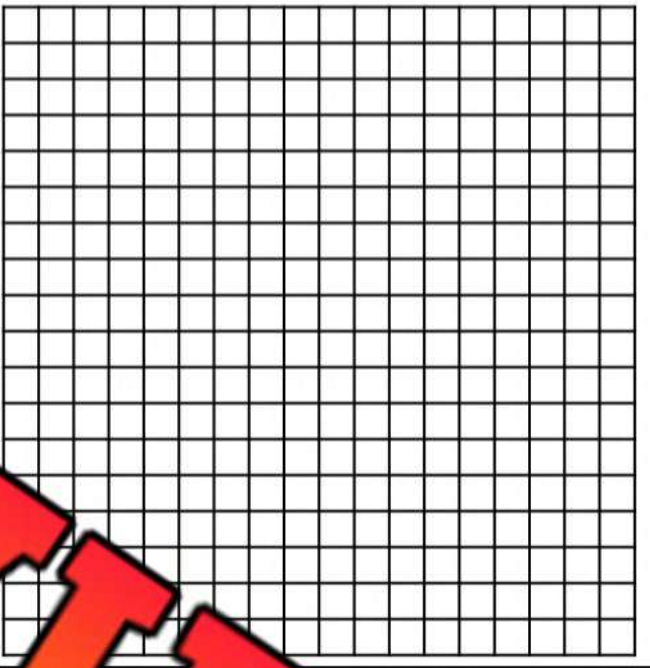
Name: _____

Draw the **Octagonal Prism** using the grid.



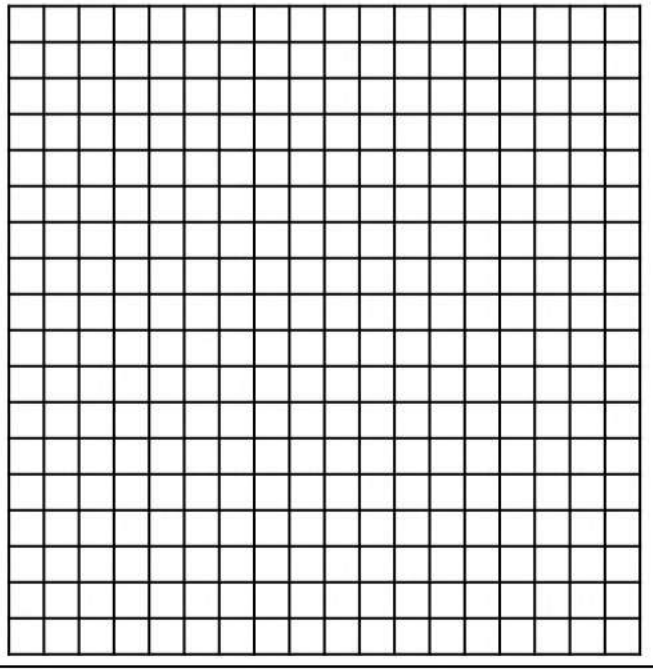
Name: _____

Draw the **Octagonal Prism** using the grid.



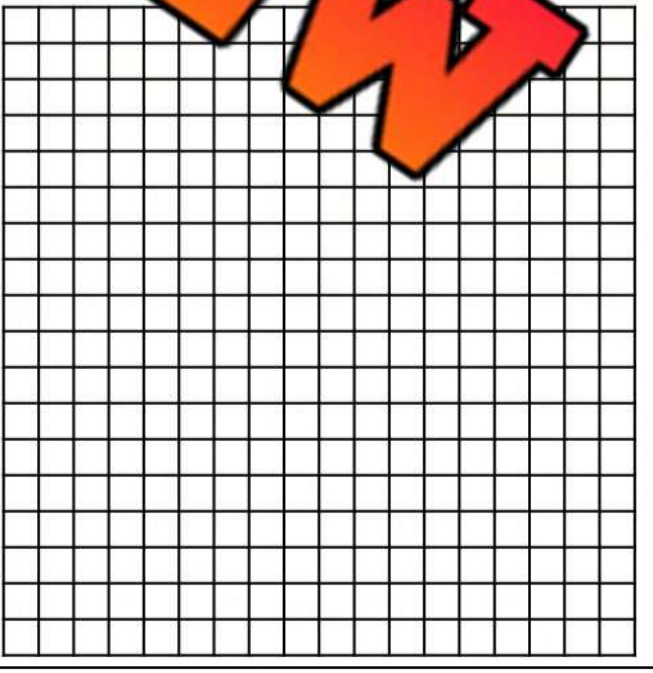
Name: _____

Draw the **Octagonal Prism** using the grid.



Name: _____

Draw the **Octagonal Prism** using the grid.



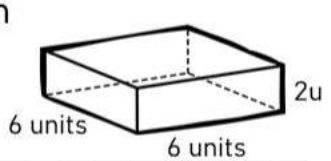
Name: _____ 49

Curriculum Connection
SS8.2

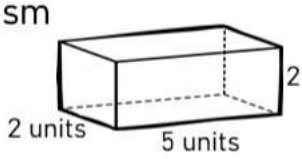
Drawing Nets – 3D Objects

Instructions Draw the nets based on the dimensions provided

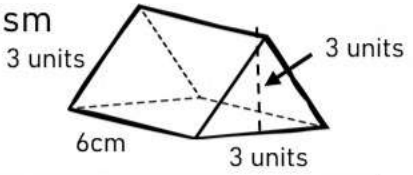
1) Rectangular Prism



2) Rectangular Prism



3) Triangular Prism



4) [illegible]

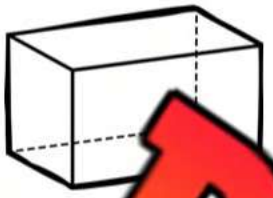
Name: _____ 50

Curriculum Connection
SS8.2

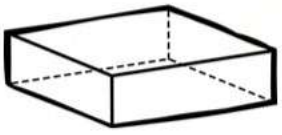
Drawing Nets – 3D Objects

Instructions Draw two different nets of the 3D objects

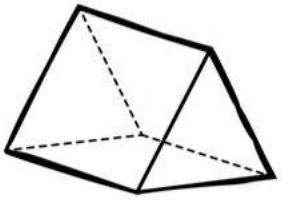
1)



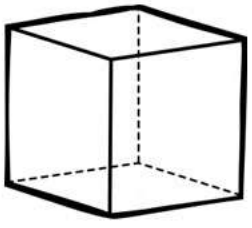
2)



3)



4)

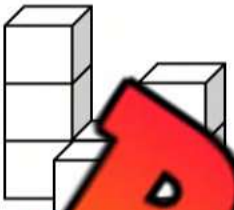
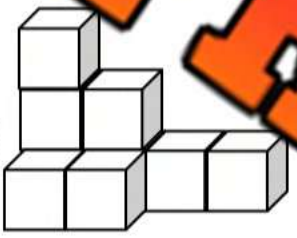
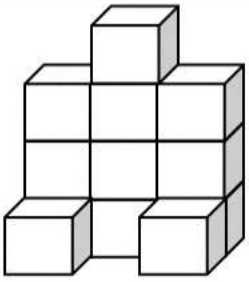
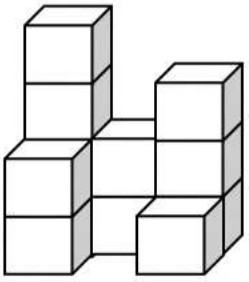
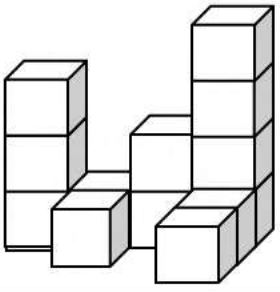


Name: _____ 52

Curriculum Connection
SS8.2

Drawing Top, Front, and Side Views of Objects

Instructions Draw the top, front, and side view of the objects below

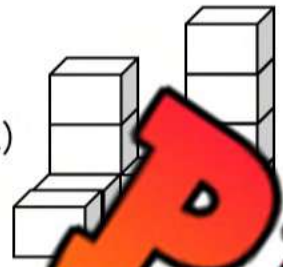
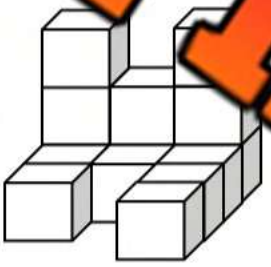
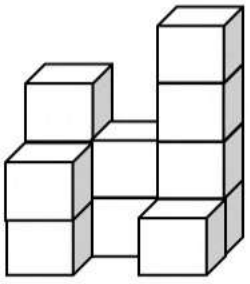
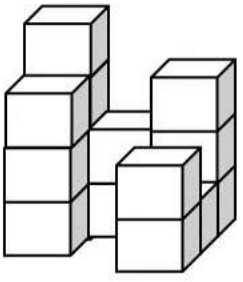
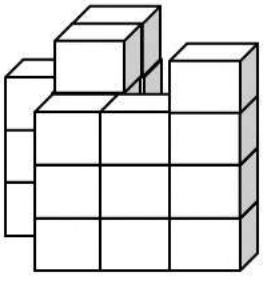
Original Shape	Top View	Front View	Side View
1) 			
2) 			
3) 			
4) 			
5) 			

Name: _____ 54

Curriculum Connection
SS8.2

Drawing Top, Front, and Side Views of Objects

Instructions Draw the top, front, and side view of the objects below

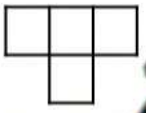
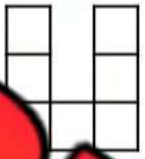
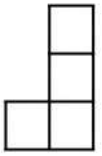
Original Shape	Top View	Front View	Side View
1) 			
2) 			
3) 			
4) 			
5) 			

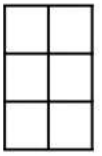
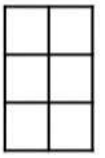
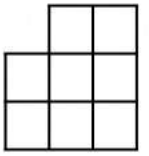
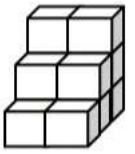
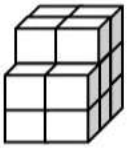
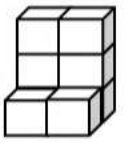
Name: _____ 56

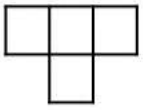
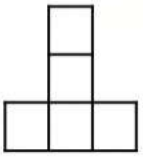
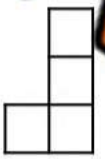
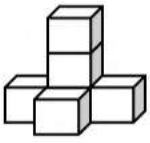
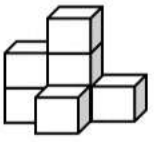
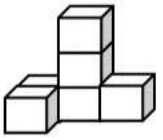
Curriculum Connection
SS8.2

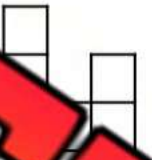
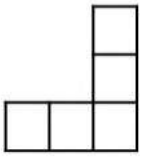
Drawing Top, Front, and Side Views of Objects

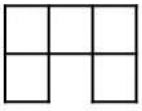
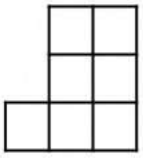
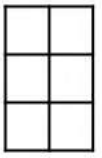
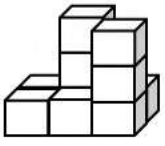
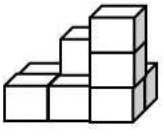
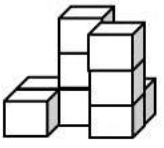
Instruction Look at the front, top, and side views and circle the matching 3D object

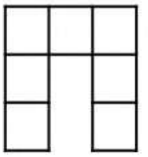
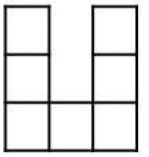
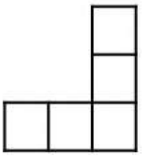
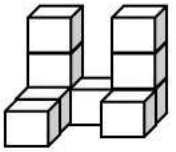
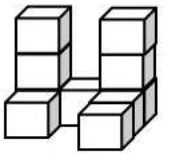
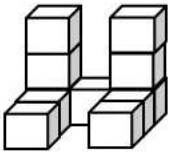
1) Top View	Front View	Side View
		
		

2) Top View	Front View	Side View
		
		

3) Top View	Front View	Side View
		
		

p View	Front View	Side View
		
		

5) Top View	Front View	Side View
		
		

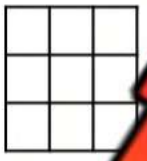
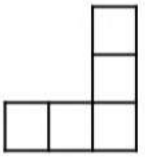
6) Top View	Front View	Side View
		
		

Name: _____ 58

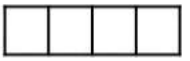
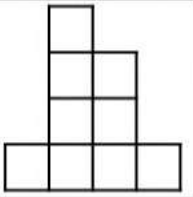
Curriculum Connection
SS8.2

Drawing Top, Front, and Side Views of Objects

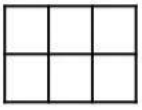
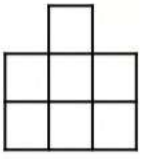
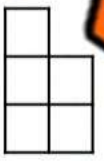
Instruction Draw the 3D objects by using the top, front, and side views

Top View	Front View	Side View
		

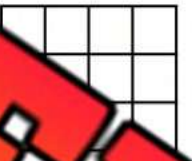
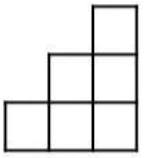
1)

Top View	Front View	Side View
		

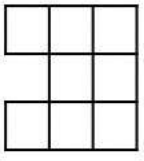
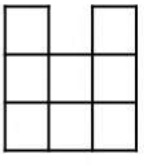
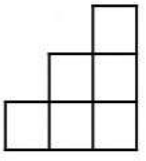
2)

Top View	Front View	Side View
		

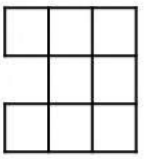
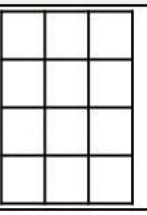
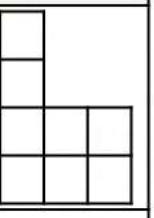
3)

View	Front View	Side View
		

4)

Top View	Front View	Side View
		

5)

Top View	Front View	Side View
		

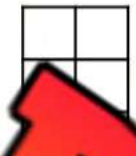
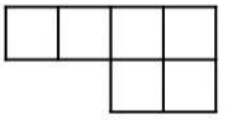
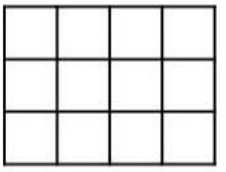
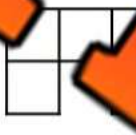
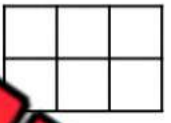
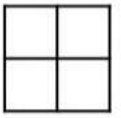
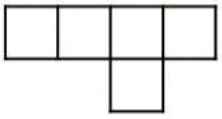
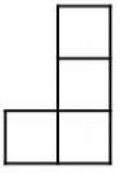
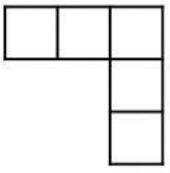
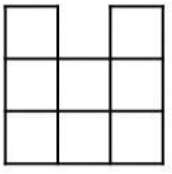
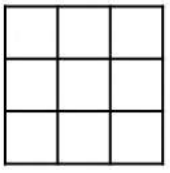
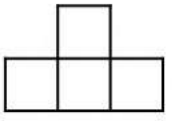
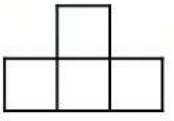
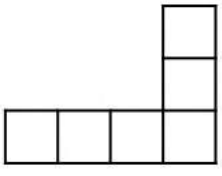
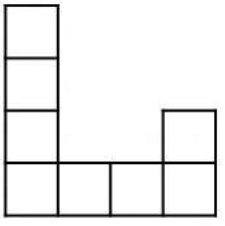
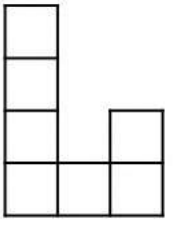
6)

Name: _____ 60

Curriculum Connection
SS8.2

Building 3D Objects Using Blocks

Instruction Use blocks to build a 3D object that matches the top, front, and side viewpoints

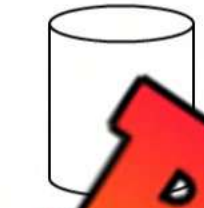
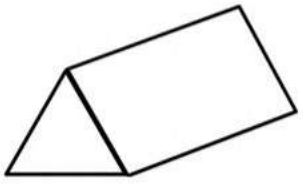
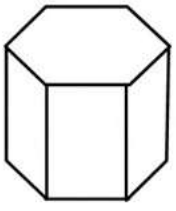
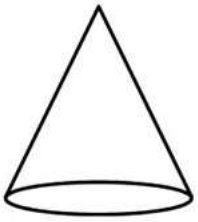
	Top View	Front View	Side View
1)			
2)			
3)			
4)			
5)			
6)			

Name: _____ 61

Curriculum Connection
SS8.2

Drawing Top, Front, and Side Views – 3D Shapes

Instruction Draw the top, front, and side views of the 3D shapes

3D Shape	Top View	Front View	Side View
			
			
			
			
			
			

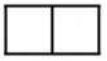
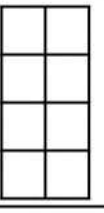
Curriculum Connection
SS8.2

Exit Cards

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

Name: _____

1) Draw the 3D objects by using the top, front, and side views

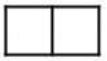
3D Objects	Top View	Front View	Side View
			

2) Draw the top, front, and side views of the 3D shapes

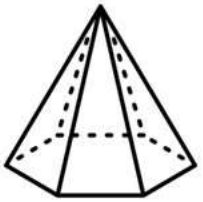
3D Objects	Top View	Front View	Side View
			

Name: _____

1) Draw the 3D objects by using the top, front, and side views

3D Objects	Top View	Front View	Side View
			

2) Draw the top, front, and side views of the 3D shapes

3D Objects	Top View	Front View	Side View
			

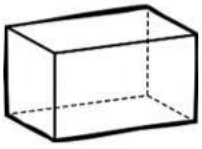
Name: _____ 67

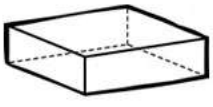
Curriculum Connection
SS8.2

Drawing 3D Objects – Top, Side, Front

Instruction Draw the front, side, and top views of the objects below

Shape	Front	Side	Top
			

Shape	Fro	ide	Top
			

Shape	Front	Side	Top
			

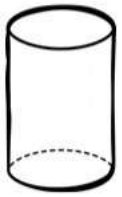
Name: _____ 69

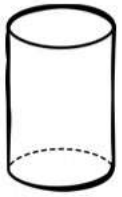
Curriculum Connection
SS8.2

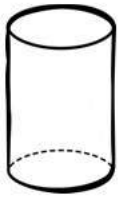
Drawing 3D Objects – Top, Side, Front

Instruction Draw the top, side, and front views of the objects after the rotation

Shape	After a 90° horizontal clockwise rotation		
	Front	Side	Top
			

Shape	After a 180° horizontal clockwise rotation		
	Front	Side	Top
			

Shape	After a 270° vertical clockwise rotation		
	Front	Side	Top
			

Shape	After a 180° vertical clockwise rotation		
	Front	Side	Top
			

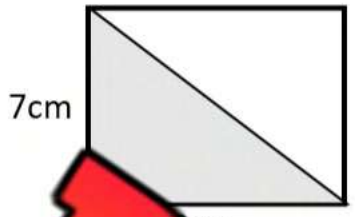
Name: _____ 71

Curriculum Connection
SS8.2

Introduction – Area of a Triangle

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

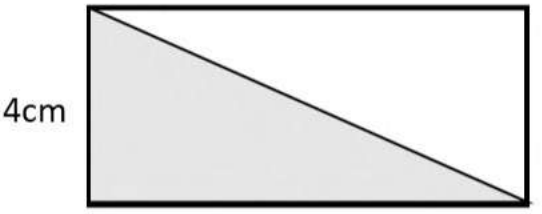
1)



Area of a rectangle = _____

Area of a triangle = _____

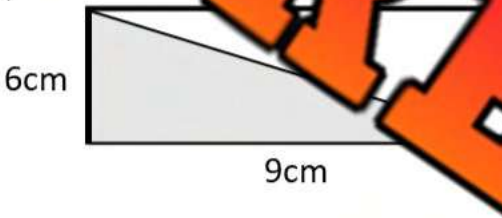
2)



Area of a rectangle = _____

Area of a triangle = _____

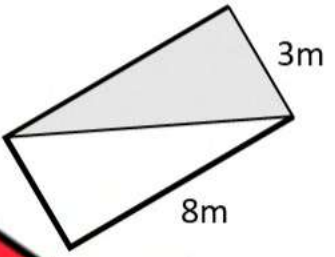
3)



Area of a rectangle = _____

Area of a triangle = _____

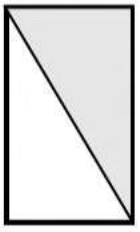
4)



Area of a rectangle = _____

Area of a triangle = _____

5)



Area of a rectangle = _____

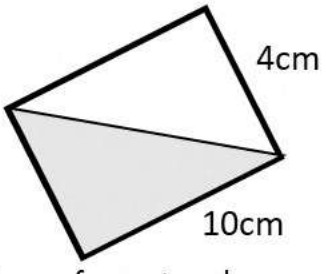
Area of a triangle = _____

6)

Area of a square = _____

Area of a triangle = _____

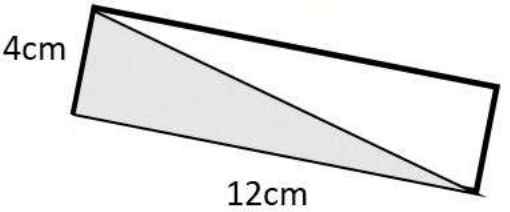
7)



Area of a rectangle = _____

Area of a triangle = _____

8)



Area of a rectangle = _____

Area of a triangle = _____

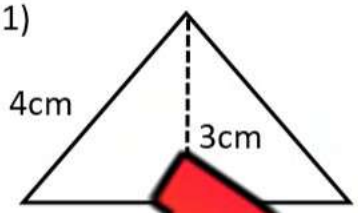
Name: _____ 72

Curriculum Connection
SS8.2

Area of a Triangle

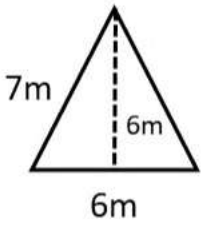
Instruction Find the area of the triangles below (A= b x h ÷ 2)

1)



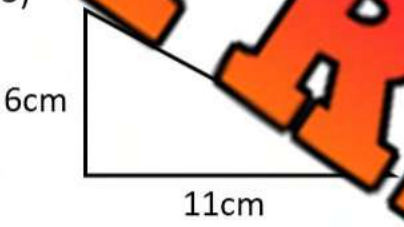
Area = _____

2)



Area = _____

3)

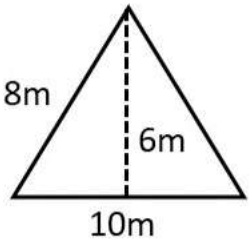


Area = _____

4)

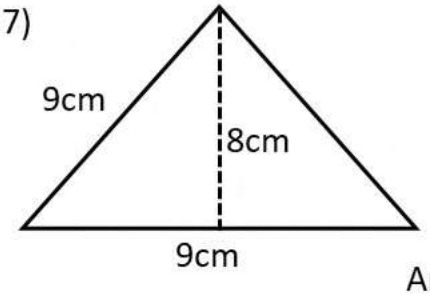
Area = _____

5)



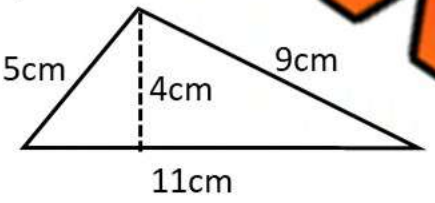
Area = _____

7)



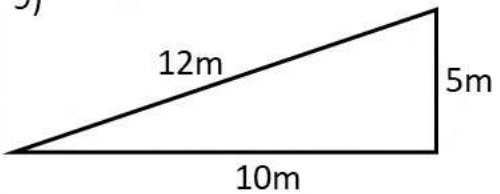
Area = _____

8)



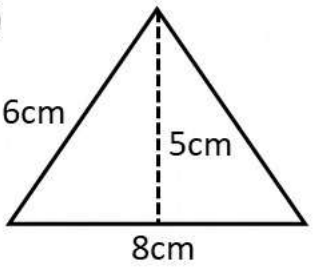
Area = _____

9)



Area = _____

10)



Area = _____

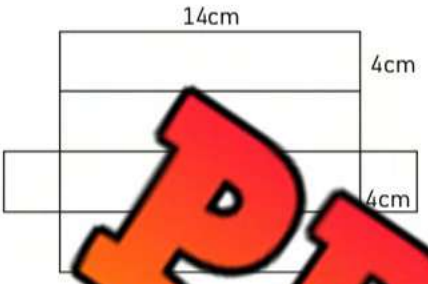
Name: _____ 73

Curriculum Connection
SS8.2

Surface Area Using Nets – Rectangular Prisms

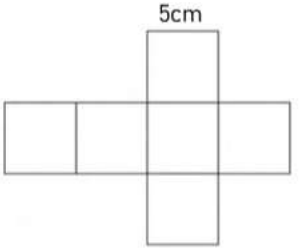
Instruction Find the surface area of the 3D objects using the nets below

1)



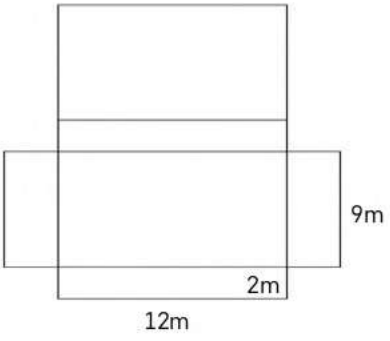
Surface Area: _____

2)



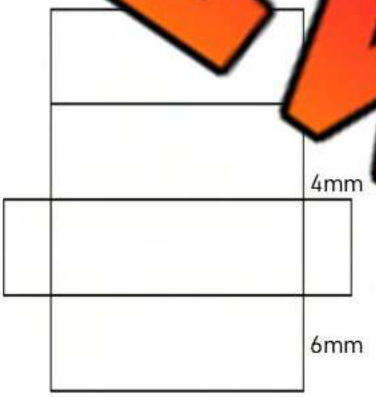
Surface Area: _____

3)



Surface Area: _____

4)



Surface Area: _____

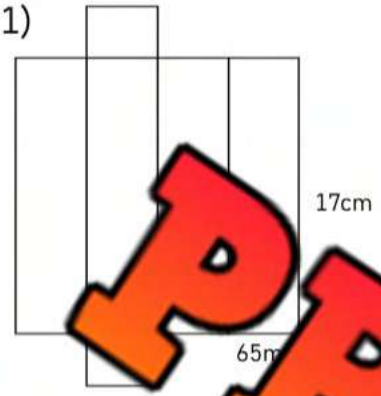
Name: _____ 75

Curriculum Connection
SS8.2

Surface Area Using Nets – Rectangular Prisms

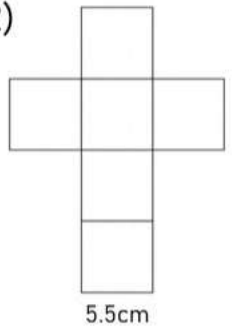
Instruction Find the surface area of the 3D objects using the nets below

1)



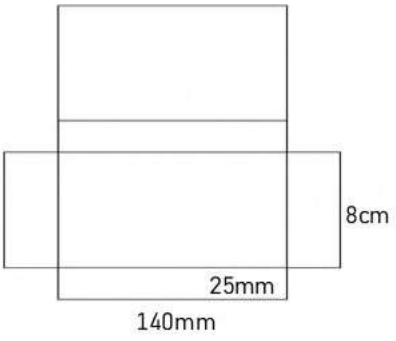
Surface Area: _____

2)



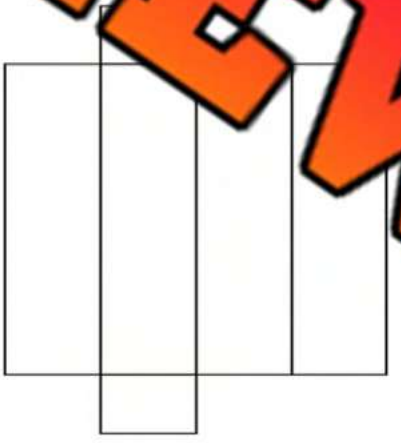
Surface Area: _____

3)



Surface Area: _____

4)



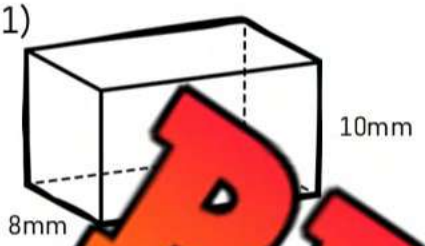
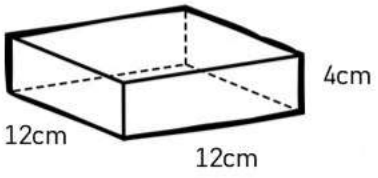
Surface Area: _____

Name: _____ 77

Curriculum Connection
SS8.2

Surface Area Using Nets – Rectangular Prisms

Instruction Find the surface area of the 3D objects below

Workspace	Draw the Net
1)  Surface Area: _____	
2)  Surface Area: _____	

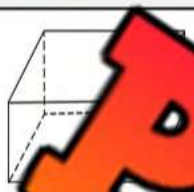
Curriculum Connection
SS8.2

Exit Cards

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

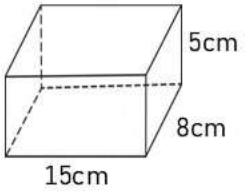
Name: _____

Find the surface area of the 3D objects & draw the net of the rectangular prism.

Workspace	Draw the Net
 Surface Area: _____	

Name: _____

Find the surface area of the 3D objects & draw the net of [illegible] prism.

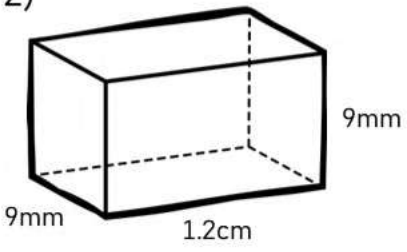
Workspace	Draw the
 Surface Area: _____	

Name: _____ 79

Curriculum Connection
SS8.2

Surface Area Using Nets – Rectangular Prisms

Instruction Find the surface area of the 3D objects below

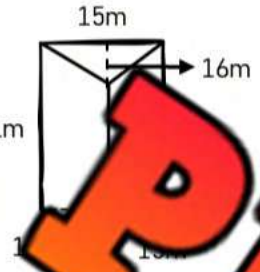
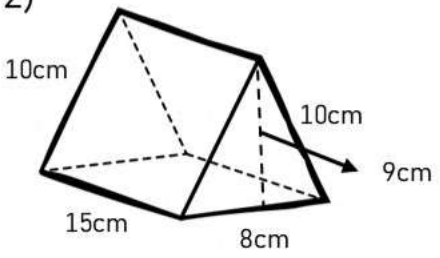
Workspace	Draw the Net
1)  Surface Area: _____	
2)  Surface Area: _____	

Name: _____ 81

Curriculum Connection
SS8.2

Surface Area Using Nets – Triangular Prisms

Instruction Find the surface area of the 3D objects below

Workspace	Draw the Net
1)  Surface Area: _____	
2)  Surface Area: _____	

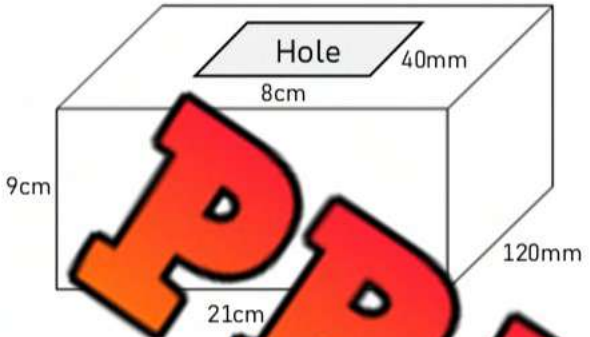
Name: _____ 82

Curriculum Connection
SS8.2

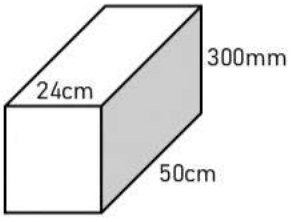
Surface Area – Prism – Word Problems

Instruction Solve the word problems below

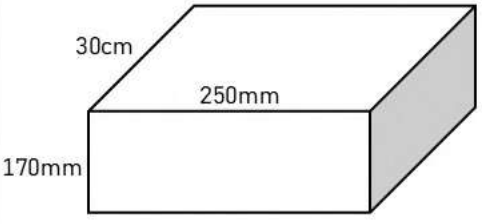
1) Find the surface area of the tissue box below.



2) Edward is paint[illegible] needs to find the surface area so he can buy the amount [illegible] he ne[illegible] mailbox has no door on the front. Find the surface area of [illegible] diagram below.



3) Kaitlyn needs to wrap her mom's birthday present. She has enough wrapping paper to cover a surface area of 3500cm². Does she have enough paper?



Name: _____ 83

Curriculum Connection
SS8.2

Surface Area – Prism – Word Problems

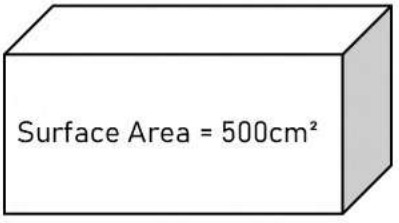
Instruction Solve the questions below

Lisa is planning to lay bricks on her outdoor fireplace. Her fireplace is a rectangular prism, and she wants to brick all sides, except the bottom.

a) What is the surface area of the fireplace, excluding the bottom?

b) What is the surface area of the fireplace (excluding the bottom) in cm?

c) If the surface area of each brick is 500cm², how many bricks does Caitlyn need to cover her fireplace (excluding the bottom)?



d) If each brick costs $0.79, how much will it cost to cover the fireplace?

Name: _____ 84

Curriculum Connection
SS8.3

Calculating Radius and Diameter

Calculating Radius Formula

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

Calculating Diameter Formula

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

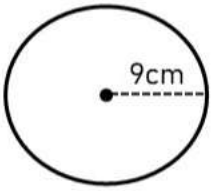
Instruction Find the radius and diameter of each circle below

1)

Radius = _____

Diameter = _____

2)



Radius = _____

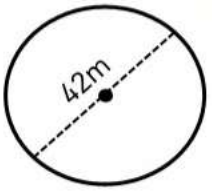
Diameter = _____

3)

Radius = _____

Diameter = _____

4)



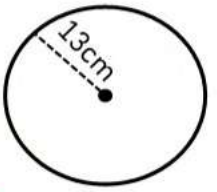
Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

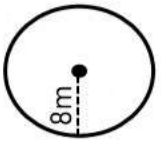
6)



Radius = _____

Diameter = _____

7)



Radius = _____

Diameter = _____

8)

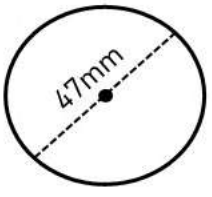
Radius = _____

Diameter = _____

Radius = _____

Diameter = _____

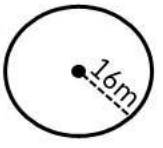
10)



Radius = _____

Diameter = _____

11)



Radius = _____

Diameter = _____

12)

Radius = _____

Diameter = _____

Name: _____ 86

Curriculum Connection
SS8.3

Calculating Circumference

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

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

Part 1 — Fill in the table with the missing information

	Radius	Diameter	Circumference
1)	8cm		
2)	1		
3)		25m	
4)		48cm	
5)	21		
6)			
7)	3.8km		
8)	8.5m		
9)		1	
10)		54.8m	

Part 2 — Answer the word problems below

1)	Aiden is deciding which pizza to buy. He has two options. Option A: Pizza with a radius of 22cm Option B: Pizza with a circumference of 136cm Which pizza is larger? 	
2)	You need to wrap a label around a can. If the diameter of the can is 11.5cm, 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 16.25cm. How long does the ribbon need to be? 	

Curriculum Connection
SS8.3

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. (c = πd & c = 2πd)

	Radius	Diameter	Circumference
1)	13m		
2)		39m	
3)	11m		
4)		77m	

2) A circular garden has a radius of 7.5 m. You want to put a fence around the entire garden. How long does the fence need to be?

Name: _____

1) Fill in the table with the missing information. (c = πd & c = 2πd)

	Radius	Diameter	Circumference
1)	13m		
2)		39m	
3)	11m		
4)		77m	

2) A circular garden has a radius of 7.5 m. You want to put a fence around the entire garden. How long does the fence need to be?

Name: _____

1) Fill in the table with the missing information. (c = πd & c = 2πd)

	Radius	Diameter	Circumference
1)	13m		
2)		39m	
3)	11m		
4)		77m	

2) A circular garden has a radius of 7.5 m. You want to put a fence around the entire garden. How long does the fence need to be?

Name: _____ 88

Curriculum Connection
SS8.3

Area of a Circle - Radius

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

Calculating Area Using Radius

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

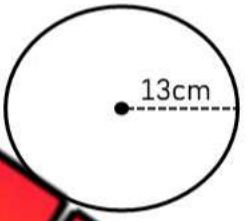
Practice Calculate the area of the circles using the radius

1)

Radius = _____

Area = _____

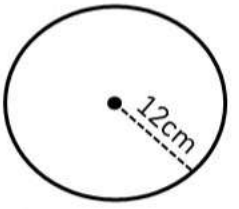
2)



Radius = _____

Area = _____

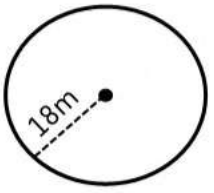
3)



Radius = _____

Area = _____

4)



Radius = _____

Area = _____

5)

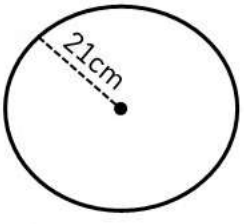
Radius = _____

Area = _____

Radius = _____

Area = _____

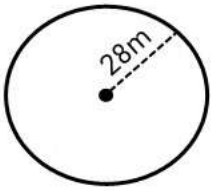
7)



Radius = _____

Area = _____

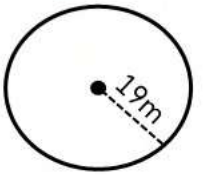
8)



Radius = _____

Area = _____

9)



Radius = _____

Area = _____

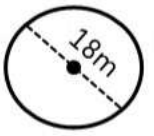
Name: _____ 89

Curriculum Connection
SS8.3

Area of a Circle - Diameter

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

Calculating Area Using Diameter



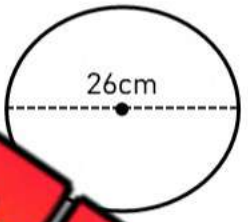
$a = \pi r^2$
diameter = 18, radius = 9
$a = \pi \times 9 \times 9$
$a = 254.34m^2$

Practice — Calculate the area of the circles using the radius

1)

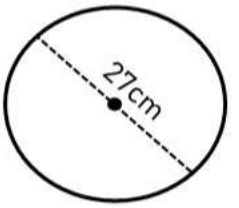
Diameter = _____
Radius = _____
Area = _____

2)



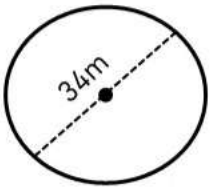
Diameter = _____
Radius = _____
Area = _____

3)



Diameter = _____
Radius = _____
Area = _____

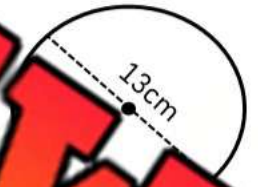
4)



Diameter = _____
Radius = _____
Area = _____

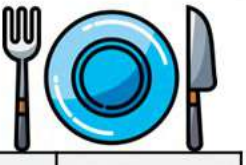
5)

Diameter = _____
Radius = _____
Area = _____



Diam_____
Radius = _____
Area = _____

Word Problems — Solve the problems below



	Questions	Answer
1)	A dinner plate has a diameter of 19cm. What is the area of the plate?	
2)	A circular table is 1.3 metres wide. What is the area of the table in centimetres?	

Name: _____ 91

Curriculum Connection
SS8.3

Math Race: Circumference, Radius, Diameter, and Area

Objective

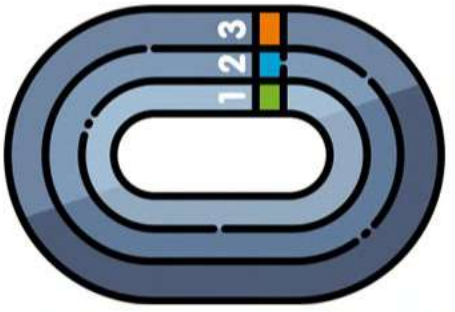
What are we learning about?

Students will practice calculating the circumference, radius, diameter, and area of circles by quickly answering related questions in a competitive and engaging game format. They will learn how to estimate these values using pi = 3.

Materials

What you will need for the activity.

- L[illegible] circumference, radius, di[illegible]r, and [illegible]cles.
- Optional: Tim[illegible]atch
- Chairs arr[illegible]ircle



Instructions

How y[illegible]mplet[illegible]ctivity

1. Setup: Arrange chairs in a cir[illegible], w[illegible]stud[illegible]ted in a chair. One student stands behind a seated student to [illegible]e gam[illegible]
2. Explain the Game: Explain to the students t[illegible]y will [illegible]ipating in a race around the circle by answering questions a[illegible]ircu[illegible]n[illegible]a[illegible]s, diameter, and area. The goal is to move around the entire circle[illegible]n to th[illegible]ginal position. Students should use mental math and esti[illegible]pi = [illegible]
3. Start the Game: The teacher reads out a question (e.g., "W[illegible]at is[illegible]n[illegible]e of a circle with a radius of 3 cm?")
4. Answering the Question: The standing student and the seated studen[illegible]ront 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: _____ 92

Curriculum Connection
SS8.3

Questions | Use the questions below for the game

A circular fountain has a diameter of 3 metres. What is the circumference of the fountain in centimetres?	900 cm
A clock face has a radius of 10 cm. Calculate the area of the clock face.	300 cm²
A circular garden has a circumference of 60 metres. What is the diameter of the garden?	20 metres
A car tire [illegible]ius of 30 cm. Find the circumference of the tire.	180 cm
The a[illegible]ula[illegible]'s 300 square metres. What is the diameter of the pool?	10 metres
You have a cir[illegible]u[illegible]h a d[illegible]r of 2 metres. What is the area of the rug in square cen[illegible]s?	600 cm²
A circular logo has a radi[illegible]m. Ho[illegible] length is needed to outline the logo's edge?	60 cm
The circumference of a bicycle wheel is [illegible]. What[illegible] wheel's radius?	30 cm
A frisbee has a radius of 5 cm. What is the area[illegible]risbe[illegible]	75 cm²
The area of a circular rug is 48 square metres. What is t[illegible]of th[illegible]	4 metres
A circular tablecloth has a circumference of 90 cm. What is the diam[illegible] the tablecloth?	[illegible] cm
The area of a circular park is 12 square metres. What is the diameter of th[illegible] park?	4 m
A round swimming pool has a circumference of 30 metres. What is the pool's radius?	5 metres
A pizza with a diameter of 40 cm needs to be boxed. What is the circumference of the pizza?	120 cm
A round garden bed has a radius of 1 metre. Calculate the area of the bed in square centimetres.	30,000 cm²
The area of a circular park is 75 square metres. What is the radius of the park?	5 metres

Name: _____ 93

Curriculum Connection
SS8.3

Questions | Use the questions below for the game

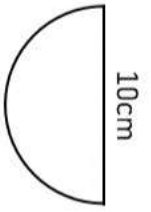
A cylindrical can has a circumference of 30 cm at its base. What is the can's diameter?	10 cm
A round placemat has a radius of 12 cm. What is the circumference of the placemat?	72 cm
The area of a circular fountain is 27 square metres. What is the diameter of the fountain?	6 metres
A round pl ound has a circumference of 48 metres. What is the radius of the playgr	8 metres
The area yground is 300 square metres. What is the radius of the p	10 metres
The area a circ ce is 12 square metres. What is the radius of the clock?	2 metres
A round wall cloc diam . What is the circumference of the clock?	90 cm
A circular pizza pan has a c nce What is the radius of the pan?	10 cm
A circular garden plot has a radius of 4 . What ircumference of the plot in centimetres?	240 cm
A round clock's face has a diameter of 16 cm. W he ar ock's face?	192 cm²
The area of a circular trampoline is 75 square metres. amp diameter.	10 etres
A cylindrical water tank has a circumference of 150 cm at its base. radius of the base?	cm
A round hot tub has a radius of 3 metres. What is the area of the hot tub i square centimetres?	2,700 cm²
The diameter of a circular sticker is 9 cm. Calculate the circumference of the sticker.	27 cm
A circular track has a circumference of 60 metres. What is the radius of the track?	10 metres
The area of a round park bench is 300 square centimetres. Find the radius of the bench.	10 cm
A circular plate has a circumference of 30 cm. What is the plate's diameter?	10 cm
A round fountain has a diameter of 12 metres. Calculate the area of the fountain in square metres.	108 m²

Name: _____ 98

Curriculum Connection
SS8.3

Semi-Circles

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

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

$a = 78.5cm^2 \div 2$

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

Calculating Circumference

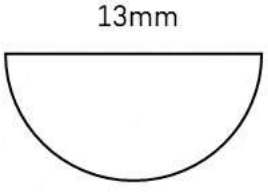
$c = \pi$ or $c = 2\pi r$

Part 1 Fill in the table below

	Diameter	Radius	Area of Full Circle	Area of Semi-Circle	Circumference of Full Circle	Circumference of Semi-Circle
1)	7 cm					
2)	5 km					
3)	26 m					
4)	12 mm					
5)	18 m					
6)	33 cm					

Part 2 Calculate the area and perimeter of the semi-circle

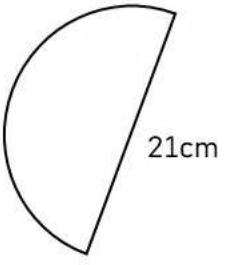
1)



Area = _____

Perimeter = _____

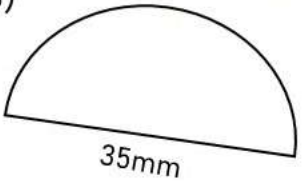
2)



Area = _____

Perimeter = _____

3)



Area = _____

Perimeter = _____

Name: _____ 99

Curriculum Connection
SS8.3

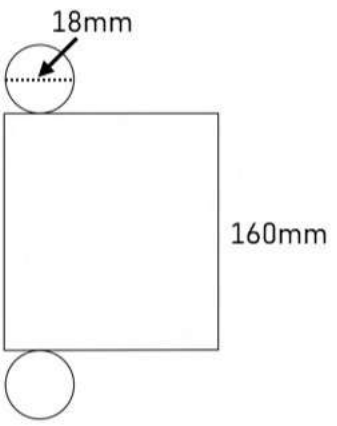
Surface Area Using Nets - Cylinders

Part 1 — Solve the questions below

1)

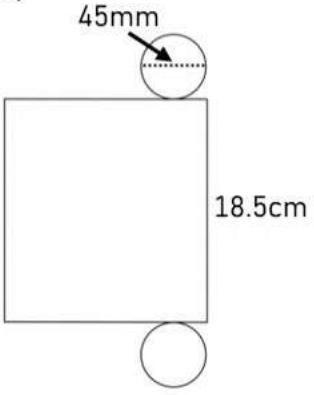
Surface Area: _____

2)



Surface Area: _____

3)



Surface Area: _____

Surface Area: _____

Part 2 — Solve the question below

A can is 13cm tall. The top of the can has a radius of 3cm. Draw the net of the can and calculate the surface area of the can.

Name: _____ 100

Curriculum Connection
SS8.3

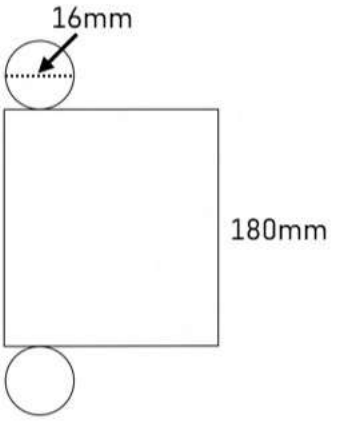
Surface Area Using Nets - Cylinders

Part 1 — Solve the questions below

1)

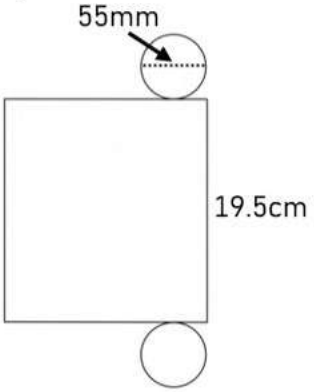
Surface Area: _____

2)



Surface Area: _____

3)

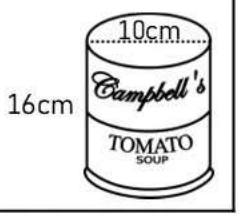


Surface Area: _____

Surface Area: _____

Part 2 — Solve the question below

A can of soup has the dimensions shown on the diagram. Draw a net of the can and calculate the surface area of the can.



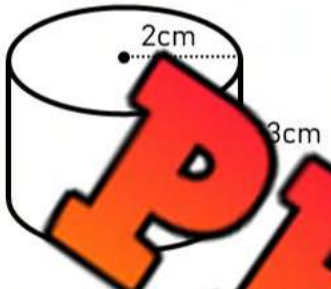
Name: _____ 101

Curriculum Connection
SS8.3

Surface Area - Cylinders

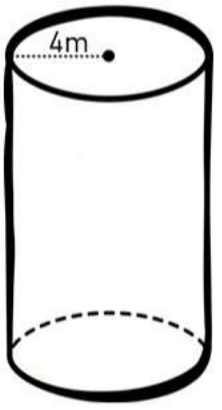
Instruction Solve the questions below

1)



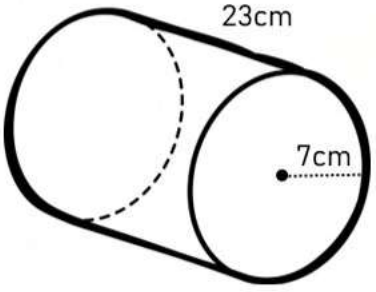
Surface Area: _____

2)



Surface Area: _____

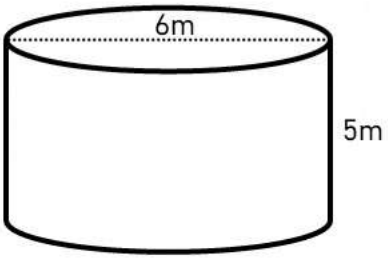
3)



Surface Area: _____

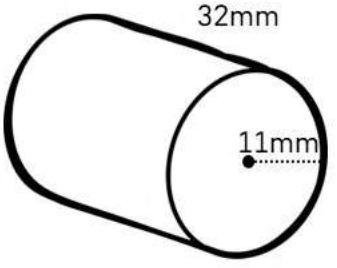
Surface Area: _____

5)



Surface Area: _____

6)



Surface Area: _____

Name: _____ 103

Curriculum Connection
SS8.3

Surface Area - Cylinders

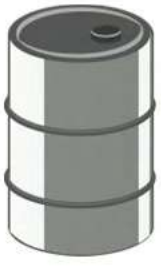
Instruction Solve the questions below

1) A can of soup has a diameter of 9cm and a height of 19cm. What is the surface area of the can?

2) A can of tuna has a radius of 7.5cm and a height of 42mm. What is the surface area of the can?

3) A battery is composed of two cylinders. The main battery cylinder has a radius of 7mm. The height of the main cylinder is 8cm. The smaller cylinder on top of the battery has a diameter of 8mm and a height of 4mm.

What is the total surface area of the battery?



4) A barrel has a diameter of 74cm and a height of 1.62m. What is the surface area of the barrel?

Curriculum Connection
SS8.3

Exit Cards

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

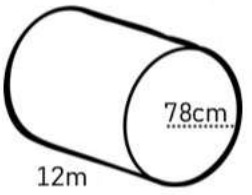
Name: _____

1) Find the surface area for the cylinder.
(Surface Area=2πr 2 +2πrh)

2) A water tank is shaped like a cylinder. It has a radius of 2.5 m and a height of 5.5 m. What is the surface area of the tank, including the top and bottom?

Name: _____

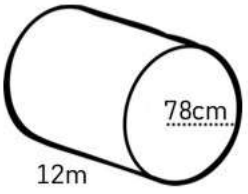
1) Find the surface area for the cylinder.
(Surface Area=2πr 2 +2πrh)



2) A water tank is shaped like a cylinder. It has a radius of 2.5 m and a height of 5.5 m. What is the surface area of the tank, including the top and bottom?

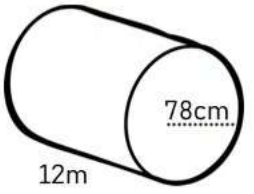
Name: _____

1) Find the surface area for the cylinder.
(Surface Area=2πr 2 +2πrh)



2) A water tank is shaped like a cylinder. It has a radius of 2.5 m and a height of 5.5 m. What is the surface area of the tank, including the top and bottom?

1) Find the surface area for the cylinder.
(Surface Area=2πr 2 +2πrh)



2) A water tank is shaped like a cylinder. It has a radius of 2.5 m and a height of 5.5 m. What is the surface area of the tank, including the top and bottom?

Name: _____ 105

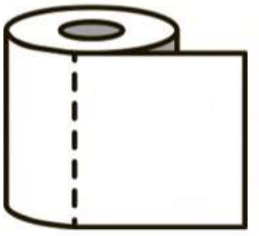
Curriculum Connection
SS8.3

Surfaces Area Using Nets - Cylinders

Instruction Solve the questions below

1) A toilet paper roll is 16cm tall with a radius of 6cm. The inside cylinder is a hole. It has a diameter of 3cm.

What is th urface area of the toilet paper roll. Remember to account for the hole.



2) A wheel of brie chees tall. is 9cm long. What is the surface area of the full wheel of che

3) A pot has no lid on top. The pot is 14cm tall and has a radius of 10cm. What is the surface area of the pot?

Name: _____ 106

Curriculum Connection
SS8.3

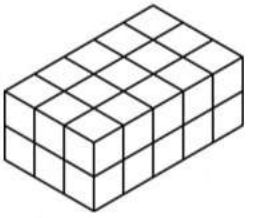
Calculating Volume Using the Base

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

1)

Area of Base	Height	Volume
		18

2)

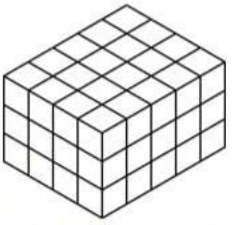


Area of Base	Height	Volume

3)

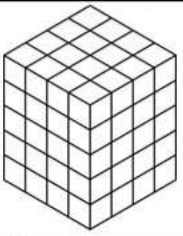
Area of Base	Height	Volume

4)



Area of Base	Height	Volume

5)

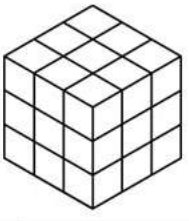


Area of Base	Height	Volume

6)

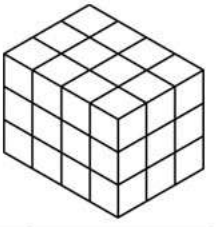
Area of Base	Height	Volume

7)



Area of Base	Height	Volume

8)



Area of Base	Height	Volume

Name: _____ 107

Curriculum Connection
SS8.3

Calculating Volume Using the Base

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

	Area of Base	Height	Volume
1)	10 cm^2		80 cm^3
2)	13 mm^2	6 mm	
3)		5 cm	75 cm^3
4)		8 mm	96 mm^3
5)		9 m	
6)	16		144 mm^3
7)			132 km^3
8)	15 m^2		210 m^3

Part 2 Answer the questions below

1)	A box of cereal has a base with a length of 12c wid 9cm. The height of the box is 22cm. What is the vo of box? 
2)	A juice box is 9cm wide and 5cm long. The height of the juice box is 12cm. What is the volume of the juice box? 
3)	A railway car is 6.5m long and 2.2m wide. The railway car is 3.1m tall. What is the volume of the railway car? 

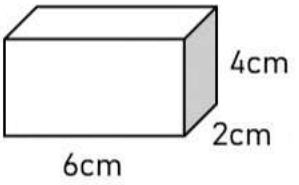
Name: _____ 108

Curriculum Connection
SS8.3

Calculating Volume of Rectangular Prisms

Rectangular Prism – Calculating Volume

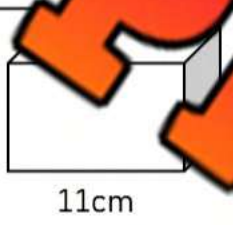
To find the volume of a rectangular prism, multiply the length by the width by the height.



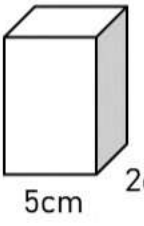
$v = l \times w \times h$
$v = 6cm \times 2cm \times 4cm$
$v = 48cm^3$

Instruction Calculate the volume of the rectangular prisms

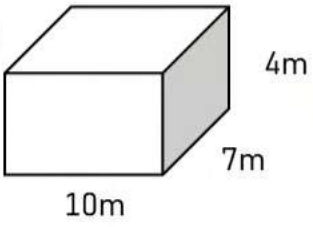
1)



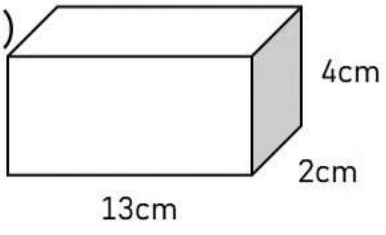
2)



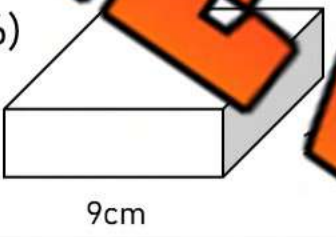
3)



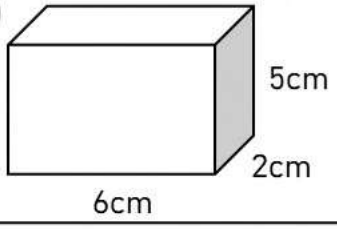
5)



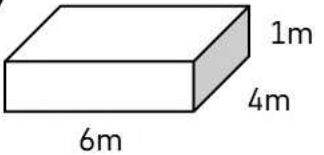
6)



7)



8)



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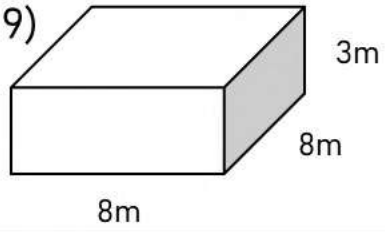
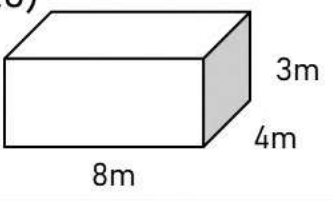


10)



Name: _____ 110

Curriculum Connection
SS8.3

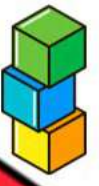
Calculating Volume of Rectangular Prisms

Instruction Solve the word problems below

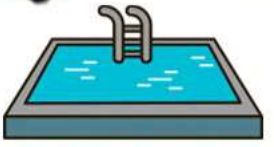
1) A classroom has a width of 12m, height of 2m, and a length of 10m. What is the volume of the classroom?

2) A[illegible]vator is [illegible] 2m deep, and 4m long. What is the volume of the elevator?

3) A block has a height of 7cm, w[illegible]60m[illegible]d a length of 10cm. What is the volume of the block?



4) A pool is 9m long, 6m wide, and 300cm deep. What is t[illegible]the pool?



5) A lunchbox is 120mm wide, 7cm tall, and 10cm deep. What is the volume of the lunchbox?

Name: _____ 111

Curriculum Connection
SS8.3

Scavenger Hunt: Volume of Rectangular Prisms

Objective

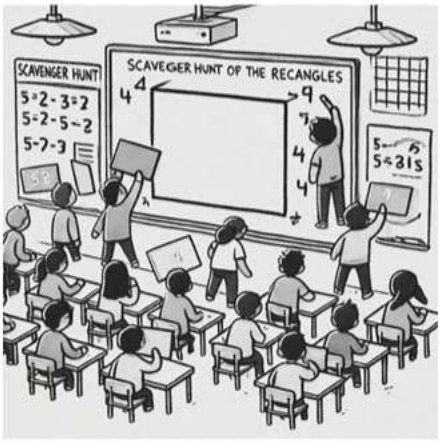
What are we learning about?

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

Materials

What you will need for the activity.

- S[illegible] volume questions (provided)
- Sm[illegible]ags or [illegible] for each team to collect their cards
- Tape to hide [illegible]round [illegible]room or in a designated saf[illegible]oor



Instructions

How you wi[illegible]mple[illegible]

1) **Prepare the Cards**: Write volume questions a[illegible]rect[illegible]ar prisms on index cards. Use the questions generated above.
2) **Hide the Cards**: Hide the cards around the cla[illegible]r[illegible]a des[illegible]d safe outdoor area. Tape them under chairs, desks, or t[illegible]into[illegible]bvious spots.
3) **Divide into Teams**: Divide the class into small teams and give [illegible]t bag or envelope to collect their cards.
4) **Explain the Game**: Explain the game to the students. Each team wi[illegible]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 volume.

Name: _____ 112

Curriculum Connection
SS8.3

Index cards | Cut out the cards below

A rectangular prism has a length of 8 m, a width of 6 m, and a height of 5 m. What is its volume?

A storage container has a length of 4.5 m, a width of 2 m, and a height of 1.8 m. Find its volume.

The dimensio[illegible] shi[illegible]e are 3 m by 2[illegible] Calculate the volum[illegible] crat[illegible]

A rectangular tank is 1.2 m wide, 2.5 m long, and 0.8 m tall. What is the volume of the tank?

A wooden block measures 12 cm by 5 cm by 8 cm. Find the volume of the block in cubic centimeters.

The [illegible] o[illegible] a lar[illegible] ctangular pool is 20[illegible] 15[illegible] depth is 3 m. Calculate[illegible] the po[illegible].

A storage box has dimensions of 40 cm by 25 cm by 30 cm. What is the volume of the box in cubic centimeters?

A rectangular prism has dimensions of 18 cm by 12 cm by 10 cm. Find the volume in cubic centimeters.

Name: _____ 114

Curriculum Connection
SS8.3

Index cards | Cut out the cards below

A rectangular box has a length of 12 cm, a width of 8 cm, and a height of 5 cm. What is the volume of the box?

The dimensions of a bookcase are 2 m by 1 m by 2.5 m. Calculate the volume of the bookcase.

A storage u[illegible].5 m[illegible] wide, and 2.8 m [illegible] volume of the st[illegible]it?

A rectangular swimming pool measures 25 m in length, 10 m in width, and 2 m in depth. Find the volume of the pool.

A rectangular prism has a width of 5 cm, a length of 10 cm, and a height of 20 cm. What is its volume?

The dim[illegible] of [illegible]che[illegible] island are 3 m by [illegible]n b[illegible] [illegible]ate the volume[illegible].

A toy box measures 60 cm in length, 45 cm in width, and 35 cm in height. Find the volume of the toy box.

A warehouse has a storage bin that is 8 m long, 4 m wide, and 3 m high. What is the volume of the bin?

Name: _____ 115

Curriculum Connection
SS8.3

Index cards | Cut out the cards below

A refrigerator has a width of 0.7 m, a depth of 0.6 m, and a height of 1.8 m. Calculate the volume of the refrigerator.

A truck container has dimensions of 12 m by 3 m by 4 m. What is the volume of the container?

A brick has d[illegible]ons [illegible] by 12 cm by 6 cm. F[illegible] the brick in cubic c[illegible]ters.

The volume of a rectangular prism is 96 cubic meters. The length is 8 and the width is 4 m. What is the height?

A cereal box has a length of 30 cm, a width of 8 cm, and a height of 25 cm. What is the volume of the box?

A [illegible] has [illegible]m that measur[illegible] in [illegible] in width, and 3 m in [illegible]ate the room's vo[illegible]

A fish tank has a length of 50 cm, a width of 20 cm, and a height of 30 cm. What is the volume of the fish tank?

A storage crate has dimensions of 6 m by 2.5 m by 2 m. What is the volume of the crate?

Name: _____ 116

Curriculum Connection
SS8.3

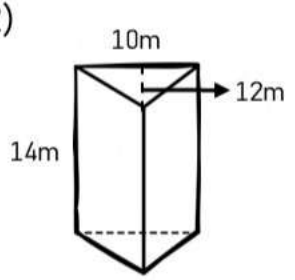
Volume – Triangular Prisms

Instruction Find the volume of the triangular prisms below

1)

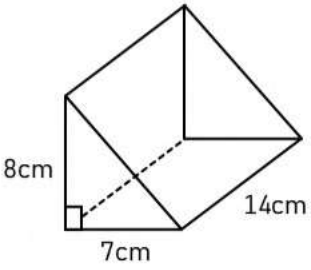
Volume: _____

2)

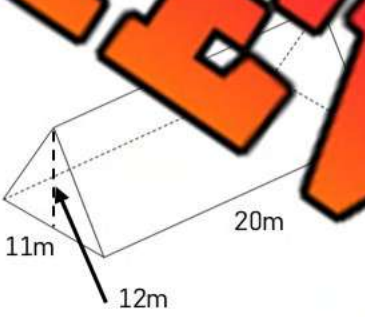


Volu_____

3)



Volume: _____



Volume: _____

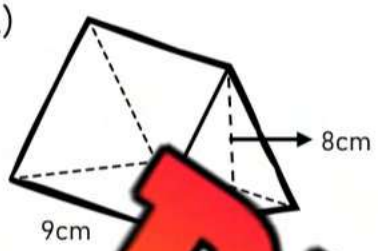
Name: _____ 117

Curriculum Connection
SS8.3

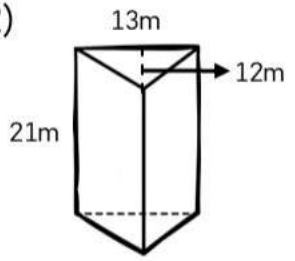
Volume – Triangular Prisms

Instruction Find the volume of the triangular prisms below

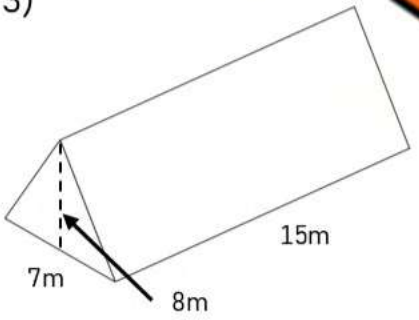
1)

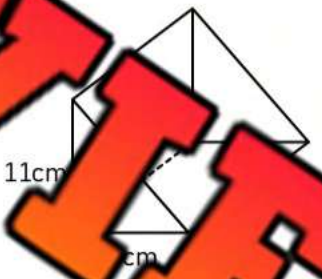


2)

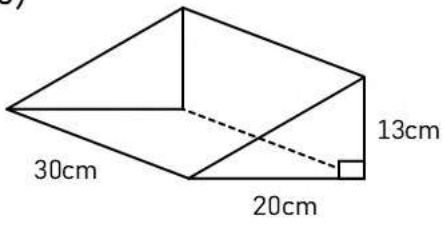


3)

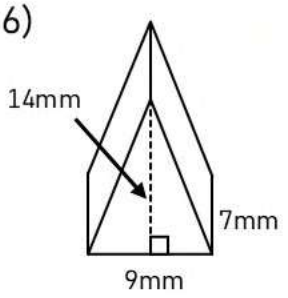




5)



6)



Name: _____ 118

Curriculum Connection
SS8.3

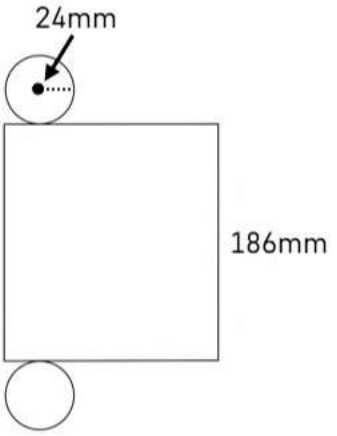
Volume - Cylinders

Part 1 Solve the questions below

1)

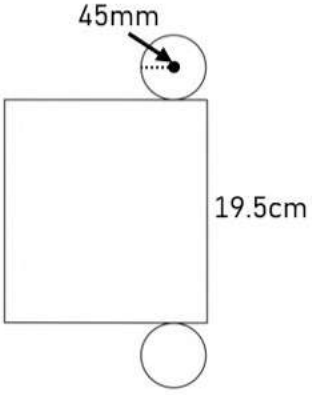
Area of the Base: _____ Volume: _____

2)



Area of the Base: _____ Volume: _____

3)



Area of the Base: _____ Volume: _____

Area of the Base: _____ Volume: _____

Part 2 Solve the question below

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

Name: _____ 119

Curriculum Connection
SS8.3

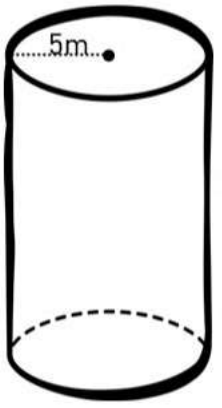
Volume - Cylinders

Instruction Solve the questions below

1)

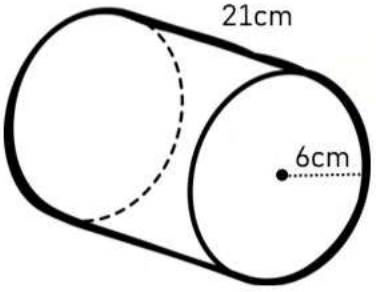
Area of the Base: _____ V_____

2)



Area of the Base: _____ Volume: _____

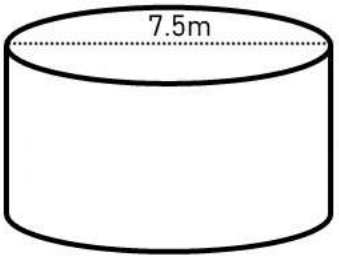
3)



Area of the Base: _____ Volume: _____

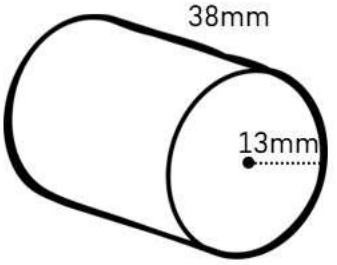
Area of the Base: _____ Volume: _____

5)



Area of the Base: _____ Volume: _____

6)



Area of the Base: _____ Volume: _____

Name: _____ 120

Curriculum Connection
SS8.3

Volume - Cylinders

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

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

Part 2 Answer the questions below

1)	The radius of a swimming pool is 3.6 metres. The height of the pool is 1.8 metres. What is the volume of the swimming pool? 
2)	A can's base has an area of 32 cm^2. The volume of the can is 288cm^3. What is the height of the can? 
3)	A bucket has a height of 8cm. The bucket's base has an area of 20cm^2. a) What is the volume of the bucket? b) If 1cm^3 of volume has the capacity to hold 1mL of water, how many mL can the bucket hold? 

Curriculum Connection
SS8.3

Exit Cards

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

Name: _____

1) Fill in the blanks to investigate the area of the base, height, and the volume.

	Radius	Area of Base	Height	Volume
1)			10cm	
2)			15cm	
			20cm	392.5cm^3
	7cm	154cm^2		924cm^3

2) A cylindrical water tank has a base area of 200 cm² and a height of 2 meters.

a) What is the volume of the water tank in cubic centimeters (cm³)?

b) If 1 liter of water is equal to 1,000 cm³, how many liters of water can the tank hold?

Name: _____

1) Fill in the blanks to investigate the area of the base, height, and the volume.

	Radius	Area of Base	Height	Volume
1)	6cm		10cm	
2)	4cm		15cm	
3)	2.5cm		20cm	392.5cm^3
4)	7cm	154cm^2		924cm^3

2) A cylindrical water tank has a base area of 200 cm² and a height of 2 meters.

a) What is the volume of the water tank in cubic centimeters (cm³)?

b) If 1 liter of water is equal to 1,000 cm³, how many liters of water can the tank hold?

Name: _____ 122

Curriculum Connection
SS8.3

Volume of Cylinders

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

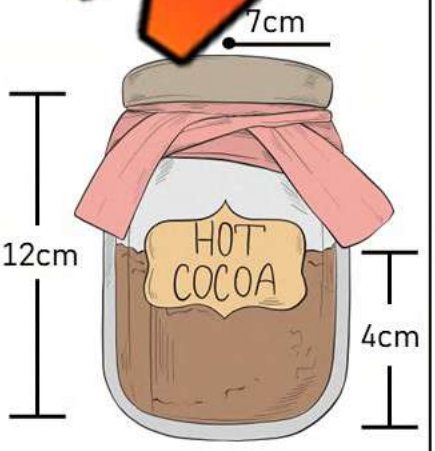
	Area of Base	Height	Volume
1)	8 mm^2	7 mm	
2)	15 cm^2	11 cm	
3)			114 m^3
4)			154 km^3
5)			119 mm^3
6)	18	15 m	
7)	22 km^2		
8)	25 mm^2		175 mm^3

Part 2 Answer the questions below

A hot cocoa jar is 12cm tall. There are only 4 cm left o… coc… The radius of the jar is 7cm.

a) What is the volume of cocoa left in the jar?

b) How much more cocoa would be needed to fill the jar?



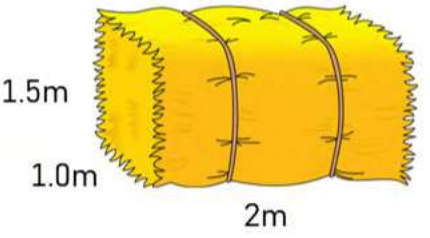
Name: _____ 123

Curriculum Connection
SS8.3

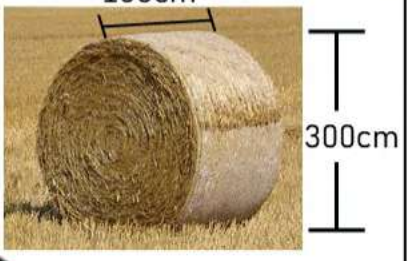
Volume of Cylinders

Instruction Answer the questions below

1) There are two types of hay bales – one that is in the shape of a cylinder and one that is in the shape of a rectangular prism. The cylinder-shaped hay bale is 300cm tall and 150cm long. The rectangular-shaped hay bale has the following dimensions: 1.5m by 1.0m by 2.0m.



a) Which shape of hay bale contains more hay?



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

2) You are planning to make candles to sell. What would the dimensions of the candles be?

a) Draw a picture of one of the candles and label the dimensions.

b) What is the volume of the candle?

c) For every $10cm^3$, it costs you 30 cents. How much would the candle cost you in total?

Name: _____ 124

Curriculum Connection
SS8.3

Activity: "Cylinder Volume Toss Challenge"

Objective

What are we learning about?

Students will reinforce their understanding of finding the volume of cylinders through a fun, team-based activity that involves answering volume problems and shooting a paper ball into a bin.

Materials

What you will need for the activity.

- I ms
- R ng she h team
- Paper balls (n)
- Bins or ba per tea
- Desks (one pe)

Instructions

How you ity

1. Arrange the classroom so that the hough ultiple teams to work simultaneously. Place a desk about 6 feet awa m a asket.
2. Place a stack of index cards with area pro on ea s
3. Provide each team with a recording sheet and a p
4. Divide the students into teams of about five membe
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 to the volume of a cylinder on the recording sheet.
7. Once the answer is recorded, the student attempts to shoot the paper 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: _____ 125

Curriculum Connection
SS8.3

Index Cards | Cut out the cards below

1)

A water tank has a radius of 2 m and a height of 4 m. What is the volume of the tank?

2)

A cylindrical candle has a radius of 3 cm and a height of 8 cm. What is the volume of the candle?

3)

A cylindrical [illegible] of 6 cm and a [illegible] its volum[illegible]

4)

A cylindrical barrel has a diameter of 2 m and a height of 5 m. Find the volume of the barrel.

5)

A can of paint has a diameter of 10 cm and a height of 20 cm. Calculate the volume of the can.

A gas ta[illegible] vo[illegible] of 5000 cm³ and a rad[illegible] of [illegible] height of t[illegible]

7)

The volume of a cylinder is 1000 cm³ and the height is 10 cm. Find the radius of the base.

8)

A cylindrical container has a radius of 7 cm and a height of 15 cm. What is its volume?

Name: _____ 126

Curriculum Connection
SS8.3

Index Cards | Cut out the cards below

9)

A cylinder has a diameter of 8 cm and a height of 15 cm. What is the volume?

10)

A cylinder has a volume of 3140 cm³ and a height of 10 cm. What is the radius of its base?

11)

A cylindric[illegible]ner h[illegible]se area of 78.5 cm[illegible]d a [illegible] cm. What is the v[illegible]f the container?

12)

A cylindrical jar has a diameter of 14 cm and a height of 20 cm. Find its volume.

13)

A cylindrical swimming pool has a radius of 5 m and a height of 2 m. What is the pool's volume?

The volu[illegible]cyl[illegible]is 1500 cm³. If the radi[illegible]is 5[illegible]a[illegible]e he[illegible]

15)

A soda can has a radius of 4 cm and a height of 12 cm. Find the volume of the can.

16)

A cylindrical water bottle has a radius of 4 cm and a height of 18 cm. What is the volume?

Name: _____ 127

Curriculum Connection
SS8.3

Index Cards | Cut out the cards below

17)

A cylindrical pipe has a radius of 4 cm and a height of 10 cm. What is the volume of the pipe?

18)

A cylindrical water tank has a radius of 3 m and a height of 8 m. What is the volume of the tank?

19)

A large silo [illegible] and a height of [illegible] volume of [illegible]

20)

A container has a base area of 100 cm² and a height of 25 cm. Find the volume of the container.

21)

A cylindrical vase has a radius of 6 cm and a height of 15 cm. What is the volume of the vase?

A soda [illegible] and a height [illegible] volume [illegible]

23)

The volume of a cylindrical drum is 2000 cm³ and the radius is 5 cm. Find the height of the drum.

24)

A cylinder has a volume of 1200 cm³ and a height of 10 cm. What is the radius of its base?

Name: _____ 128

Curriculum Connection
SS8.3

Cylinder Volume 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

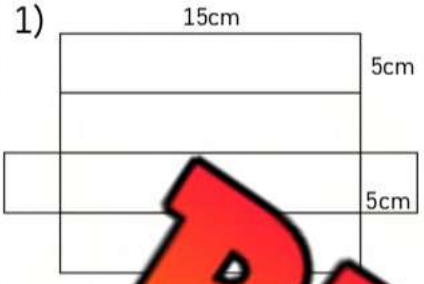
Name: _____ 129

Curriculum Connection
TQ

Unit Test – Surfaces Area and Volume

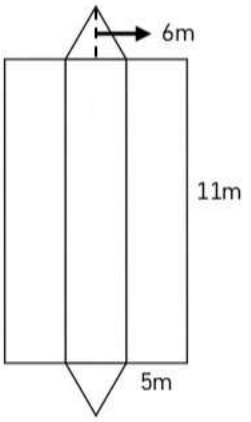
Part 1 Find the surface area of the 3D objects using the nets below

1)



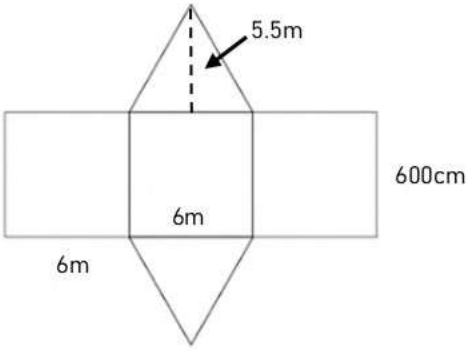
Surface Area: _____

2)

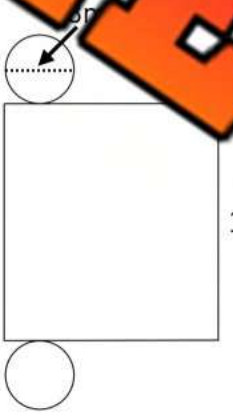


Surface Area: _____

3)



Surface Area: _____

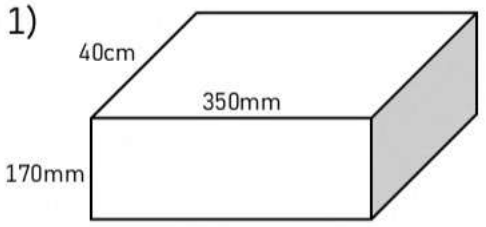


Surface Area: _____

Curriculum Connection
TQ

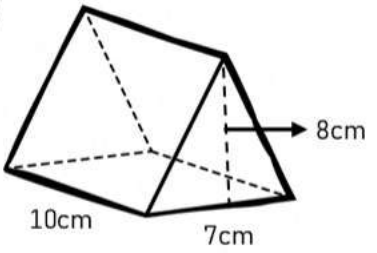
Part 2 Find the surface area of the objects below

1)



Surface Area: _____

2)

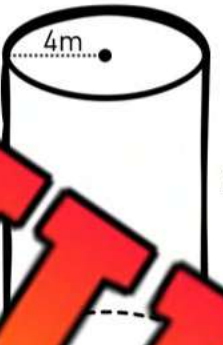


Surface Area: _____

3)

Surface Area: _____

4)



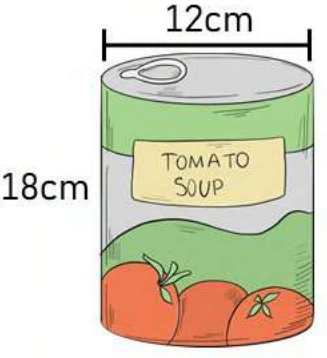
Surface Area: _____

Part 3 Solve the question below

Becky takes the lid off a can of soup. The can's dimensions are labelled on the picture.

a) What is the surface area of the can without the lid?

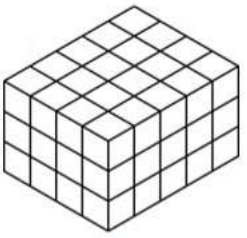
b) What is the surface area of the lid?



Curriculum Connection
TQ

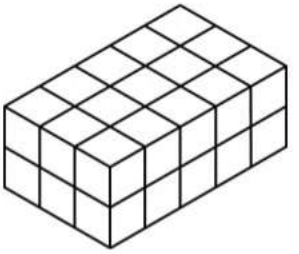
Part 4 Fill in the blanks to investigate the area of the base and the volume

1)



Area of Base	Height	Volume

2)



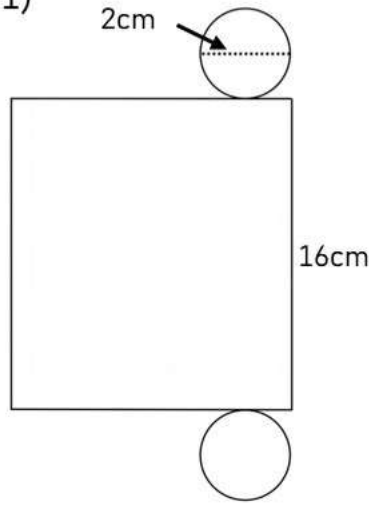
Area of Base	Height	Volume

Part 5 Fill in the blanks to investigate the area of the base and the volume

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

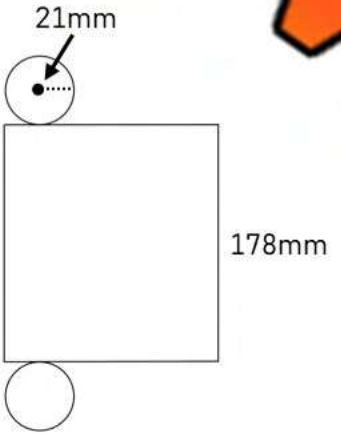
Part 6 Find the area of the base and the volume of the cylinder

1)



Area of the Base: _____ Volume: _____

2)

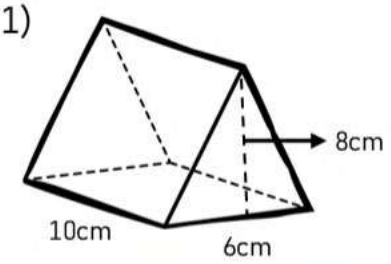


Area of the Base: _____ Volume: _____

Curriculum Connection
TQ

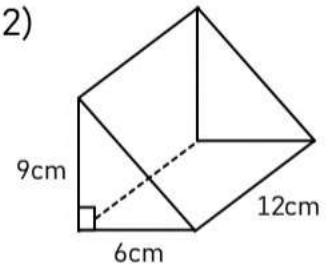
Part 7 Find the volume of the triangular prisms

1)



Volume: _____

2)



Volume: _____

Part 8 Answer the [illegible]s b[illegible]

1) The radius of a swimming po[illegible].2 met[illegible]eight of the pool is 1.6 metres.

a) What is the volume of the pool?

b) If 1cm^3 of volume has the capacity to [illegible]m[illegible] of water, how many mL can the pool hold?

2) A can's base has an area of 37 cm^2. The volume of the can is 333 cm^3. What is the height of the can?

3) A bucket has a height of 17cm. The bucket's base has an area of 16cm^2. What is the volume of the bucket?

Name: _____ 134

Curriculum Connection
SS8.4

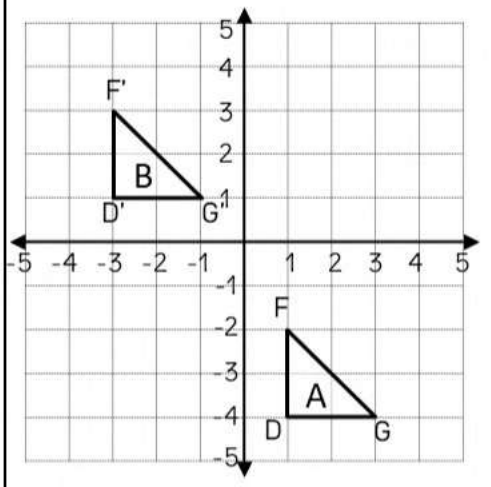
Translations – Mapping Rules

Mapping Rules for Translations

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

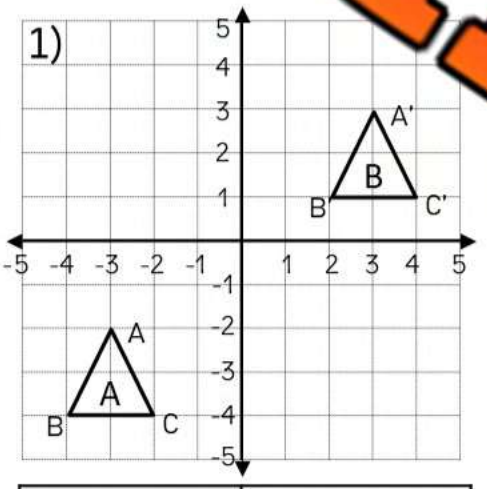
The rule is (x, y) → (x + a, y + b)

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

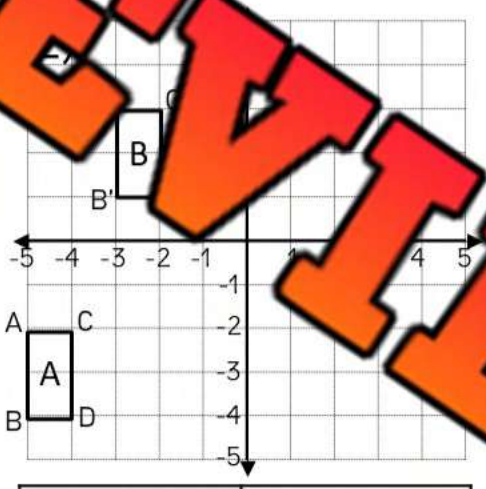


Instruction	Find the mapping rule that translates figure A to figure B

1)

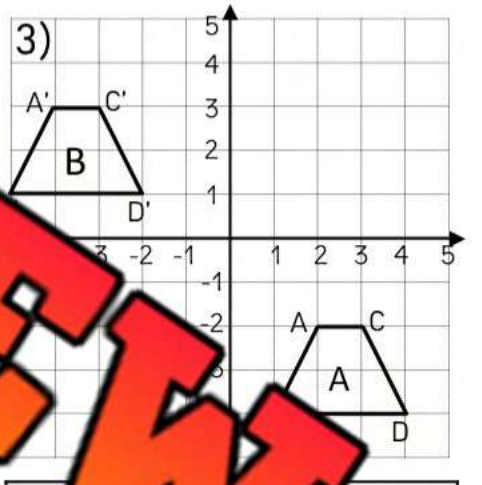


Mapping Rule	(x☐ __, y☐ __)



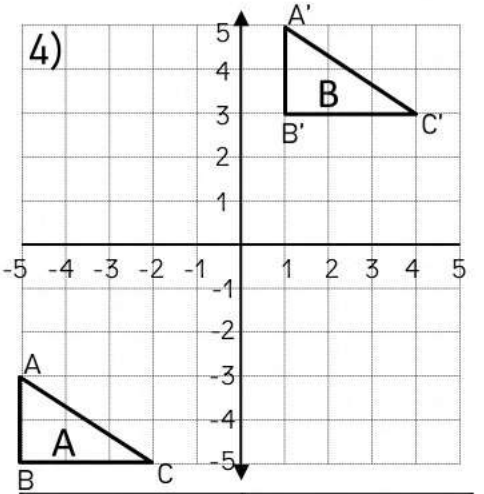
Mapping Rule	(x☐ __, y☐ __)

3)



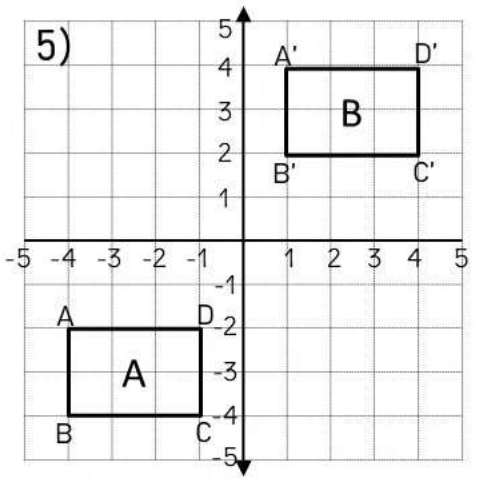
Mapping Rule	(x☐ __, y☐ __)

4)



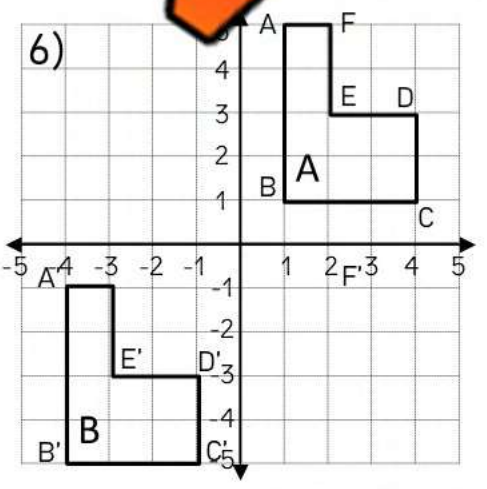
Mapping Rule	(x☐ __, y☐ __)

5)



Mapping Rule	(x☐ __, y☐ __)

6)



Mapping Rule	(x☐ __, y☐ __)

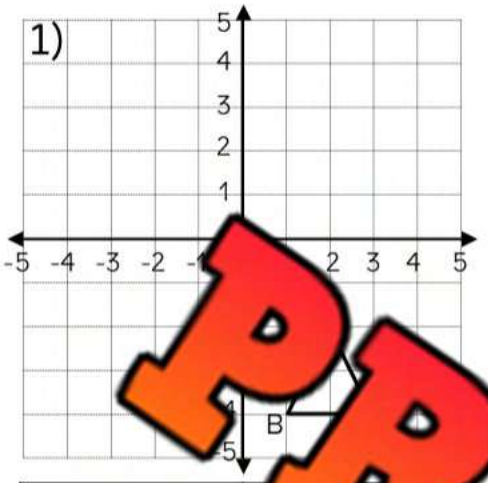
Name: _____ 136

Curriculum Connection
SS8.4

Translations – Mapping Rules

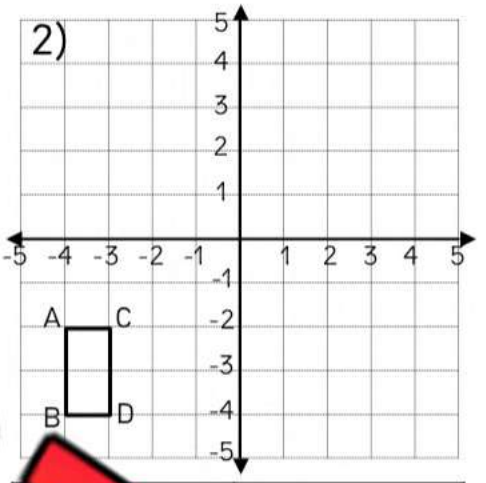
Instruction Translate the shape using the mapping rule

1)



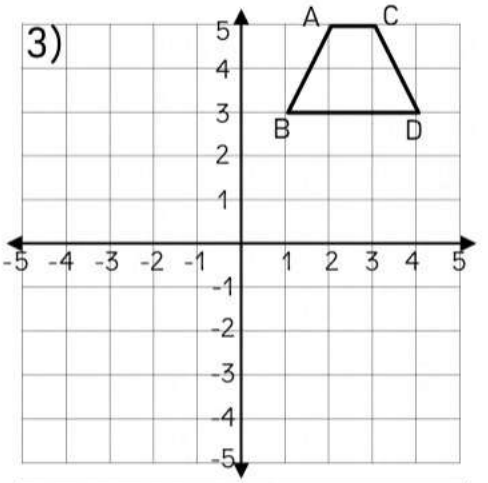
Mapping Rule	(

2)



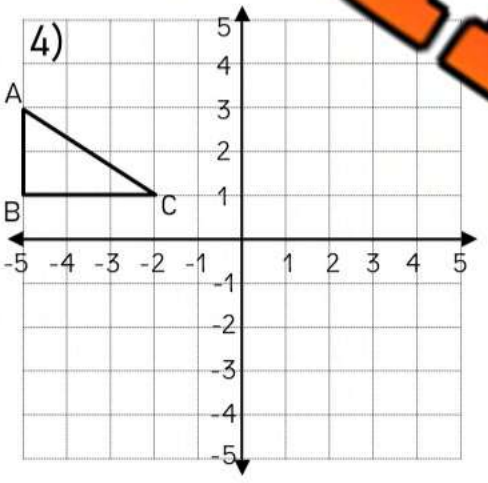
ule	(x + 5, y + 4)

3)

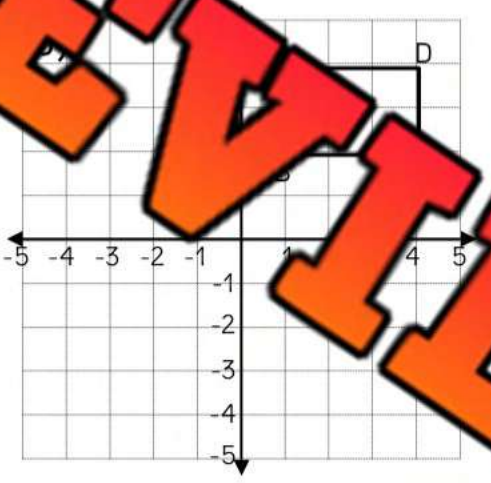


Mapping Rule	(x – 5, y – 6)

4)

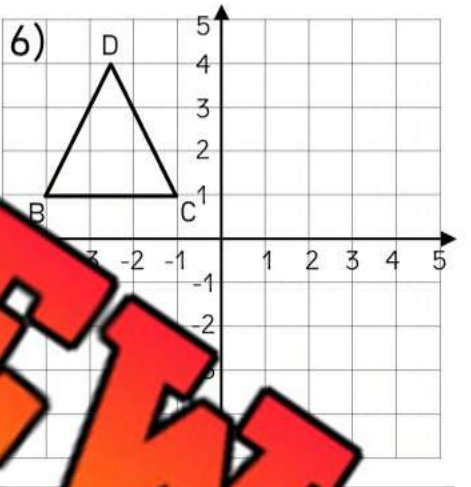


Mapping Rule	(x + 6, y – 4)



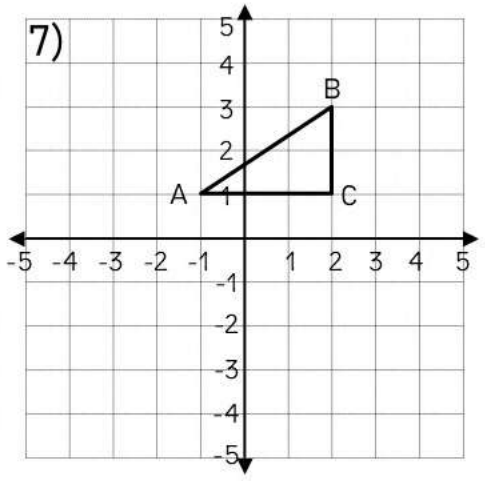
Mapping Rule	(x – 5, y – 4)

6)



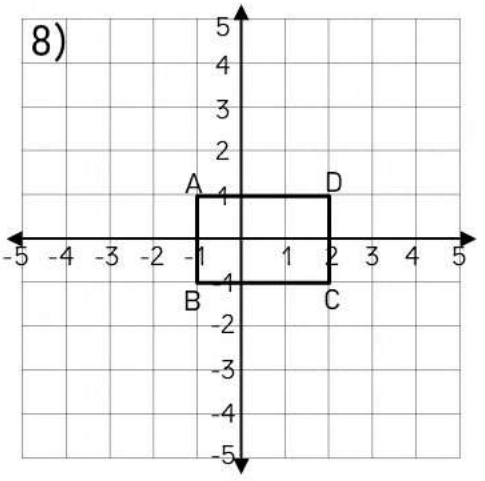
Map g R	+ 6, y – 5)

7)



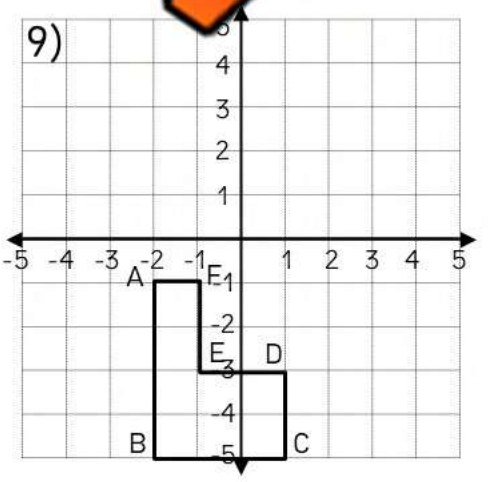
Mapping Rule	(x – 4, y – 5)

8)



Mapping Rule	(x + 3, y – 4)

9)



Mapping Rule	(x + 4, y + 6)

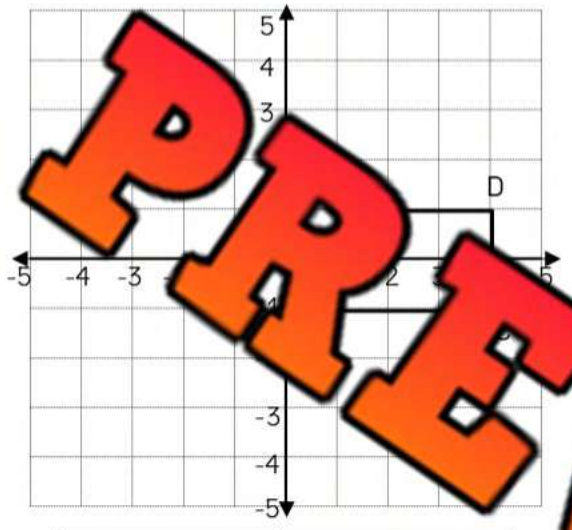
Curriculum Connection
SS8.4

Exit Cards

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

Name: _____

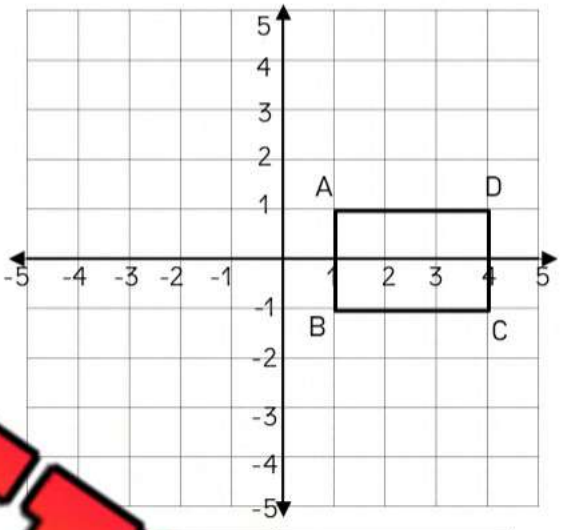
Translate the shape using the mapping rule.



Mapping Rule	(x - 4, y - 3)

Name: _____

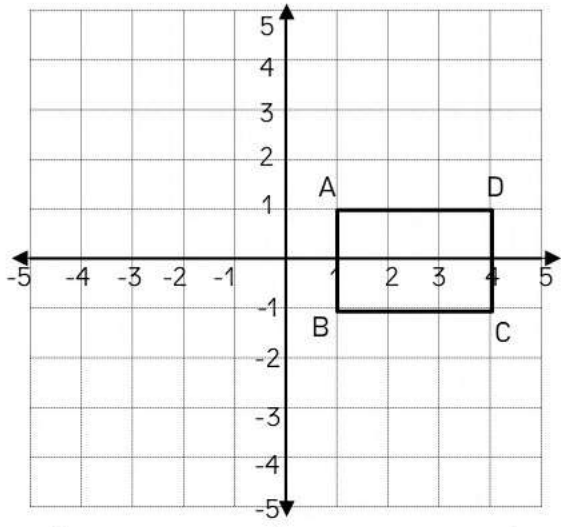
Translate the shape using the mapping rule.



Mapping Rule	(x - 4, y - 3)

Name: _____

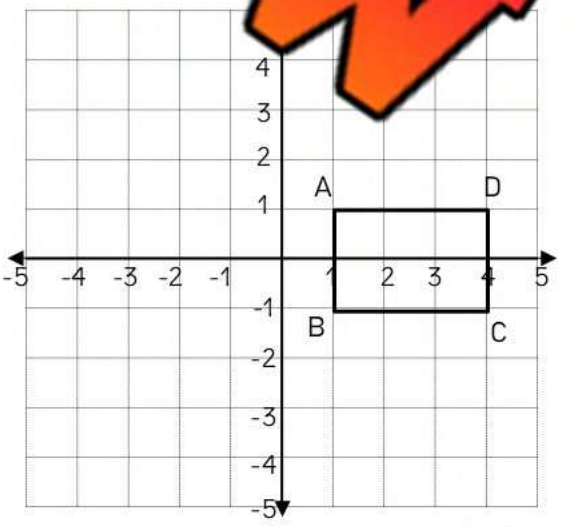
Translate the shape using the mapping rule.



Mapping Rule	(x - 4, y - 3)

Name: _____

Translate the shape using the mapping rule.



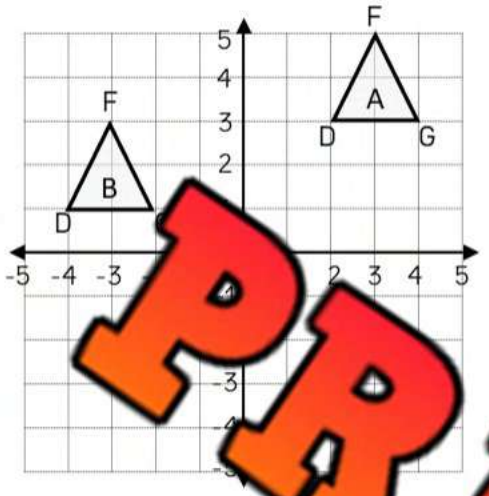
Mapping Rule	(x - 4, y - 3)

Name: _____ 142

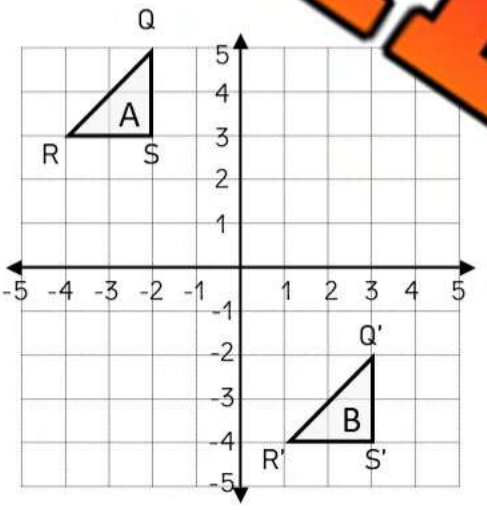
Curriculum Connection
SS8.4

Transformations - Translations

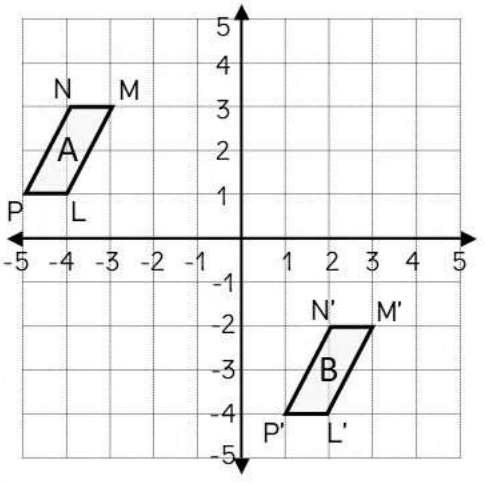
Instruction 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



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



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



Coordinates A	Coordinates B
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
Translate Shape B to Shape C (x + 2, y + 5)	**Coordinates C**

Name: _____ 143

Curriculum Connection
SS8.4

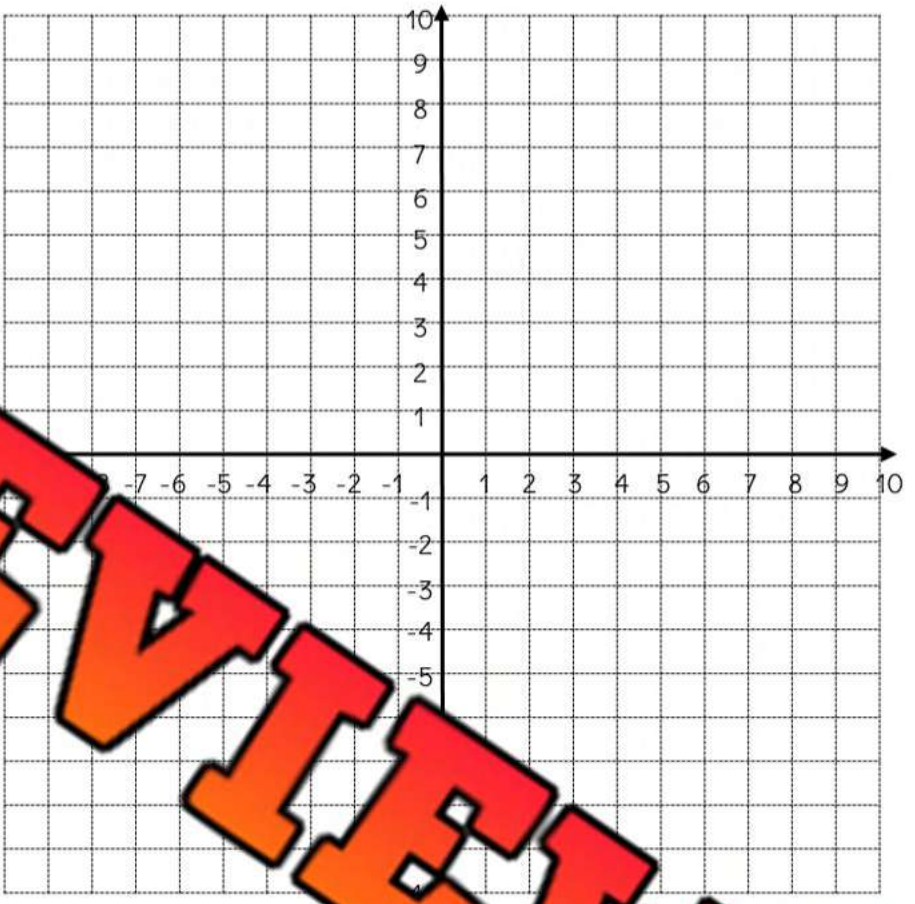
Translations – New Coordinates

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

Shape A
P(1,4), Q(2,2), R(7,2), S(8,4)
Translate the shape A
p 3

Shape
F(-8,4), G(
Translate th B
Right 3, down

Shape C
J(-9,-8), K(-4,-5), L(-0,-8)
Translate the shape C
Right 5, up 2



Part 2 Give the coordinates of each point after the translat

	Original Coordinate	Translation	New inates
1)	P(5, -2)	(x - 6, y + 4)	P(-1, 2)
2)	S(-3, 7)	(x + 4, y - 8)	
3)	Q(-6, -2)	(x + 3, y - 5)	
4)	L(8, -4) P(-5, 11)	(x - 2, y + 6)	
5)	T(-10, 9) Y(-12, -8)	(x + 9, y + 8)	
6)	S(-15, -12) R(13, 11)	(x - 8, y - 7)	
7)	N(-22, 9) K(18, -13)	(x - 12, y + 14)	
8)	P(26, -23) E(-21, 21)	(x + 15, y + 21)	

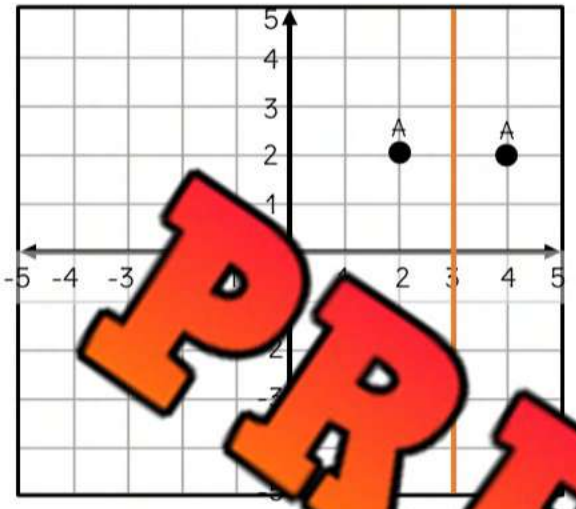
Name: _____ 144

Curriculum Connection
SS8.4

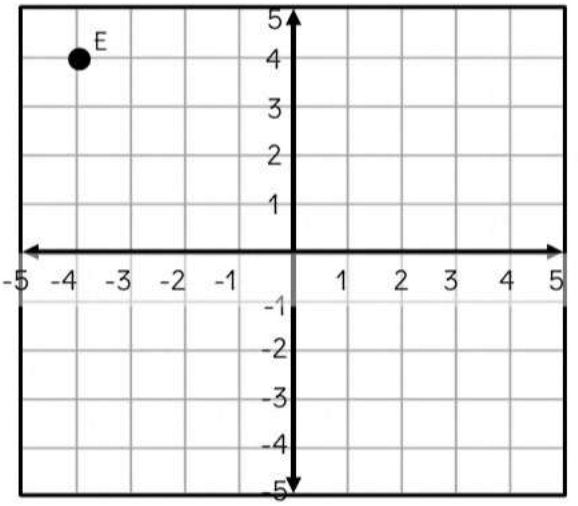
Reflecting a Point Using a Mirror Line

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

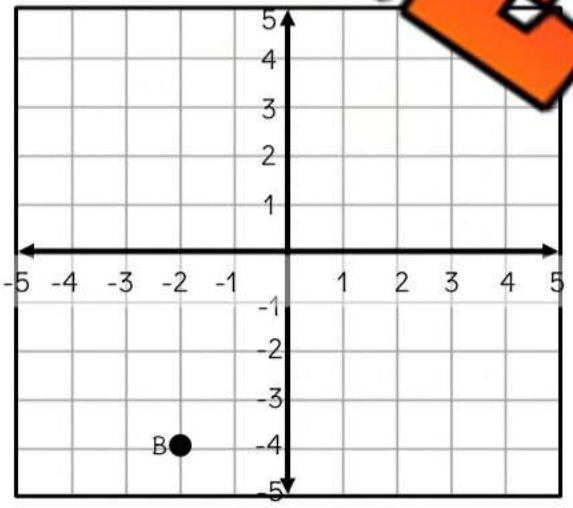
1) Reflection across the line x = 3



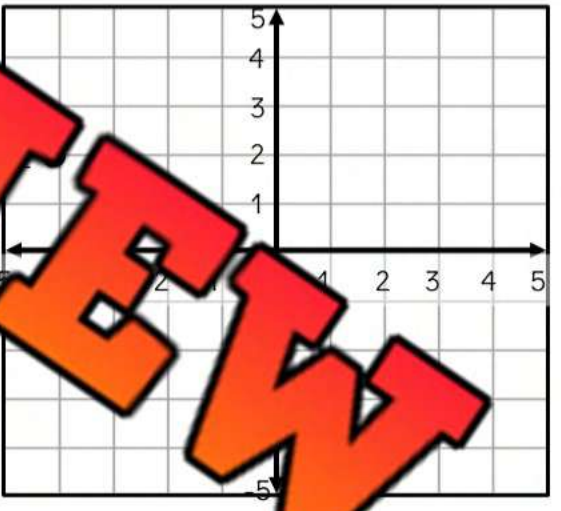
2) Reflection across the line y = 2



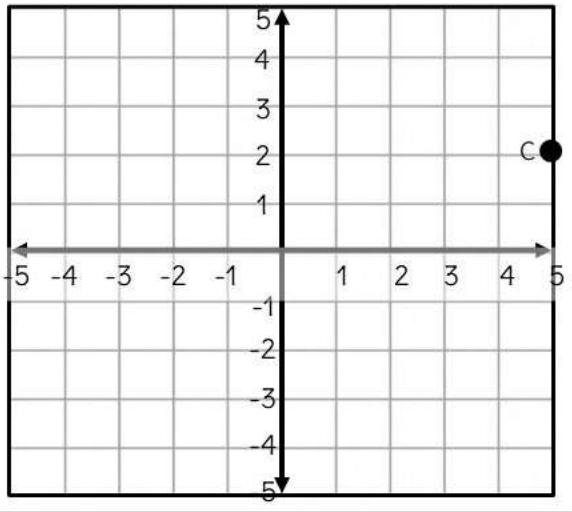
3) Reflection across the [illegible]



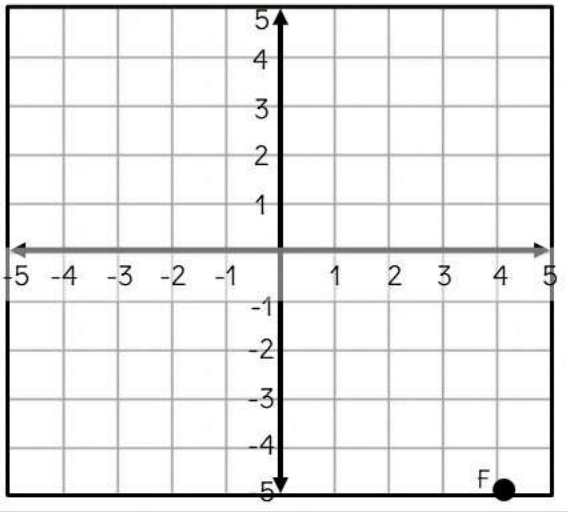
4) Reflection across the line x = -1



5) Reflection across the line x = 2



6) Reflection across [illegible]e line y = -3



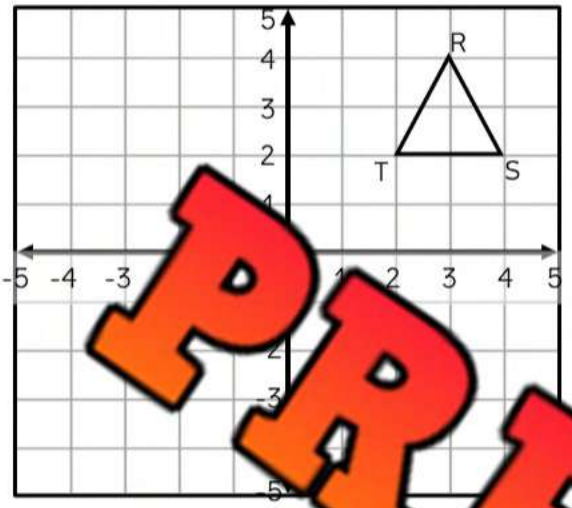
Name: _____ 146

Curriculum Connection
SS8.4

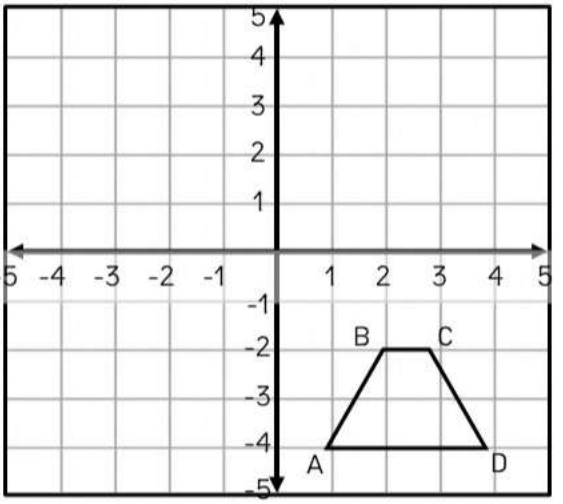
Reflecting a Shape Using a Mirror Line

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

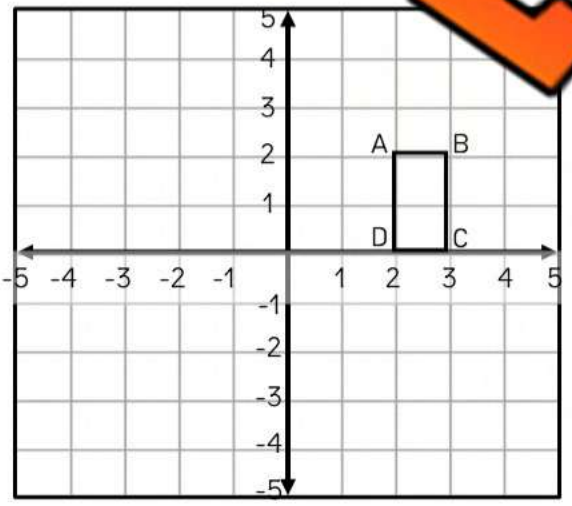
1) Reflection across the y-axis



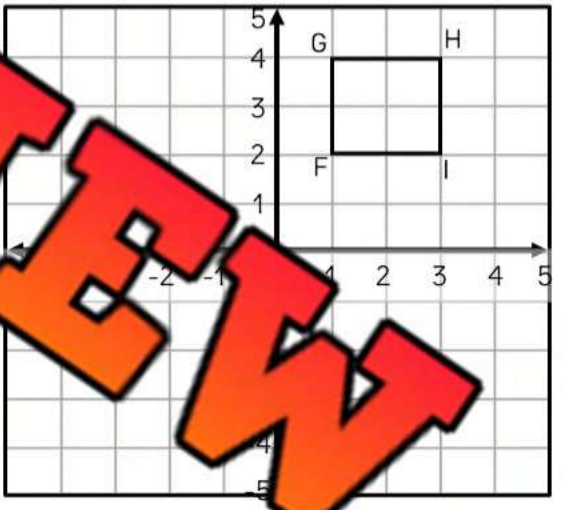
2) Reflection across the x-axis



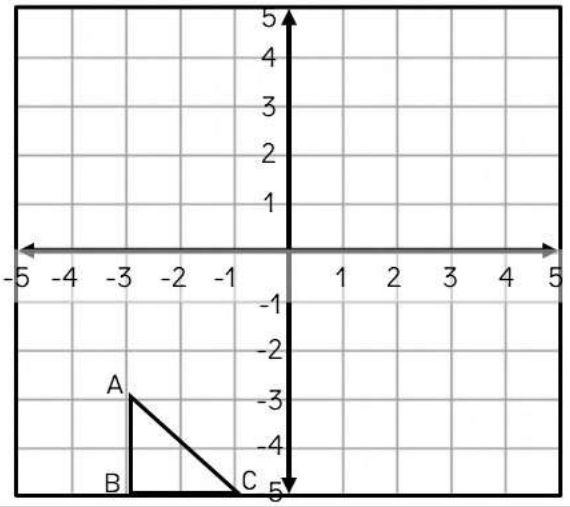
3) Reflection across the [illegible]



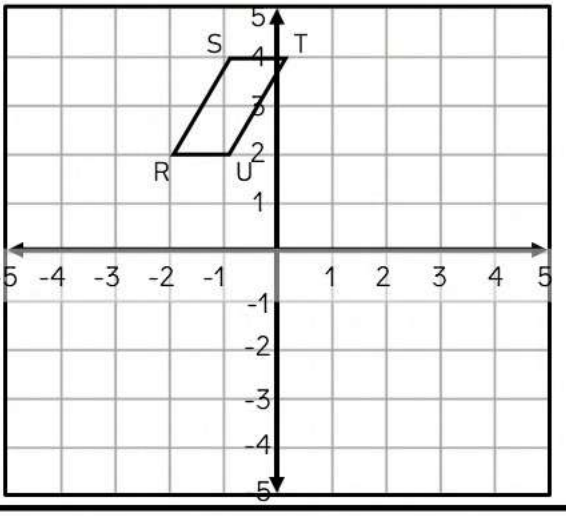
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection across the line x = 1



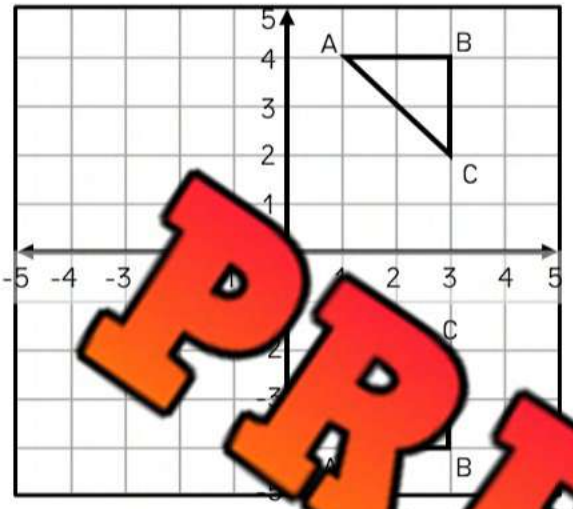
Name: _____ 147

Curriculum Connection
SS8.4

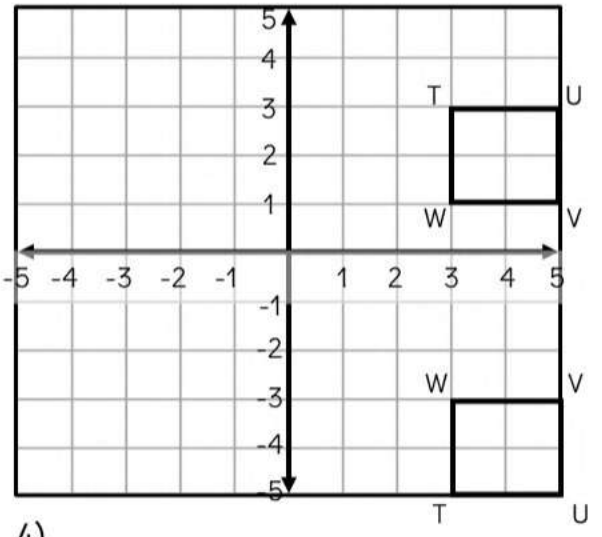
Reflections – Determine the Rule

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

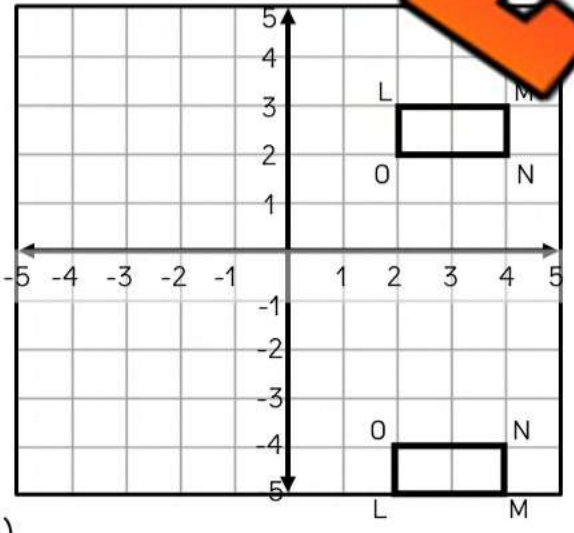
1) _____



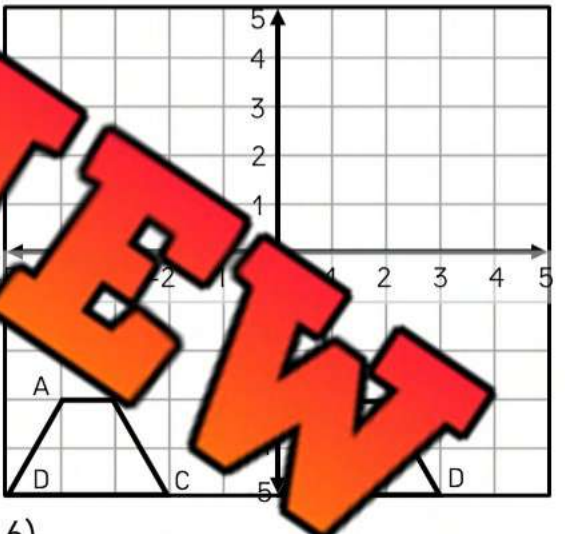
2) _____



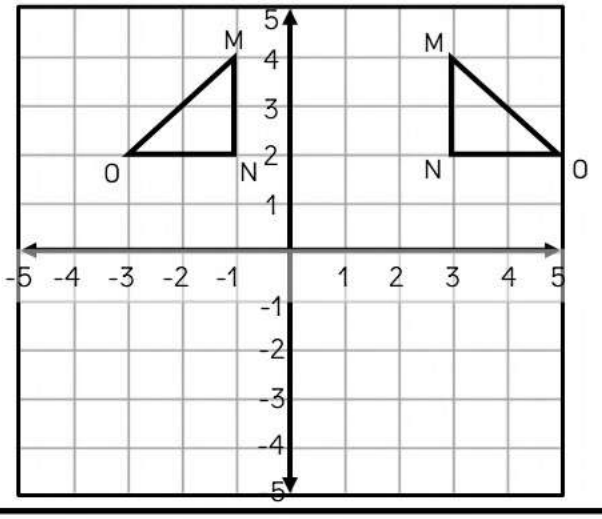
3) _____



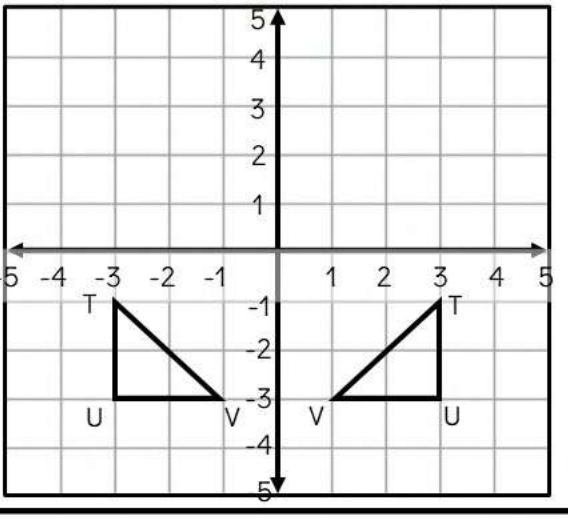
4) _____



5) _____



6) _____



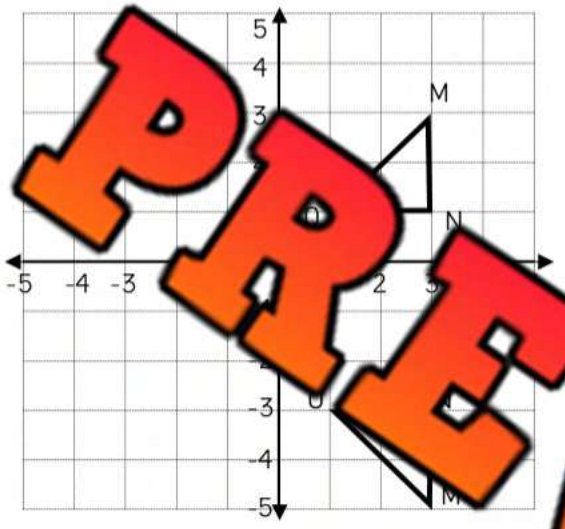
Curriculum Connection
SS8.4

Exit Cards

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

Name: _____

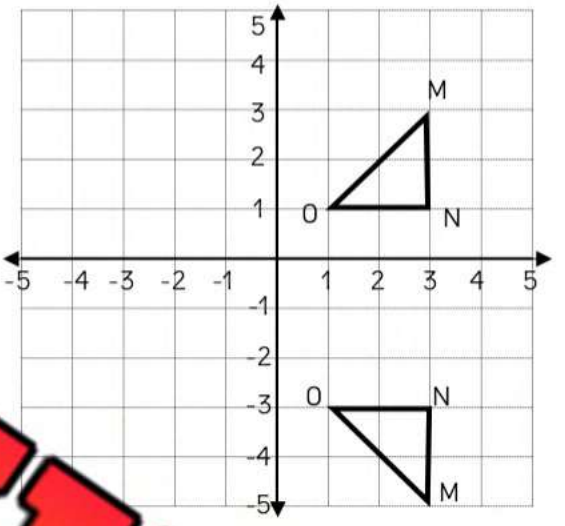
Describe the rule for the reflection line



Answer: _____

Name: _____

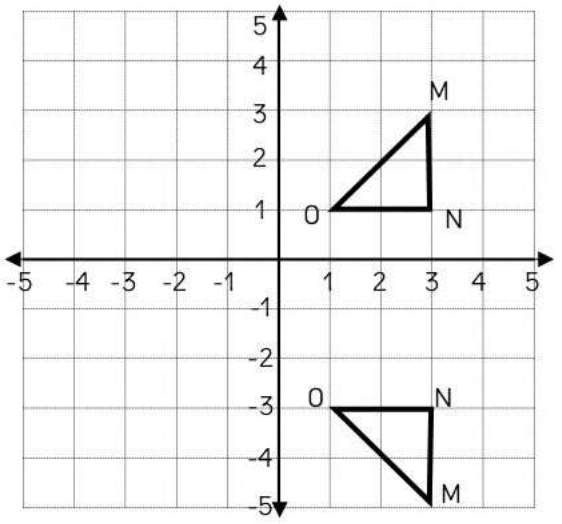
Describe the rule for the reflection line



Answer: _____

Name: _____

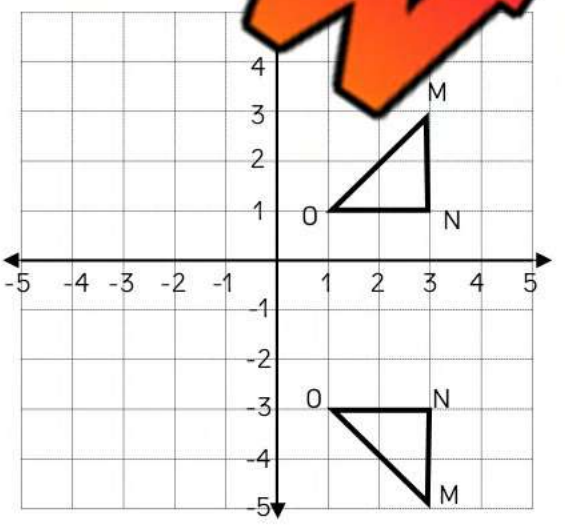
Describe the rule for the reflection line



Answer: _____

Name: _____

Describe the rule for the reflection line



Answer: _____

Name: _____ 149

Curriculum Connection
SS8.4

Reflections – Mapping Rules

Mapping Rules for Reflections

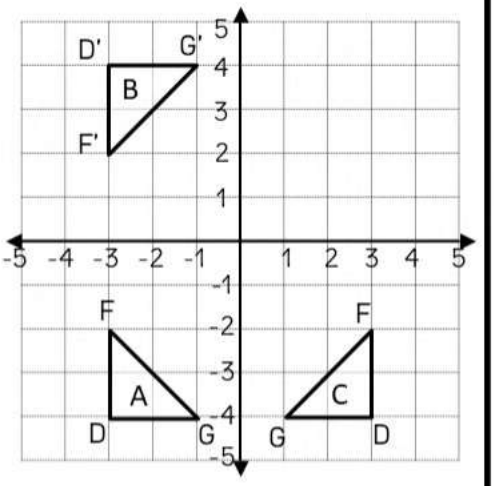
Each point on a shape moves according to the mapping rule.

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

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

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

If Shape A 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(6, -3)	x-axis	
3)	Q(-5, 7)	y-axis	
4)	P(-8, -2)	y-axis	
5)	T(-4, 8) Y(-12, -17)	x-axis	
6)	S(-14, -6) R(5, 15)	x-axis	
7)	N(-6, 8) K(6, -15)	y-axis	
8)	P(14, -7) E(-10, 17)	x-axis	
9)	S(-15, -18) R(7, 12)	y-axis	
10)	N(-9, 14) K(8, -21)	x-axis	

Name: _____ 150

Curriculum Connection
SS8.4

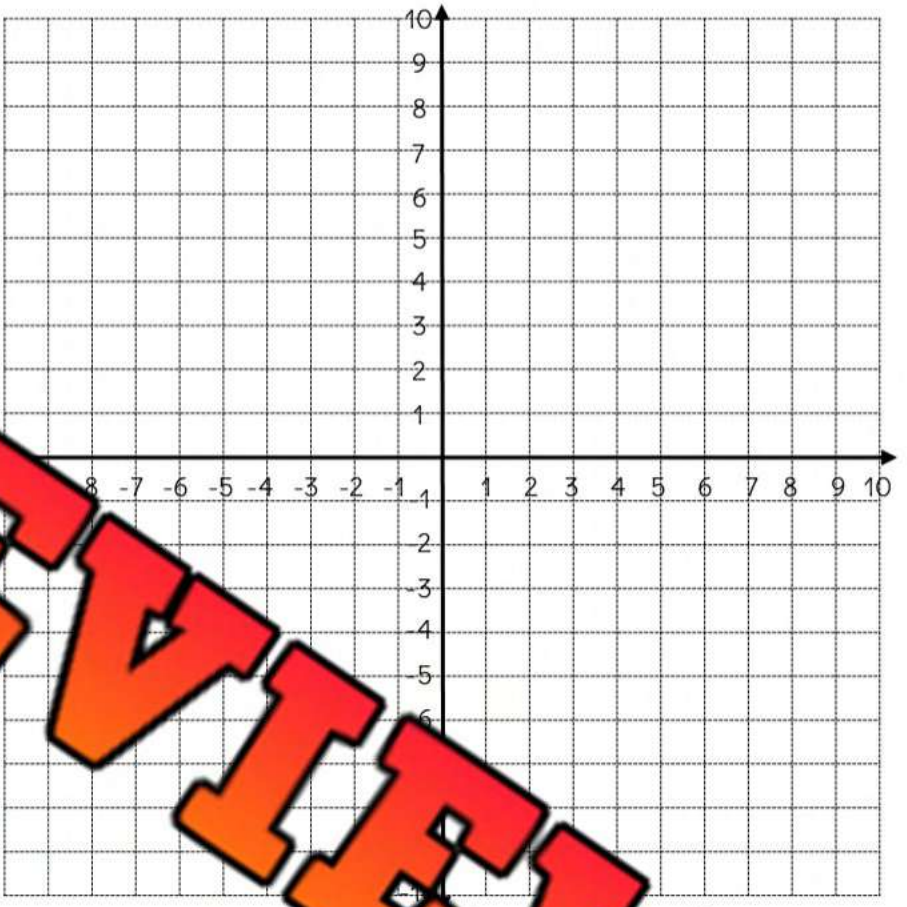
Reflections - Coordinates

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

Shape A
P(6,4), Q(2,2), R(7,2)
Reflect over the x-axis
New Coordinates
P(,), R(,)

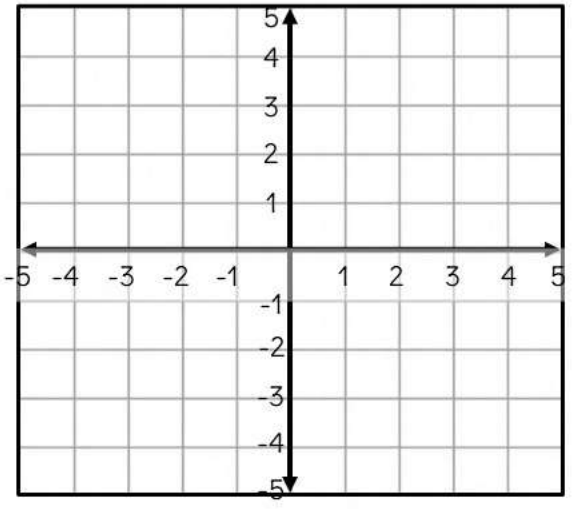
Shape B
F(, G(
Reflect over the
New Coordi
F(,), G(,), H(

Shape C
J(-3,-9), K(-5,-2), L(-9,-5)
Reflect over the y-axis
New Coordinates
J(,), K(,), L(,)

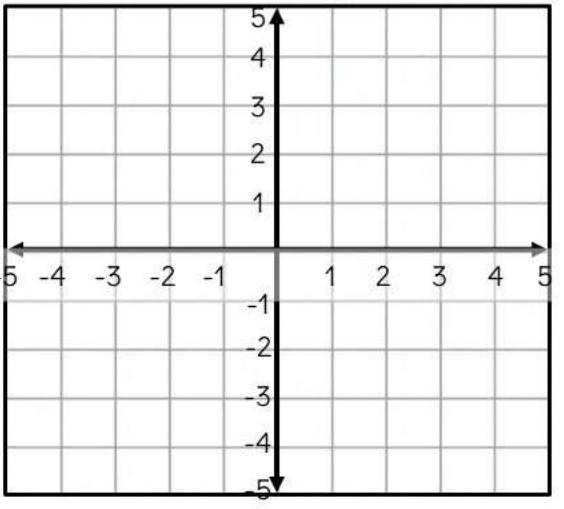


Part 2 Draw your own shape and then perform the reflectio

1) Reflection across the y-axis



2) Reflection acros line x = -1

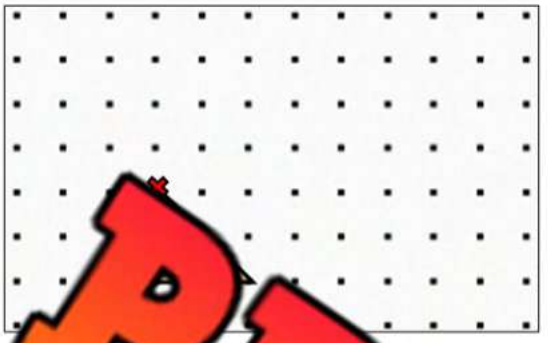


Name: _____ 152

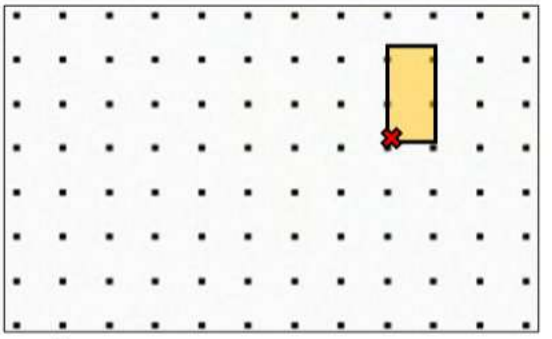
Curriculum Connection
SS8.4

Drawing Rotations

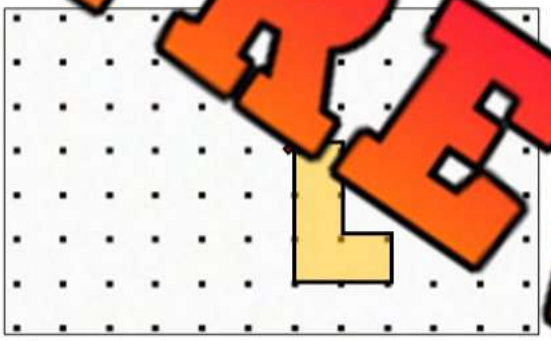
Instructions Rotate the shapes around the point marked ✖



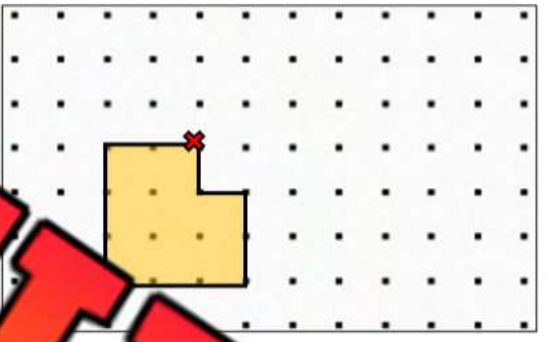
90° cl tation



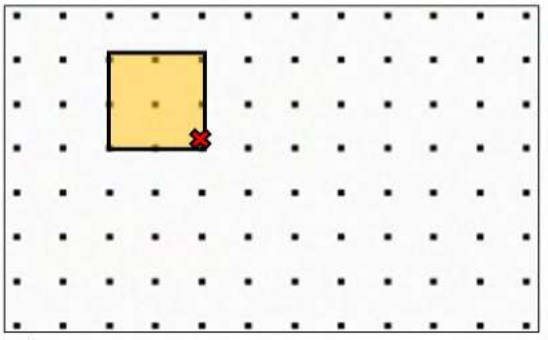
2) 180° clockwise rotation



3) 90° counter-clockwise rotation

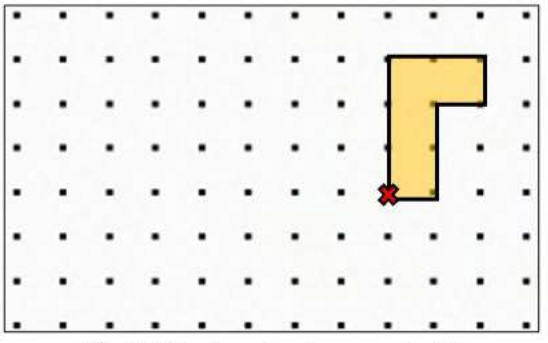


) 360 wise rotation

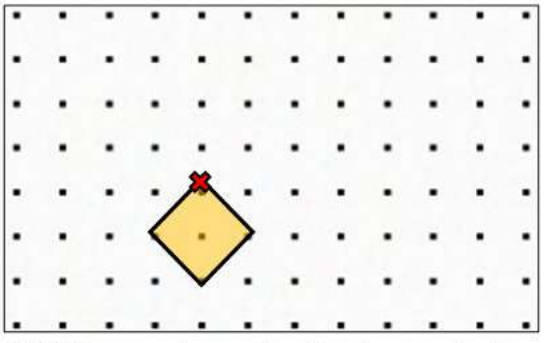


5) 90° counter-clockwise rotation

6) 180° counter-clockwise rotation



7) 90° clockwise rotation



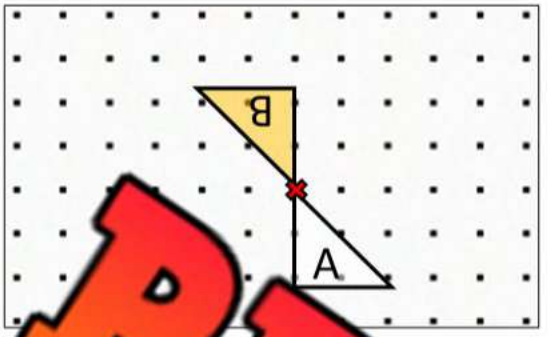
8) 180° counter-clockwise rotation

Name: _____ 153

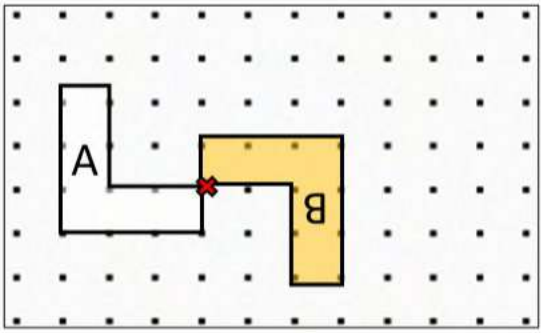
Curriculum Connection
SS8.4

Describing Rotations

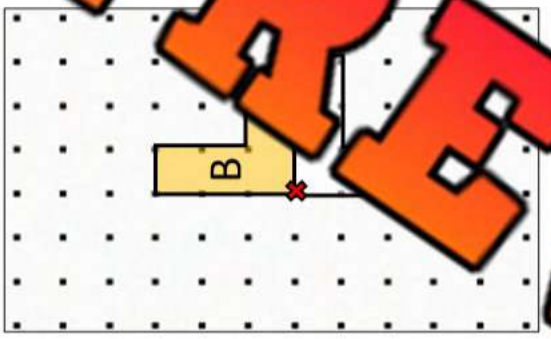
Instructions Describe the rotations. Shape A is the original shape



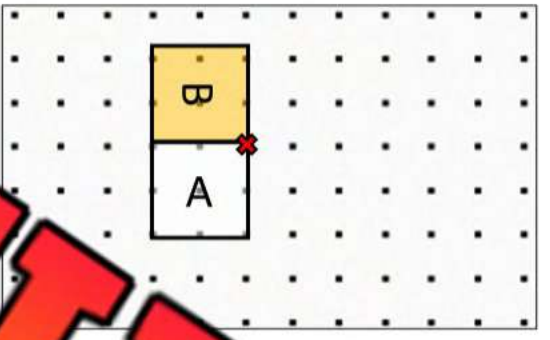
1) _____



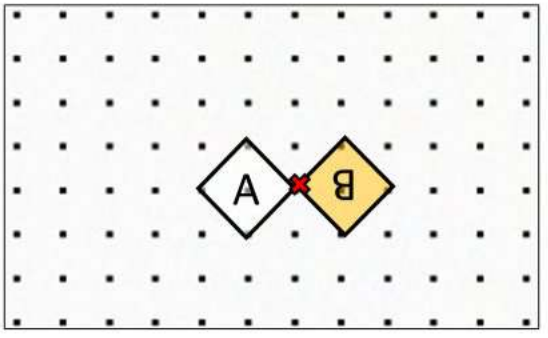
2) _____



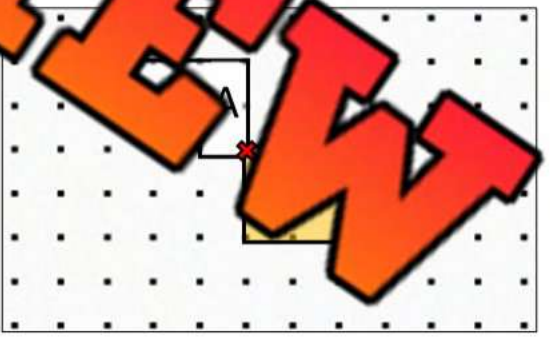
3) _____



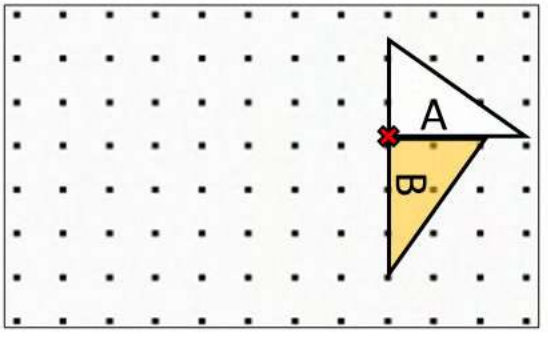
4) _____



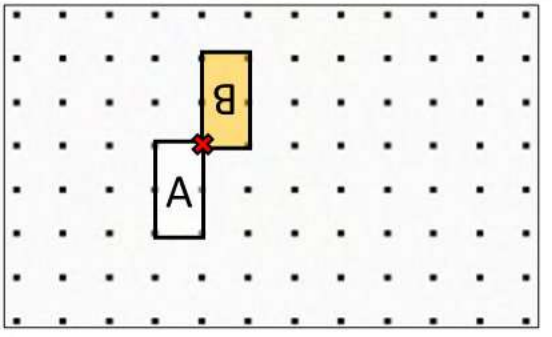
5) _____



6) _____



7) _____



8) _____

Name: _____ 155

Curriculum Connection
SS8.4

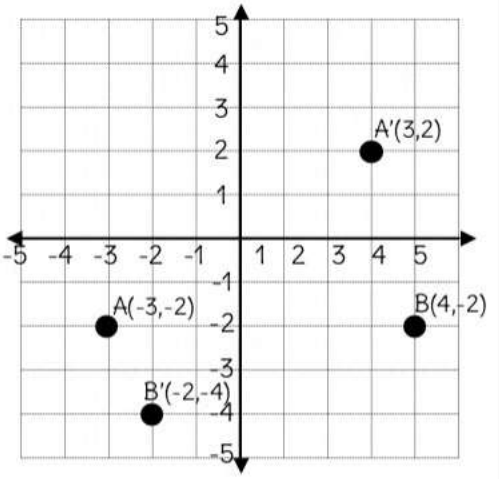
Rotating a Point

Mapping Rules for Rotations

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

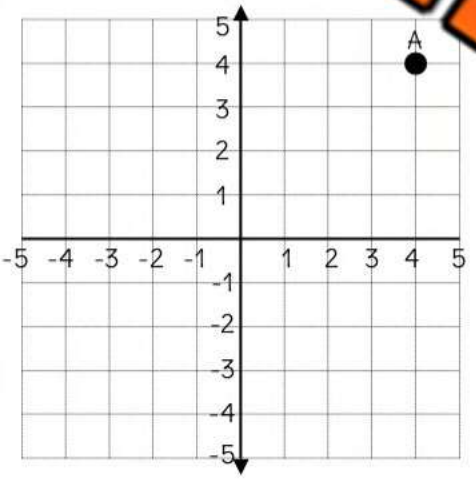
- a shape rotated 90° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-y, x)$.
- a shape rotated 180° counterclockwise has a mapping rule of: $(x, y) \rightarrow (-x, -y)$.
- a shape rotated 270° counterclockwise has a mapping rule of: $(x, y) \rightarrow (y, -x)$.

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



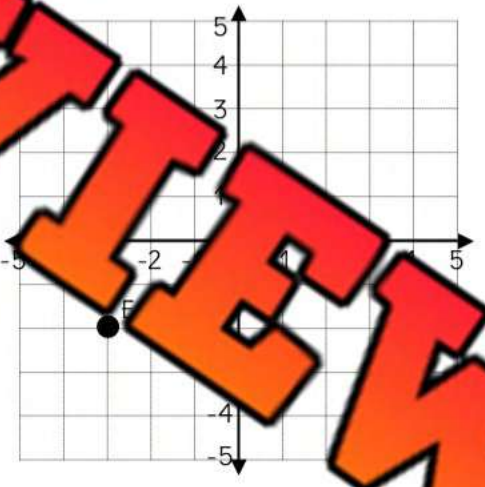
Instructions Graph the new position after rotating around the origin

1) 90° clockwise rotation



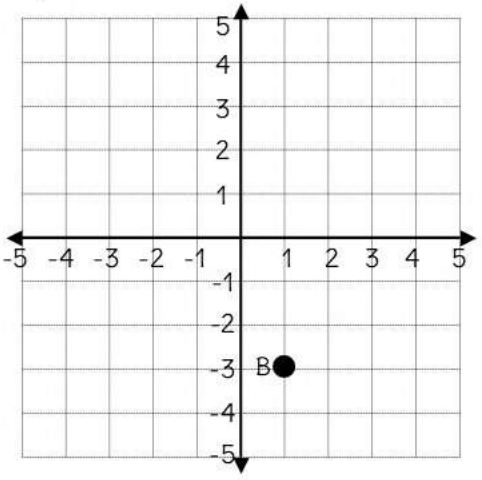
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° counterclockwise rotation



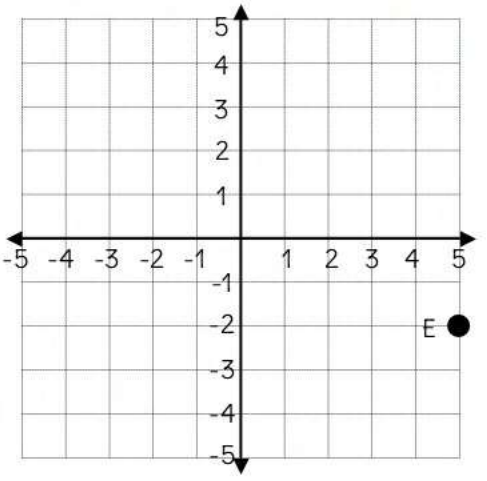
Original Coordinates
E(,)
Rotated Coordinates
( )

3) 180° rotation



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

4) 90° clockwise rotation



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

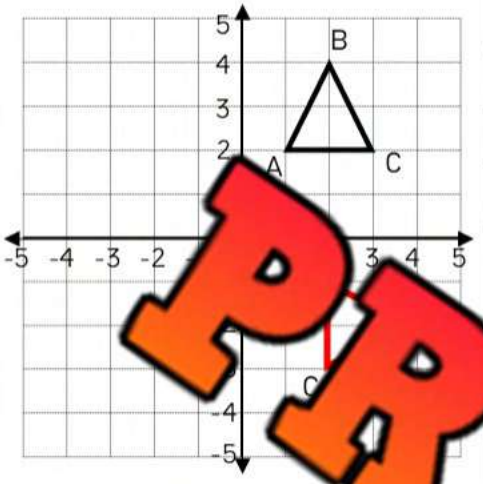
Name: _____ 157

Curriculum Connection
SS8.4

Rotating Shapes

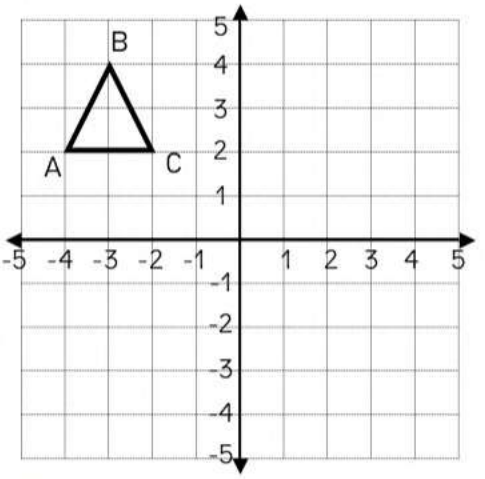
Instructions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



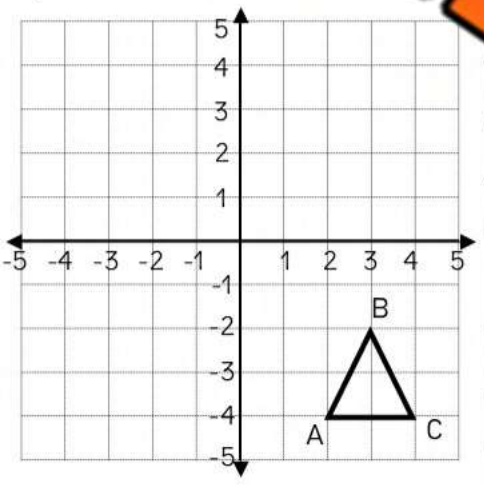
Original Coordinates
A(1, 2)
B(2, 4)
C(3, 2)
Rotated Coordinates
A(2, -1)
2)

2) 90° counterclockwise rotation



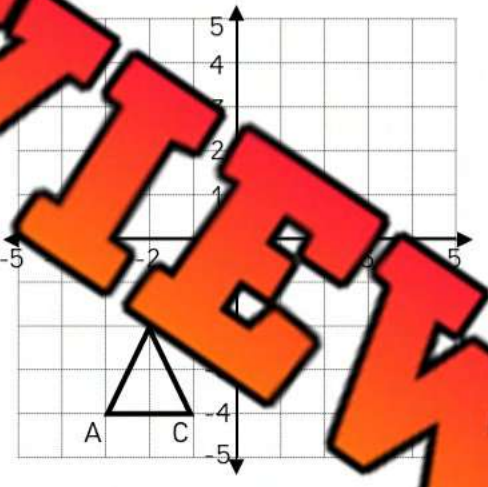
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

3) 180° rotation



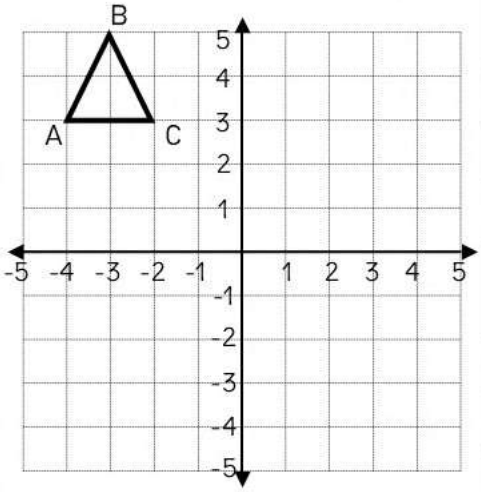
inal tes
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

90° clockwise rotation



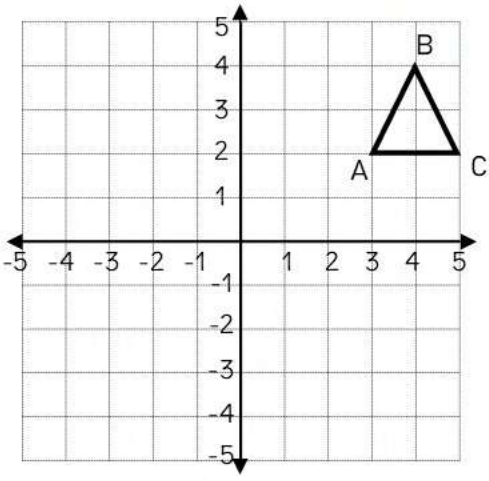
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
(,)
(,)
C(,)

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(,)

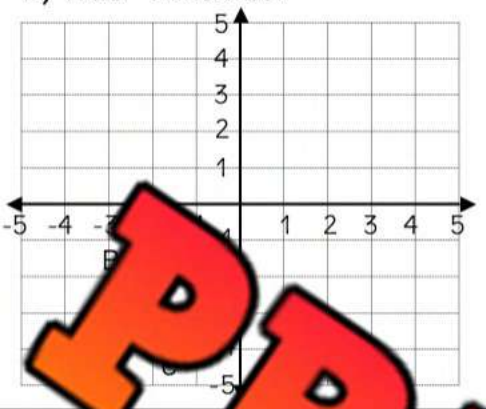
Name: _____ 158

Curriculum Connection
SS8.4

Rotating Shapes

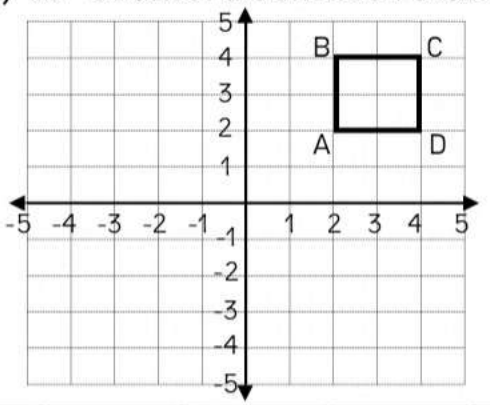
Instructions Graph the new position of each shape after the given rotation

1) 180° rotation



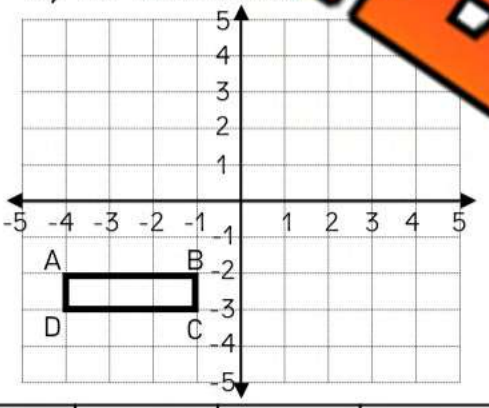
Original	A(,)			
Rotated	A(,)			

2) 90° counterclockwise rotation



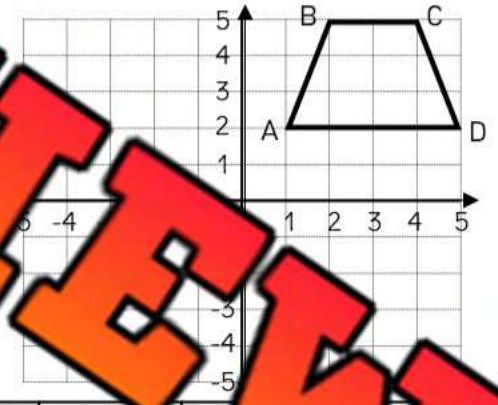
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

3) 90° clockwise rotation



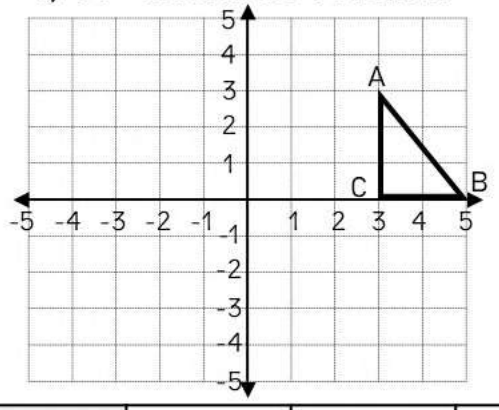
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

4) 90° counterclockwise rotation



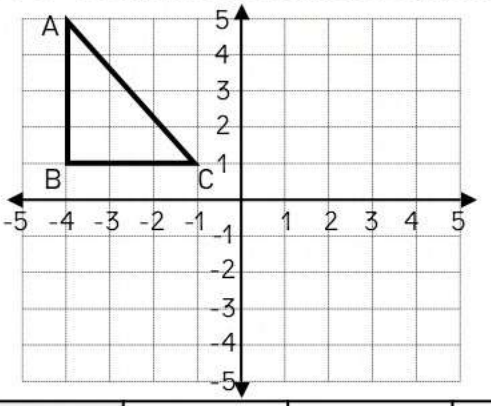
Original	A(,)	B		)
Rotated	A(,)	B(,)		D(,)

5) 90° clockwise rotation



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

6) 90° counterclockwise rotation



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

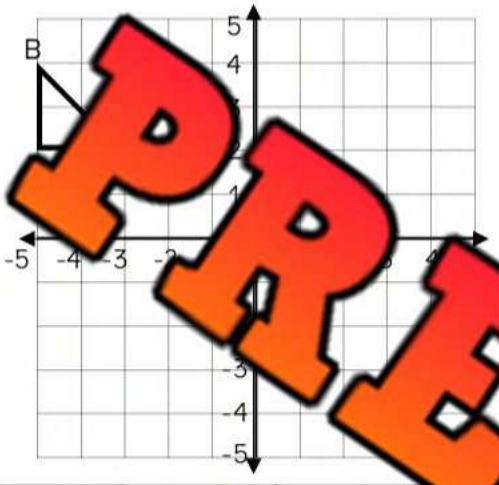
Curriculum Connection
SS8.4

Exit Cards

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

Name: _____

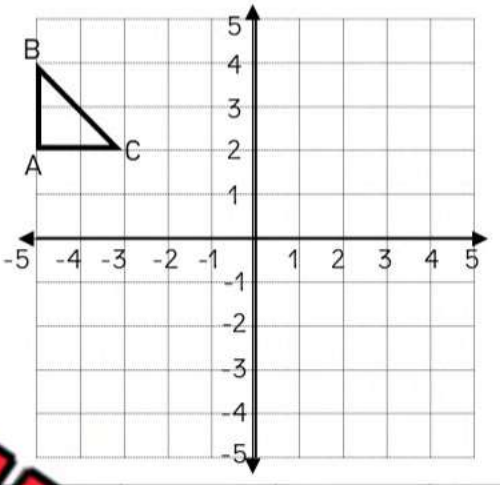
Graph the new position of shape after the 180° counterclockwise rotation.



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

Name: _____

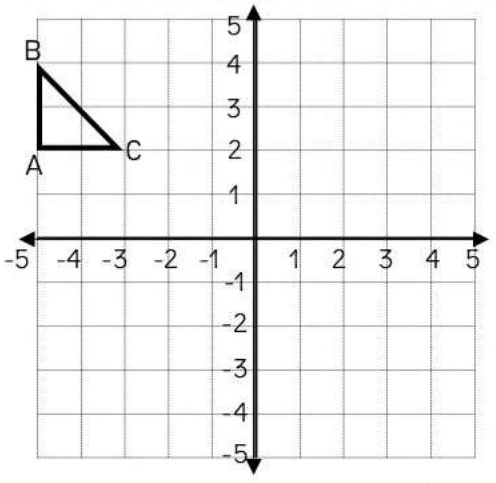
Graph the new position of shape after the 180° counterclockwise rotation.



C	A(,)	B(,)	C(,)
ed	)	B(,)	C(,)

Name: _____

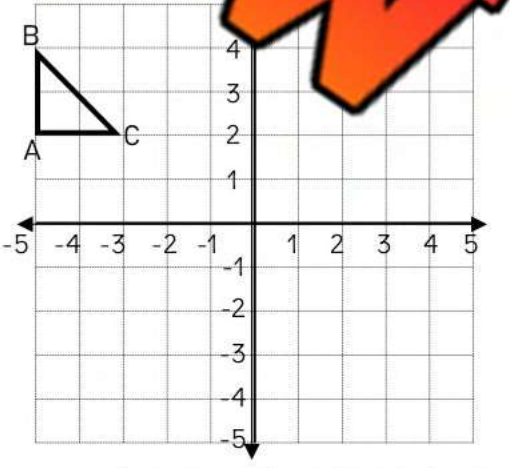
Graph the new position of shape after the 180° counterclockwise rotation.



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

Nam _____

Graph t osi ha after the 180° co erc



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

Name: _____ 160

Curriculum Connection
SS8.4

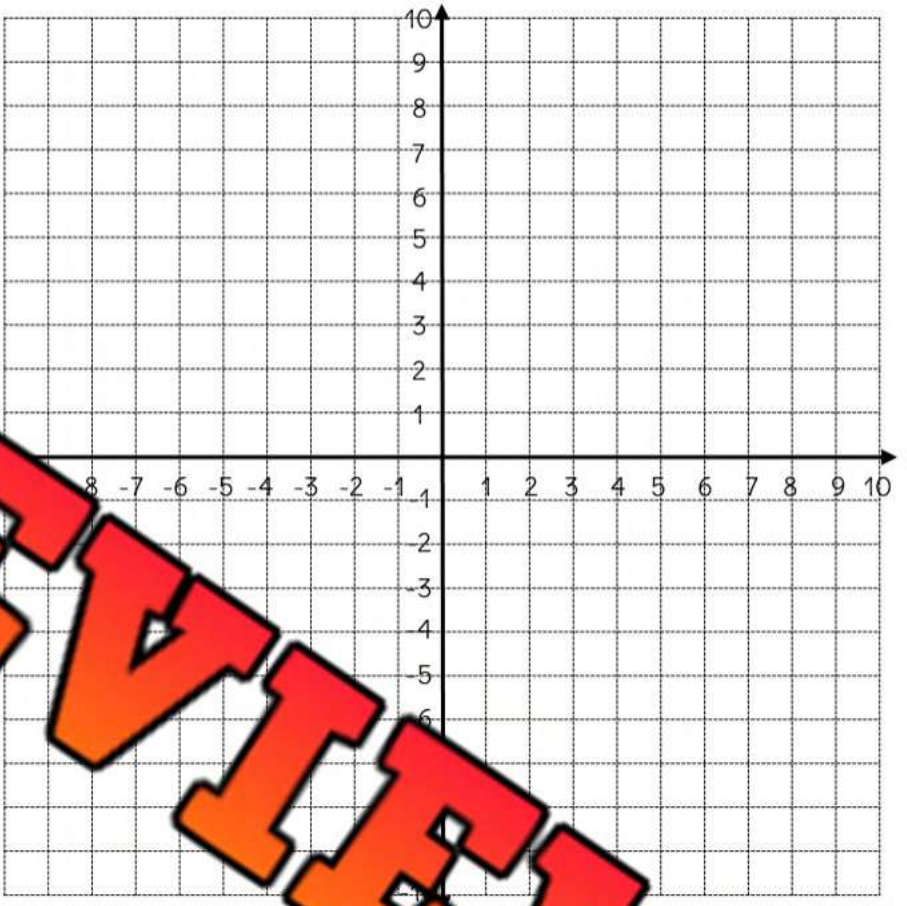
Rotations – Coordinates

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

Shape A
P(9,2), Q(6,4), R(3,2)
90° counterclockwise rotation
New Coordinates
P(,), R(,)

F(-7,), G(-9
180
New Coordi
F(,), G(,), H(

Shape C
J(-2,-9), K(-8,-6), L(-2,-2)
90° counterclockwise rotation
New Coordinates
J(,), K(,), L(,)



Part 2 Give the coordinates of each point after the rota

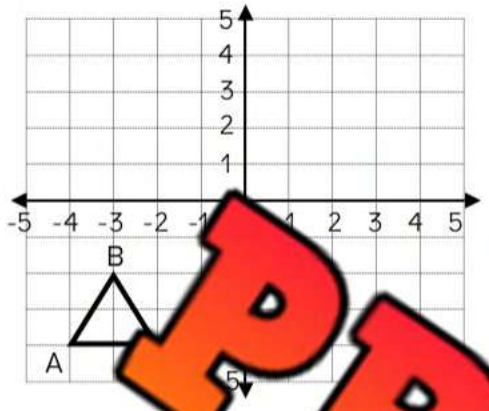
	Original Coordinate	Rotation Instructions	New Coordinates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(2, 6)	180° rotation	
3)	Q(-3, 7)	360° rotation	
4)	P(-5, -8)	90° counterclockwise rotation	
5)	T(-6, 3) Y(-2, -5)	90° clockwise rotation	
6)	S(-8, -4) R(5, 7)	180° rotation	
7)	N(-5, 5) K(6, -7)	90° clockwise rotation	
8)	P(6, -3) E(-6, 5)	180° rotation	

Name: _____ 164

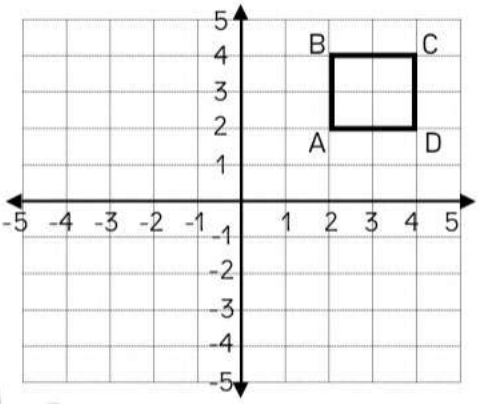
Curriculum Connection
SS8.4

Performing Multiple Transformations

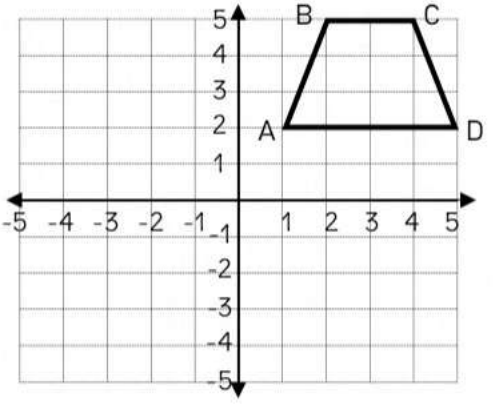
Instructions Complete the following combination of transformations



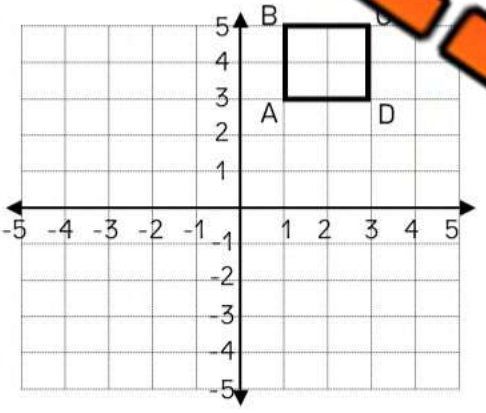
1) 180° rotation, [illegible] down 3



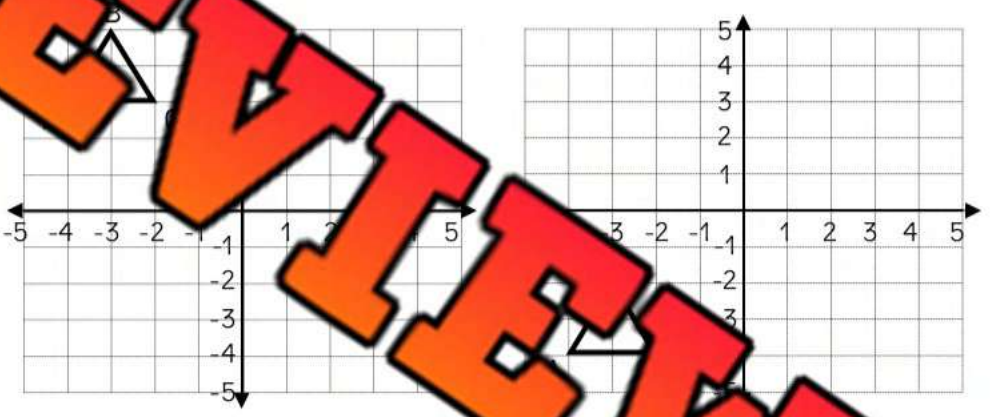
2) [illegible]ct across the x-axis [illegible]te left 4



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

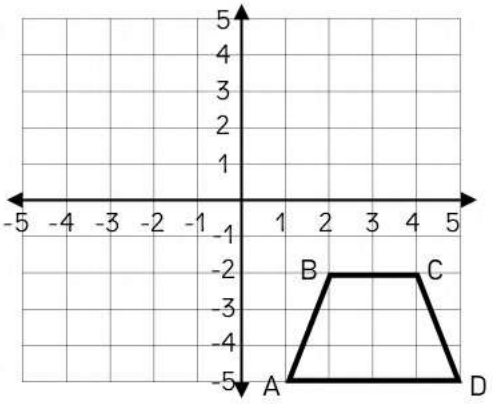


4) 90° counterclockwise rotation, translate right 3

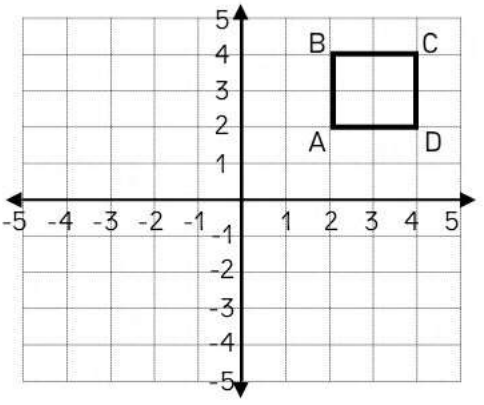


5) Translate down 3 and reflect across the y-axis

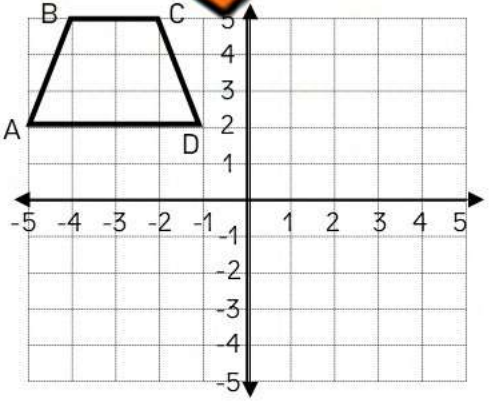
6) [illegible]-axis [illegible]up 4



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: _____ 170

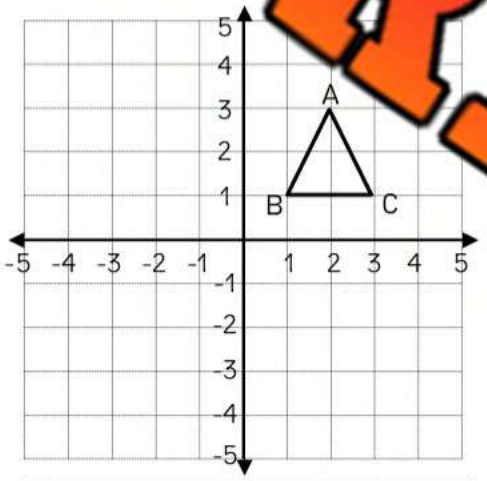
Curriculum Connection
TQ

Geometry Test

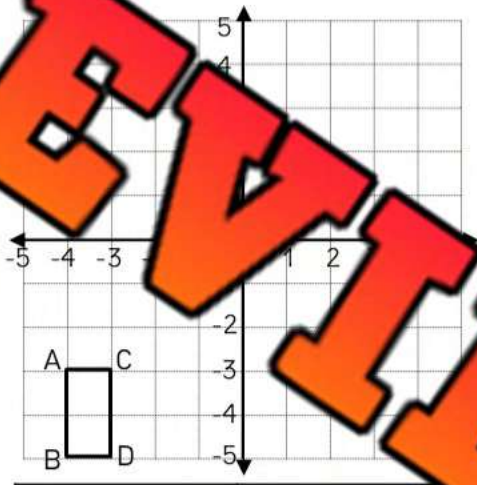
Part 1 — Give the coordinates of each point after the translation

	Original Coordinate	Translation – Mapping Rule	New Coordinates
1)	P(3, -4)	(x - 4, y + 6)	P(-3, 0)
2)	S(-5, 8)	(x + 12, y - 8)	
3)	(-9, -5)	(x + 5, y - 9)	
4)	L(-3, -8)	(x - 6, y + 11)	
5)		(x + 12, y + 7)	

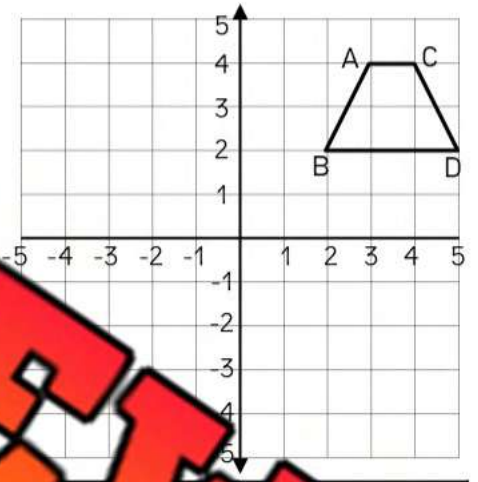
Part 2 — e shape using the mapping rule



Mapping Rule	(x - 5, y - 5)

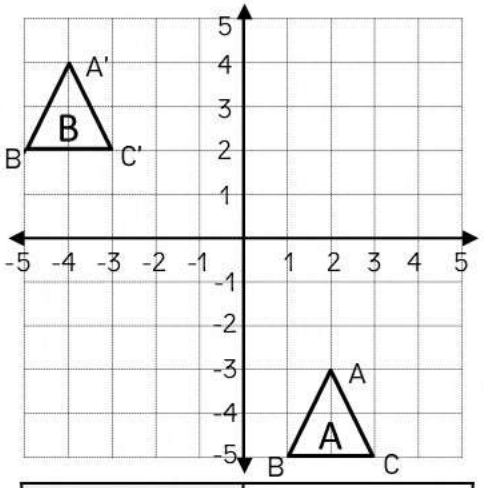


Mapping Rule	(x + 5, y + 7)

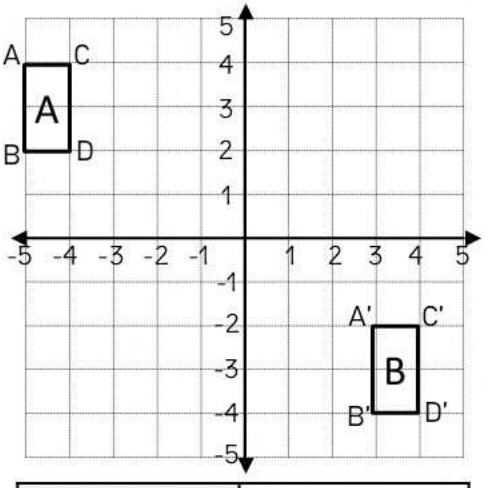


Mapp	- 5)

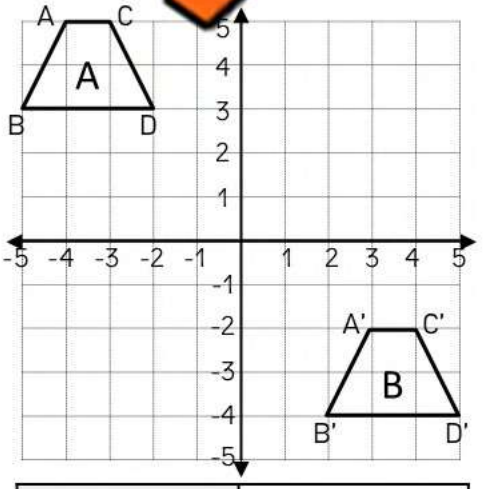
Part 3 — Fill in the mapping rule of the translations below



Mapping Rule	



Mapping Rule	

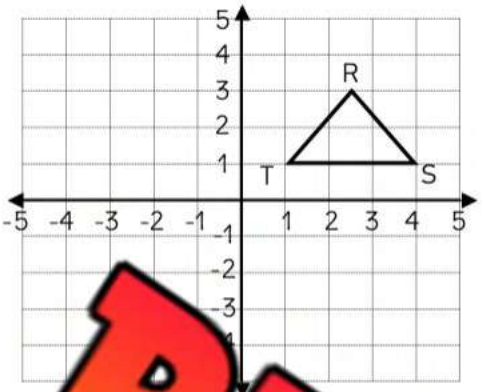


Mapping Rule	

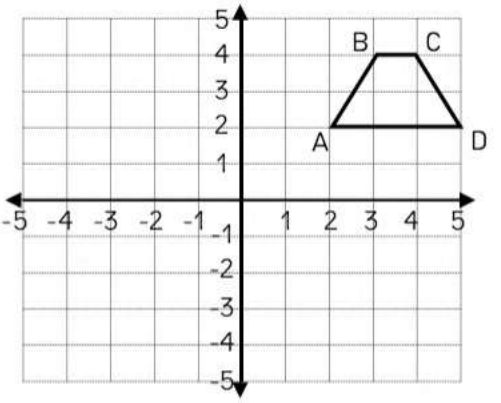
Curriculum Connection
TQ

Part 4 Graph the new position of each shape after the given reflection

1) Reflection across the line y = -1



2) Reflection across the line x = 1

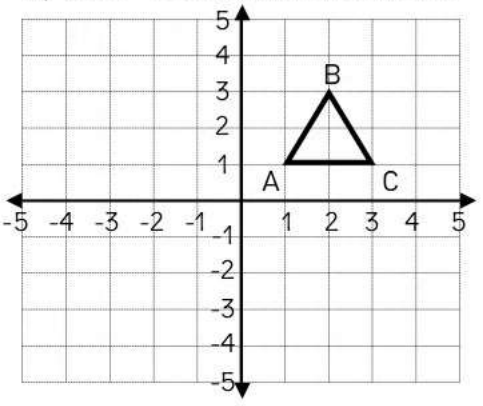


Part 5 Use [illegible]g rules to write the new coordinates after the reflection

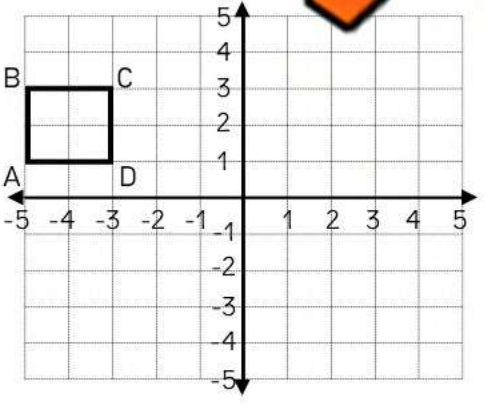
	Original [illegible]te(s)	[illegible]tion across the	New Coordinates
1)	P(7, 3)	[illegible]is	
2)	S(9, -2)	[illegible]	
3)	Q(-5, 4)	[illegible]is	
4)	P(-7, -3)	y-axi[illegible]	
5)	T(-6, 8) Y(-13, -17)	x-axis	

Part 6 Graph the new position of each shape after the [illegible]iven

1) 270° clockwise rotation



2) 90° counterclo[illegible]e rotation



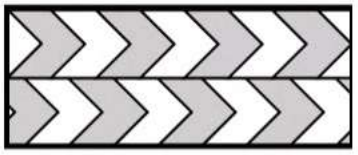
Original	A(,)	B(,)	C(,)
Rotated	A(,)	B(,)	C(,)

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

Name: _____ 172

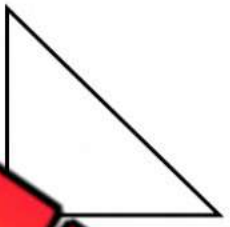
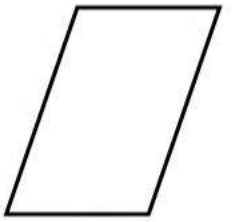
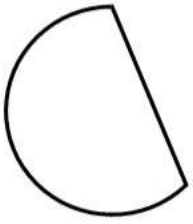
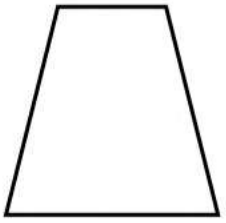
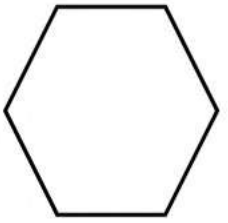
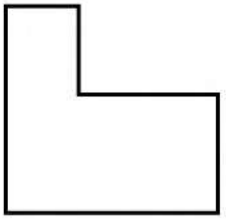
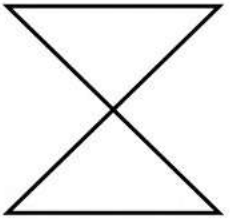
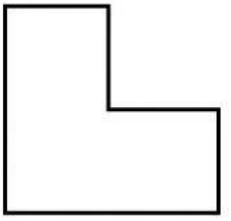
Curriculum Connection
SS8.4

Intro to Tessellations



A **tessellation** is a tiling pattern in which shapes are fitted together with no gaps or overlaps. In the example tessellation, a white and grey chevron are tiled with no gaps and are not overlapping.

Questions Can the shapes below be used by themselves in a tessellation?

		
1) Yes No	2) No	3) Yes No
		
4) Yes No	5) Yes No	6) No
		
7) Yes No	8) Yes No	9) Yes No
		
10) Yes No	11) Yes No	12) Yes No

Name: _____ 174

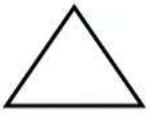
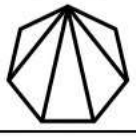
Curriculum Connection
SS8.4

Tessellating with Regular Polygons

Polygons will only tessellate if their interior angles add up to a multiple/factor of 360°. A triangle's interior angles always add up to 180°.

Instructions Use the information above to fill in the tables

Terms	Definition – What does the term mean?
Regular P	
Interior	
Su	

Regular Polygo	Triang	Sum of Interior Angles of Triangles x 180)	Multiple/Factor of 360° Yes/No
1) 			
2) 			
3) 			
4) 			
5) 			
6) 			
7) 			
8) 			

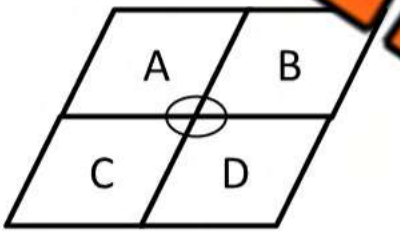
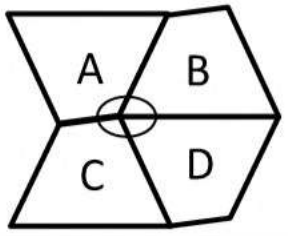
Name: _____ 175

Curriculum Connection
SS8.4

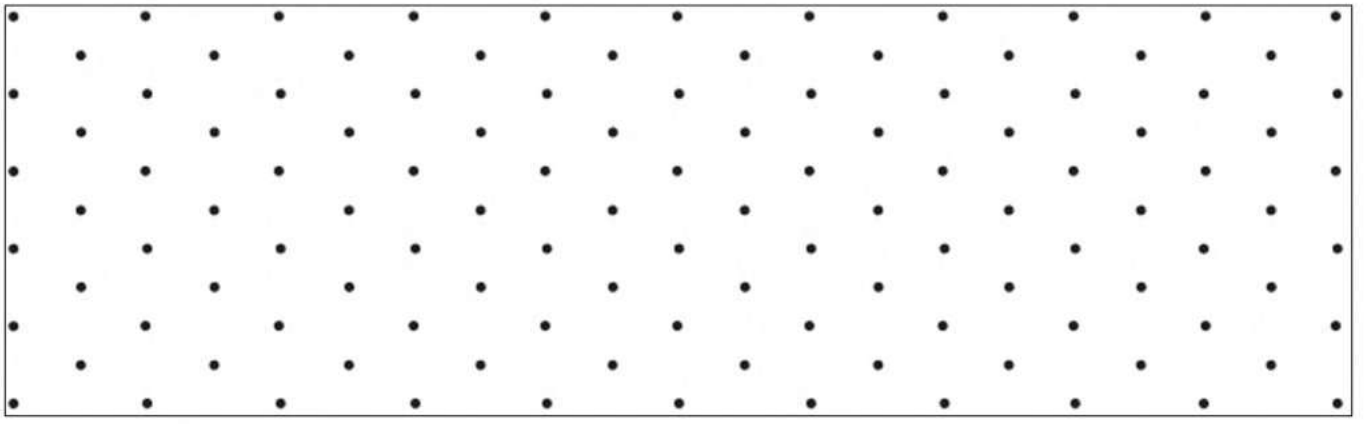
Tessellating with Quadrilaterals

Every quadrilateral can be used to tessellate the plane. This is because a quadrilateral's interior angles always add up to 360°. A regular quadrilateral is easy to tessellate, whereas an irregular quadrilateral is sometimes more challenging to fit together.

Part 1 Fill in the table below

Tessellation	Sum of the Circled Angles	Describe Transformation
		*From Shape A to Shape D*
		*From Shape A to Shape B*
		*From Shape A to Shape C*

Part 2 Create a tessellation using one or multiple quadrilaterals

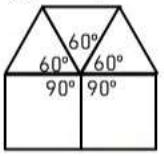


Name: _____ 176

Curriculum Connection
SS8.4

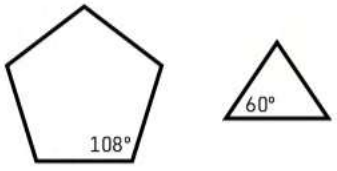
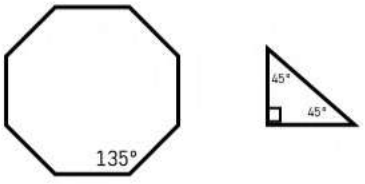
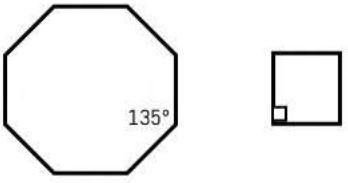
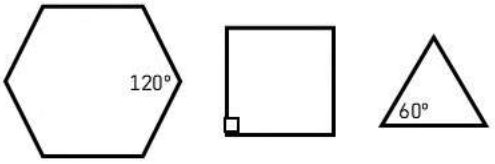
Tessellating with Different Polygons

Tessellations with different polygons are often used in artwork. When artists combine polygons, they need to ensure the vertices have interior angles that add to 360°.



Using 2 squares and 3 triangles have central vertices adding to 360° (60 + 60 + 60 + 90 + 90 = 360°)

Questions Can the polygons be combined to create a tessellation? Explain

	Yes/No	Explanation
1) 		
2) 		
3) 		
4) 		
5) 		

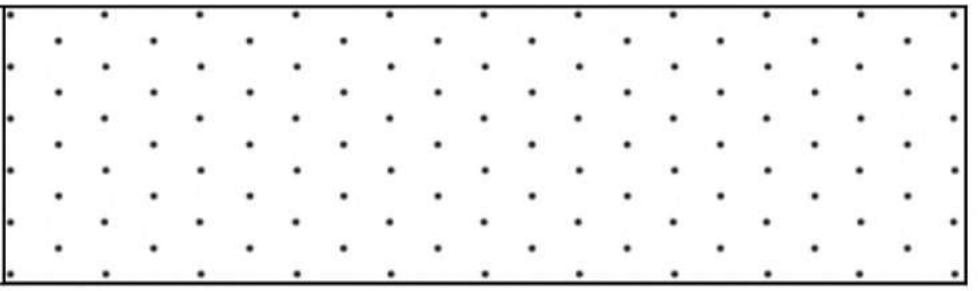
Name: _____ 177

Curriculum Connection
SS8.4

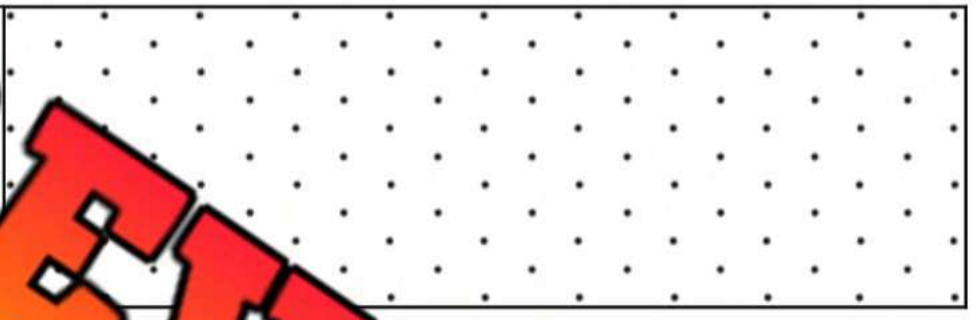
Drawing Tessellations – Combining Polygons

Draw Draw a tessellation using the combination of polygons below

1) Pentagon and Triangle

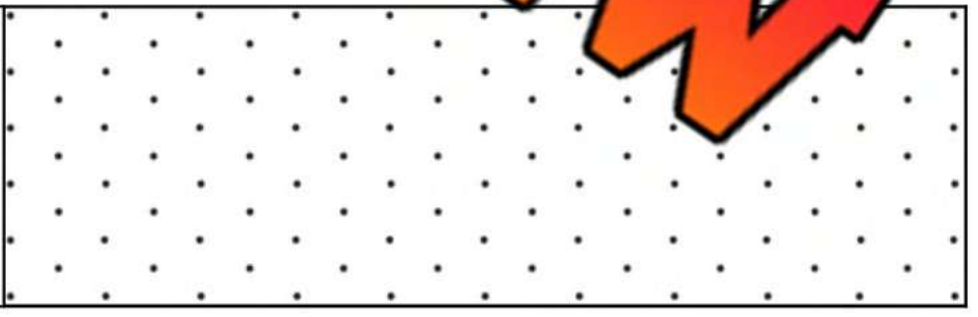


2) Sq... an...

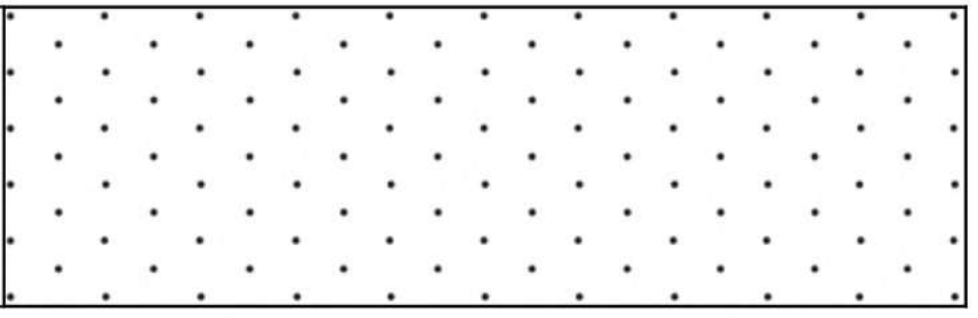


3) Octagon and Quadrilateral

4) Octagon and 2 Triangles



5) Hexagon, Quadrilateral, Triangle

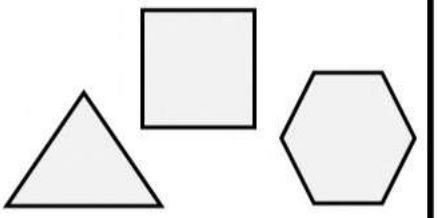


Name: _____ 178

Curriculum Connection
SS8.4

Regular Tessellations

A **regular tessellation** is composed of identically sized and shaped regular polygons. To create a regular tessellation, choose one of the regular polygons and tile them. Add colours afterwards to add to the pattern.



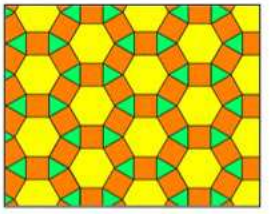
Create Create a regular tessellation below using regular triangles, squares, or hexagons

Name: _____ 179

Curriculum Connection
SS8.4

Semi-Regular Tessellations

A **semi-regular tessellation** is composed of multiple regular polygons. Only 8 combinations of regular polygons create semi-regular tessellations. To create a semi-regular tessellation, choose two or more regular polygons and tile them together.



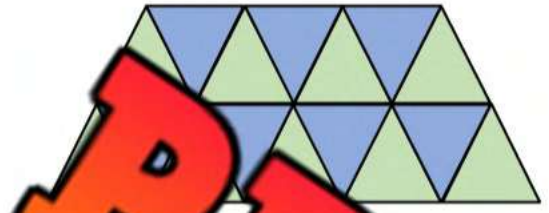
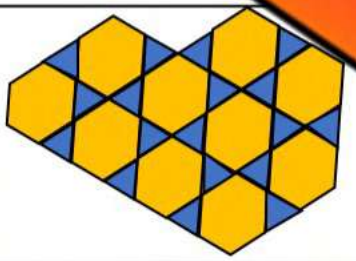
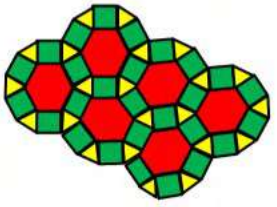
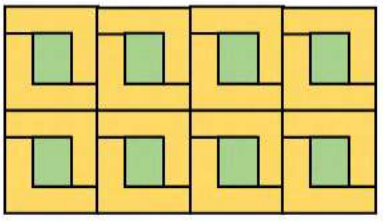
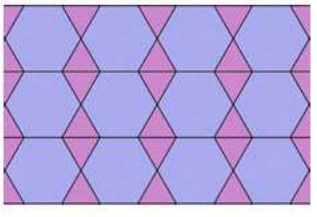
Create Create a semi-regular tessellation below. Add colour to your tessellation

Name: _____ 181

Curriculum Connection
SS8.4

Types of Tessellation

Questions What type of tessellation are the examples below?

Tessellation	Type of Tessellation Regular, Semi-Regular, Irregular
1) 	
2) 	
3) 	
4) 	
5) 	
6) 	

Curriculum Connection
SS8.4

Exit Cards

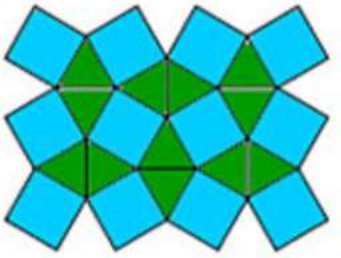
Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

What type of tessellation is the example below? Explain.

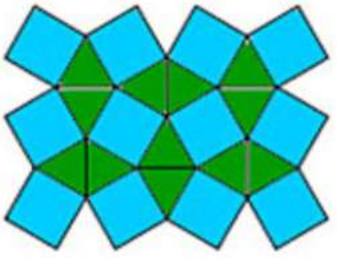
Name: _____

What type of tessellation is the example below? Explain.



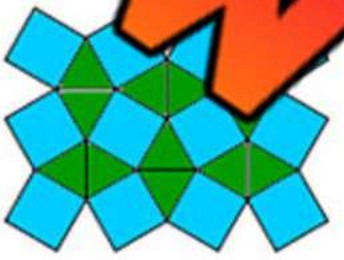
Name: _____

What type of tessellation is the example below? Explain.



Name: _____

What type of tessellation is the example below? Explain.



Name: _____ 183

Curriculum Connection
SS8.4

Creating Translation Tessellation

Directions Follow the instructions to create your own translation tessellation

When creating a tessellation, we move a "tile" repeatedly to create a pattern. We can move the tile in 4 different ways – translations, reflections, rotations, and dilations.

A **translation tessellation** is a tessellation that has been created by the translating (sliding) of a tile.

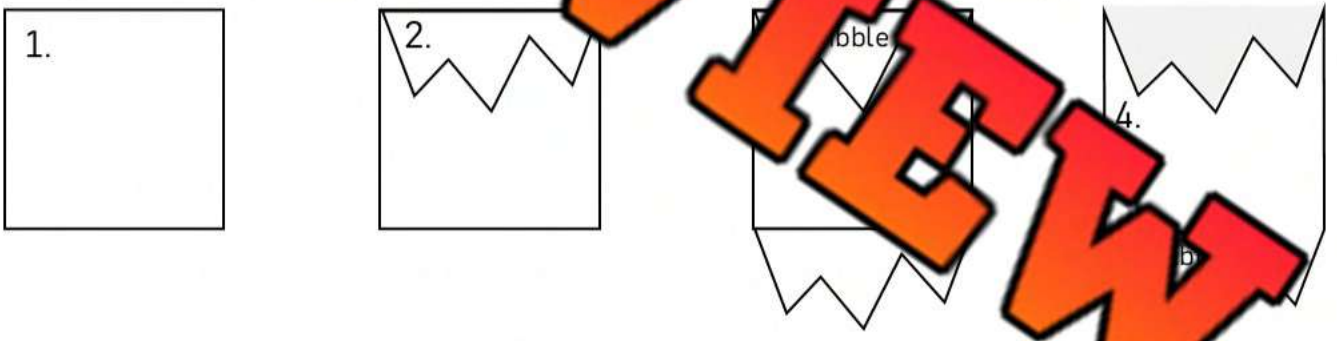
Instructio

1) Use … with strong paper, like cardboard, cardstock or index cards.

2) … a desi… pencil from one corner of the square to an adjacent corner. D… go… and do not stop halfway.

3) Cut along you… cil li… th… have two pieces. The piece that you designed is calle…

4) Translate (slide) the nibb… ce t… side and tape the straight edges together. These two pieces need t… rectly … no overlapping.

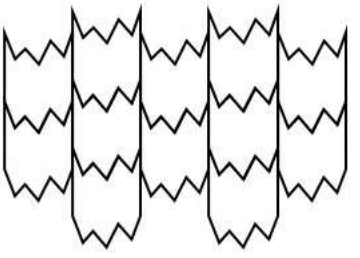


5) Place your tile on one of the four corners. To avoid having gaps, h… e corner of the paper align with the original square you started with. The first tile you trace can hang off the edge of the paper.

6) Since this is a translation tessellation, you will translate (slide) the tile so that it fits together like a puzzle.

7) Continue translating the tile until the page is covered.

8) Colour your tessellation in a pattern



Name: _____ 184

Curriculum Connection
SS8.4

Creating Translation Tessellation

Directions Follow the instructions to create your own translation tessellation

When creating a tessellation, we move a "tile" repeatedly to create a pattern. We can move the tile in 4 different ways – translations, reflections, rotations, and dilations.

A **reflection tessellation** is a tessellation that has been created by the reflecting (flipping) of a tile.

Instructio

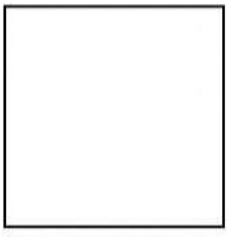
1) Us… with strong paper, like cardboard, cardstock or index cards.

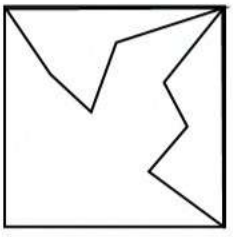
2) Cr… a des… pencil from one corner of the square to an adjacent corner. D… ago… and do not stop halfway.

3) Repeat the ste… ve … two designs to cut out

4) Cut both designs out. … d n… ieces.

5) **Reflect (flip)** the cut-out pieces a… slide … cross to their opposite side. Tape the edges together making s… they li… wit… overlapping.



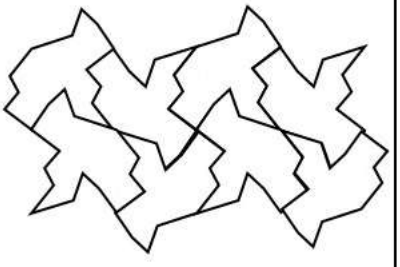


6) Place your tile on one of the four corners. To avoid having gaps, have the corner of the paper align with the original square you started with. The first tile you trace can hang off the edge of the paper.

7) Reflect (flip) the tile to fit it next to your original tile.

8) Continue reflecting the tile until the page is covered.

9) Colour your tessellation in a pattern



Name: _____ 185

Curriculum Connection
SS8.4

Creating Rotational Tessellation

Directions Follow the instructions to create your own rotational tessellation

When creating a tessellation, we move a "tile" repeatedly to create a pattern. We can move the tile in 4 different ways – translations, reflections, rotations, and dilations.

A **rotational tessellation** is a tessellation that has been created by the rotating (turning) of a tile.

Instructio

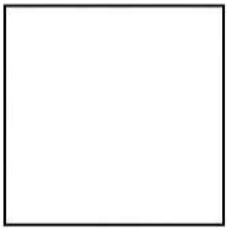
1) Use with strong paper, like cardboard, cardstock or index cards.

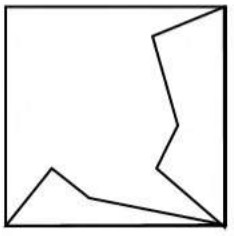
2) Cr a des pencil from one corner of the square to an adjacent corner. T rea ject, such as a bird or other animal. Do not draw diagonally ot sto

3) Repeat the step ab t you o designs to cut out

4) Cut both designs out. You uld s.

5) **Rotate** the cut-out pieces by turni hem to adj t sides – do not flip them. Tape the edges together making su line ut overlapping.



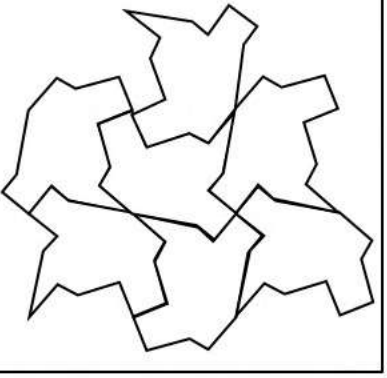


6) Place your tile on one of the four corners. To avoid having gaps, have the corner of the paper align with the original square you started with. The first tile you trace can hang off the edge of the paper.

7) Rotate (turn) the tile to fit it next to your original tile.

8) Continue rotating the tile until the page is covered.

9) Colour your tessellation in a pattern



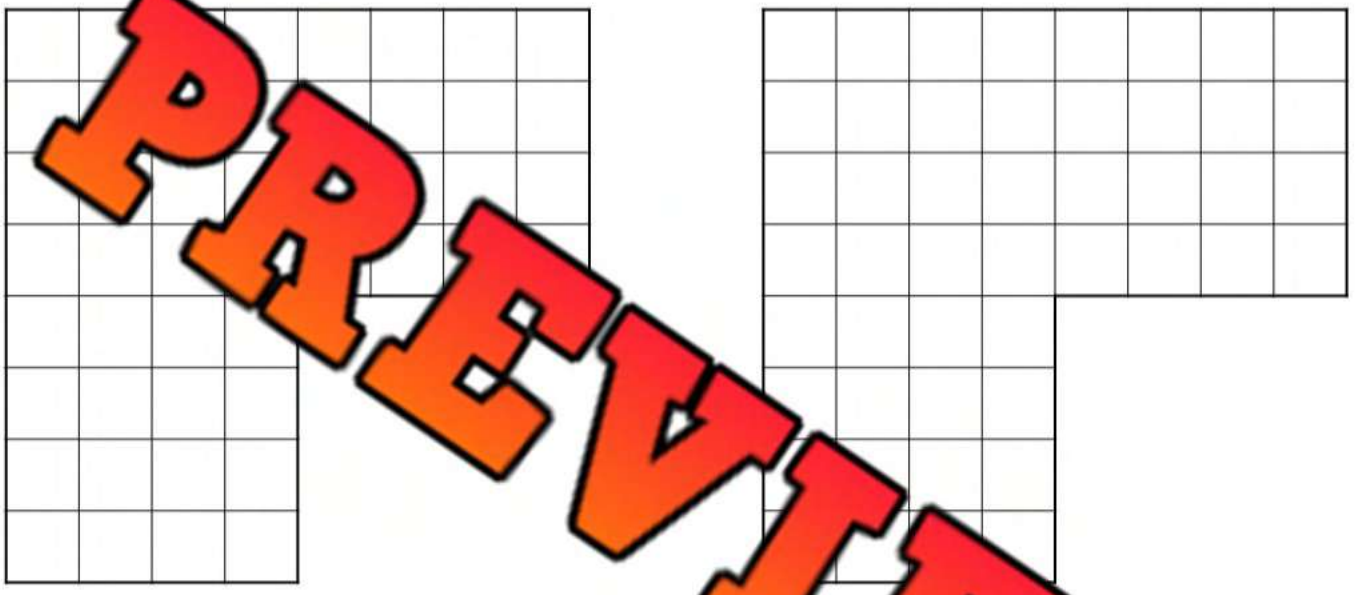
Name: _____ 187

Curriculum Connection
SS8.4

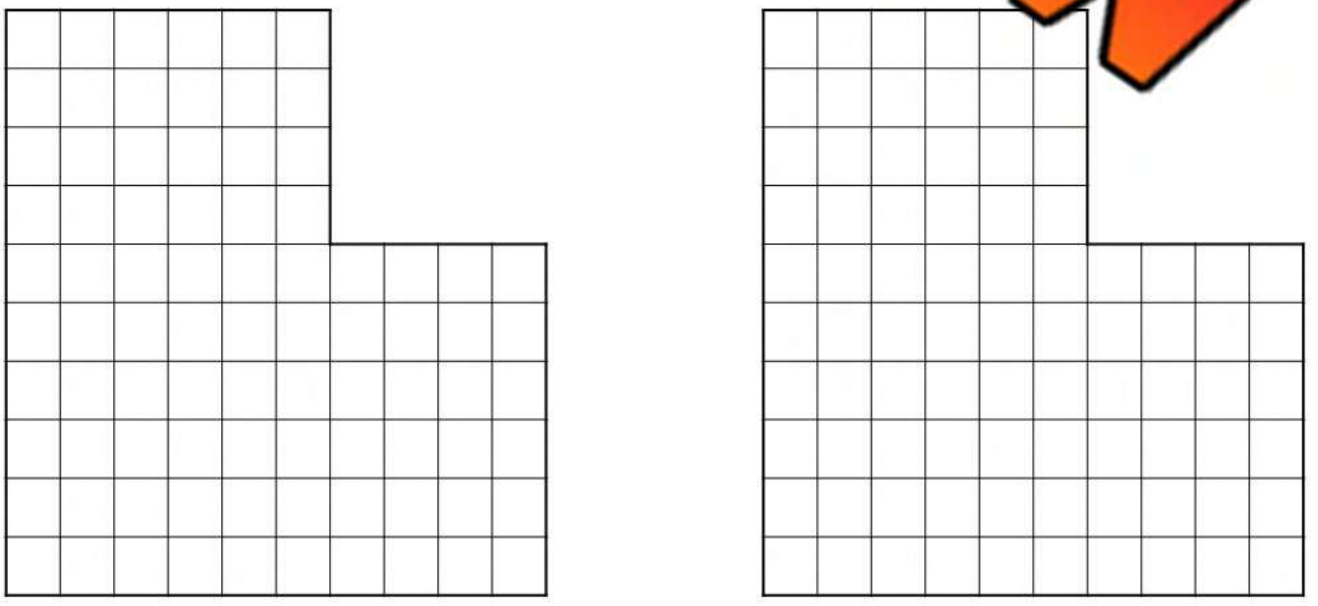
Tessellation word Problems

Instruction Answer the questions below

1) Bella is dividing her farmland into 4 equal sections for 4 different types of animals. She needs the sections to be exactly the same size. Find a single unbroken shape that will tessellate her land into 4 equal sections. Two copies of her farmland is pictures below – one for practice and one for your solution.



2) Asher owns land that he is giving to his three ch[illegible]sure he gives the exact same amount of land to each of his children, [illegible]plit it fairly. Use a single unbroken shape to tessellate the land into 3 e[illegible] different section using a different colour.

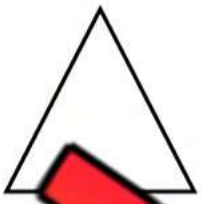
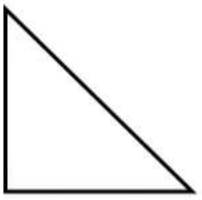
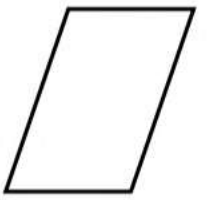


Name: _____ 188

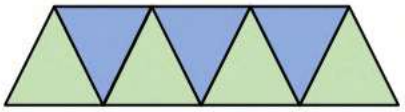
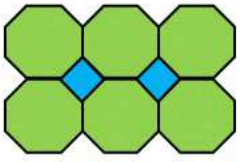
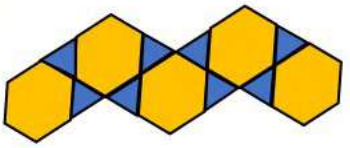
Curriculum Connection
TQ

Unit Quiz - Tessellations

Part 1 — Can the shapes below be used by themselves in a tessellation?

		
1) Yes No	2) Yes No	3) Yes No
		
4) Yes No	5) Yes No	6) Yes No

Part 2 — What type of tessellation are the examples?

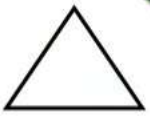
Tessellation	Type of Tessellation Regular / Irregular
1) 	
2) 	
3) 	

Curriculum Connection
TQ

Part 3 Draw a tessellation using the combination of polygons below

Pentagon and Triangle	

Part 4 ...l in the table below

Regular ...olygon	...ngl...	Sum of Interior Angles	Will the Polygon Tesselate?
1) 			
2) 			
3) 			
4) 			
5) 			
6) 			
7) 			
8)