Preview - Information

Thank you for your interest in this product. Within this preview, you will see:

- ✓ A selection of Ready-To-Use Google Slides Lessons.
- ✓ A selection of worksheets included in the workbook.

When you make a purchase, you will receive a folder that contains the .pdf workbook file and a link to where you can make a copy of the Google Slides Lessons unit to your Google Drive.

Thank you for shopping with us. Please let us know if you have any questions at:

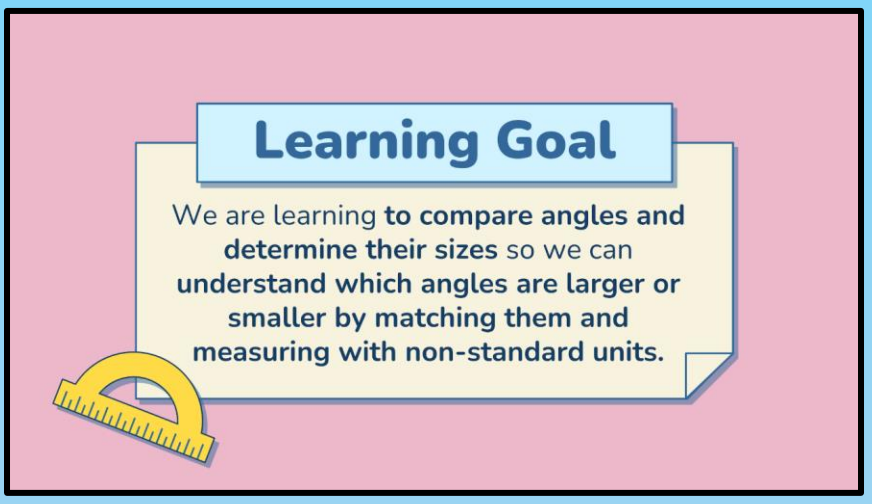
rob@supersimplesheets.com

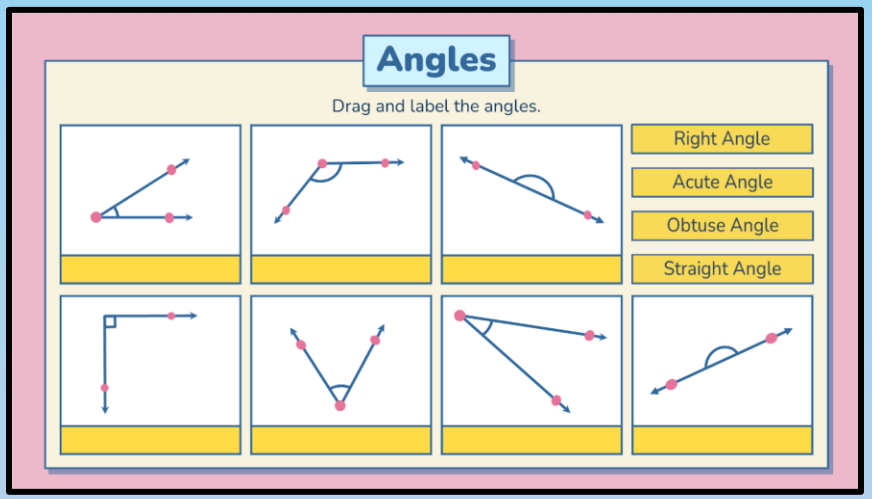
Google Slides Lessons Preview

Manitoba Math Curriculum
Shape & Space – Grade 7

3-Part Lesson Format

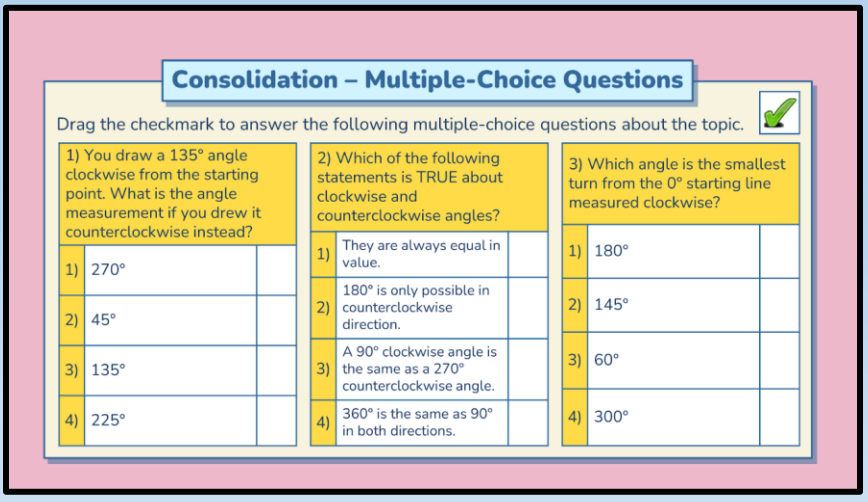
Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!



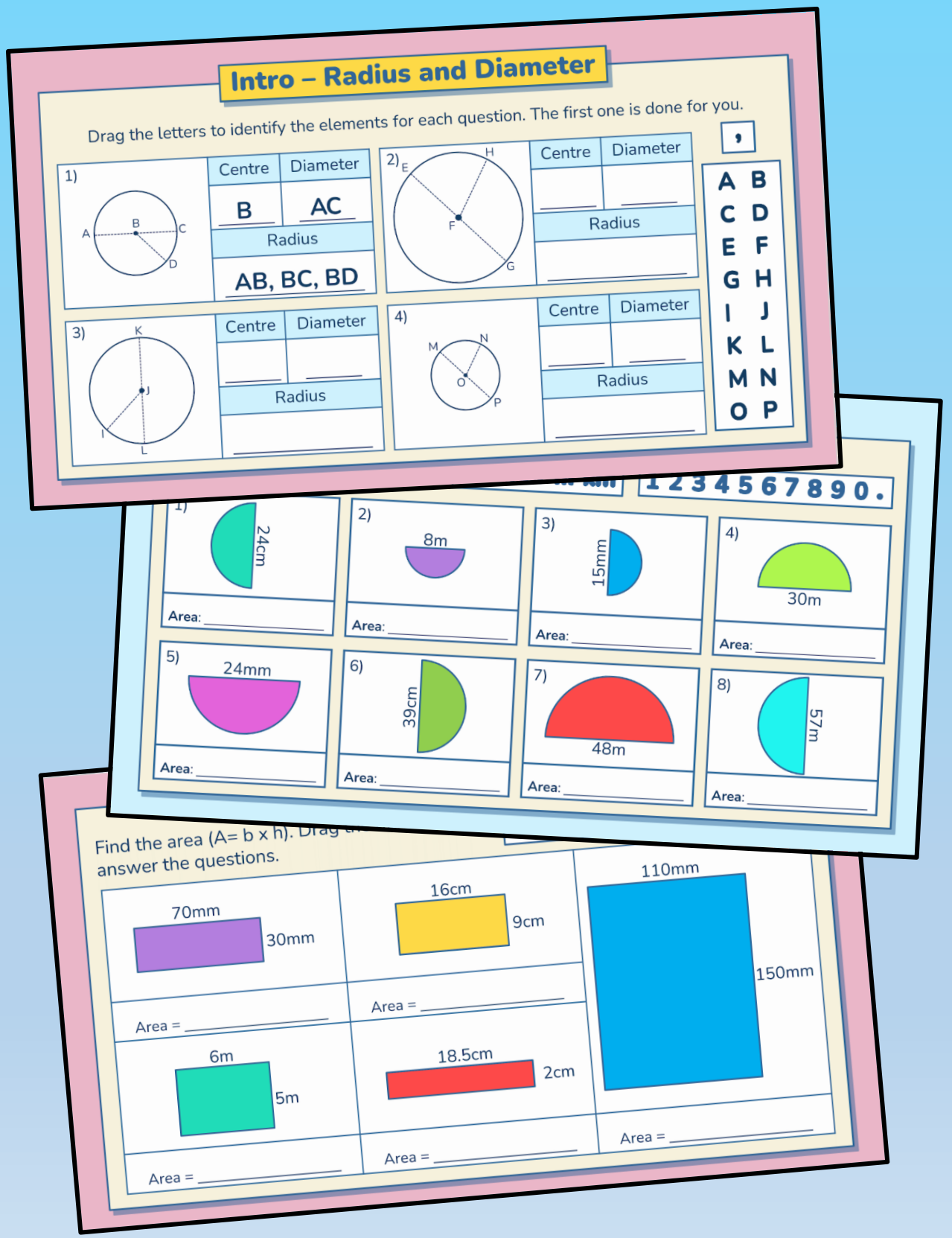


Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

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



Manitoba Math Curriculum
Shape & Space – Grade 7



Manitoba Math Curriculum
Shape & Space – Grade 7

Terms of Use

Thank you for your purchase! By purchasing this resource, you are agreeing that the contents are the property of **SuperSimpleSheets** and licensed to you only for classroom / personal use as a single user. I retain the copyright, and reserve all rights to this product. If you have any questions, **email** me at: supersimplesheetsstore@gmail.com

***Please remember to leave feedback so you will earn TpT Credits, which may be applied to your future purchases. **FOLLOW ME ON TPT**.

YOU MAY:

- ❑ Use free and purchased items for your own classroom students, or your own personal use.
- ❑ Reference this product in blog posts, at seminars, professional development, workshops, or other such venues, ONLY if both credit is given to myself as the author, and a link back to my TpT store is included in the presentation.
- ❑ Purchase licenses at a great discount for other teachers to use this resource.

YOU MAY NOT:

- ❑ Claim this work as your own, alter the files in any way, or remove copyright / watermarks.
- ❑ Sell the files or combine them into another unit for sale / free.
- ❑ Post this document for sale / free elsewhere on the internet (this includes Google Doc links on blogs).
- ❑ Making copies of purchased items to share with others is strictly forbidden and is a violation of the TOU / law.

THANK YOU!

Super Simple Sheets

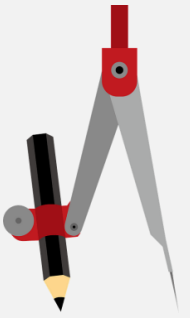
Join Our Mailing List for FREEBIES and News on our Products

Check out my Website, Instagram, and Pinterest Accounts

Table of Contents

Grade 7 – Manitoba Math Curriculum – This resource covers all outcomes in the Grade 7 - Manitoba Math Curriculum - **Strand:** Shape and Space: Measurement, 3-D Objects and 2-D Shapes, and Transformations.

There are **227 activity sheets** for your students to learn and practice the specific outcomes in the curriculum. Using this resource will ensure that your students will be learning the Manitoba curriculum. We have studied the curriculum so that you can focus on delivering the content as opposed to creating materials.



Some of the concepts that are covered:

- Radius, diameter, and circumference of circles
- Relating circumference to pi
- Constructing circles with a given radius or diameter
- Solving word problems involving radii, diameters, and circumferences of circles
- Determining the area of triangles, parallelograms, and circles
- Calculating the area of compound shapes made up of triangles, parallelograms and rectangles.
- Determining the area of semi-circles
- Rays, lines, line segments and points
- Constructing perpendicular line segments and perpendicular bisectors using graph paper, a protractor, and a compass
- Constructing parallel line segments using graph paper, a protractor, and a compass
- Constructing angle bisectors using a compass
- Labeling each of the four quadrants on a cartesian plane
- Identify and plot points in the four quadrants of a cartesian plane
- Translations, reflections, and rotations of up to 360 degrees on a cartesian plane

This is a MASSIVE unit that will save you hours of planning! It has been tested and found effective to helping students achieve the learning goals setup by the Ministry of Education.

Grade 7

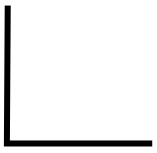
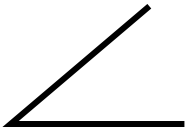
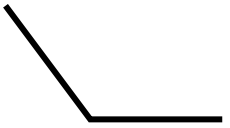
SHAPE AND SPACE (Measurement)

	Curriculum Expectations	**Pages That Cover the Expectations**
SS.1	Demonstrate an understanding of circles by: · describing the relationships among radius, diameter and circumference · relating circumference to pi · determining the sum of the central angles · constructing circles with a given radius or diameter · solving problems involving the radii, diameters and circumferences of circles	3 – 33, 37 – 40
SS.2	Develop and apply a formula for determining the area of: · triangles · parallelograms · circles	34 – 38, 41 – 42, 46 – 61

Name: _____ 3

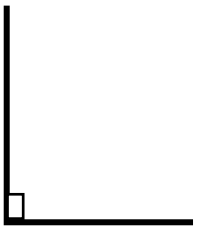
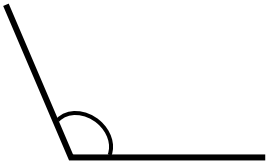
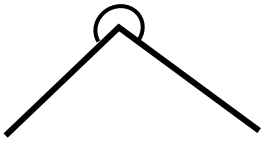
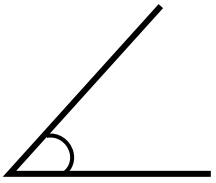
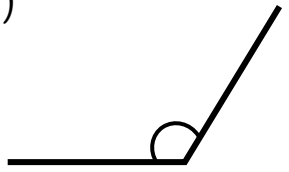
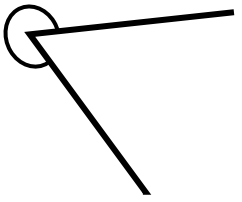
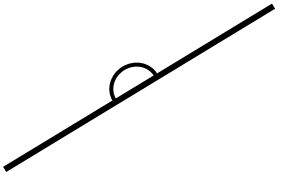
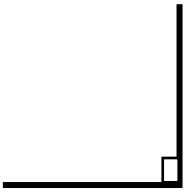
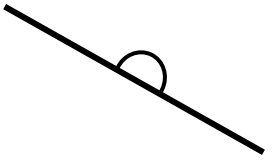
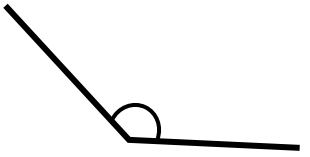
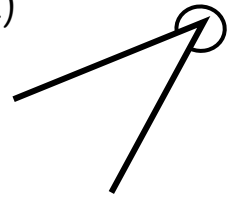
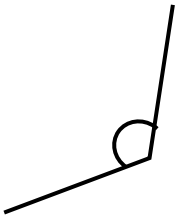
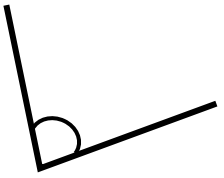
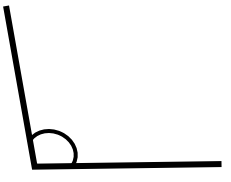
Curriculum Connection
SS.1

Naming Angles - Right, Obtuse, Acute, Straight, and Reflex

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

Questions

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

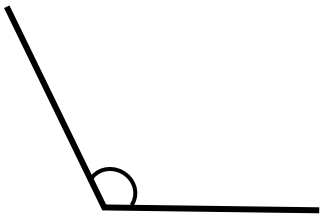
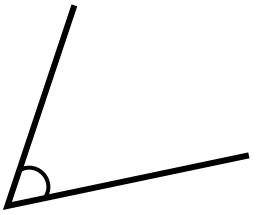
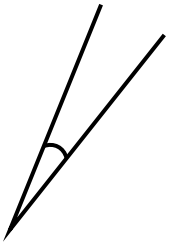
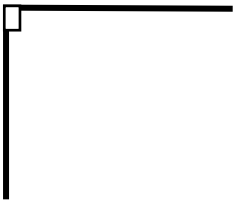
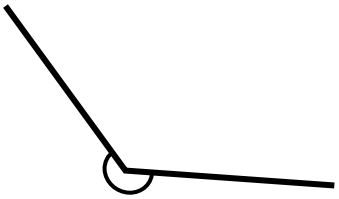
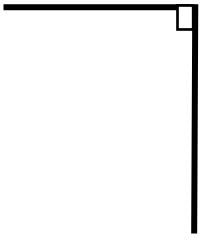
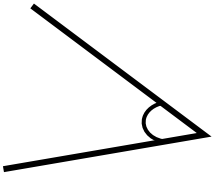
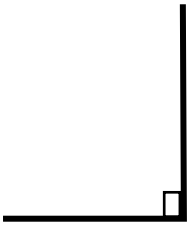
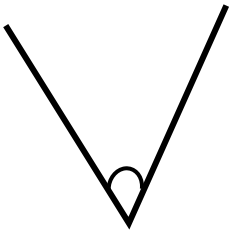
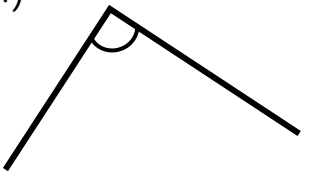
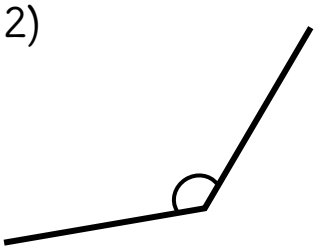
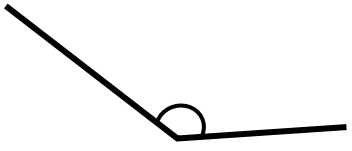
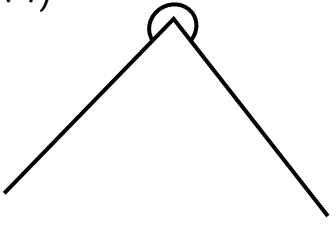
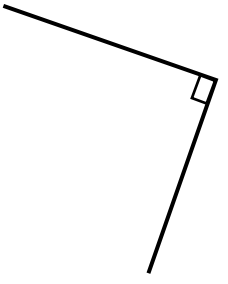
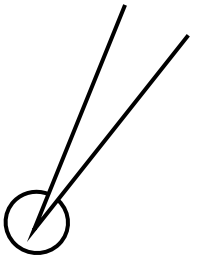
1) 	2) 	3) 	4) 
5) 	6) 	7) 	8) 
9) 	10) 	11) 	12) 
13) 	14) 	15) 	16) 

Name: _____ 4

Curriculum Connection
SS.1

Naming Angles - Right, Obtuse, Acute, and Reflex

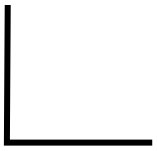
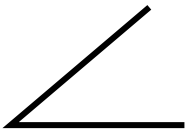
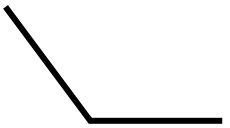
Questions Label the angle – acute, obtuse, right, or reflex

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

Name: _____ 5

Curriculum Connection
SS.1

Drawing Angles - Right, Obtuse, Acute, and Reflex

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

Questions Draw acute, obtuse, right, and reflex angles below

1)	2)	3)	4)
Acute	Obtuse	Right	Reflex

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

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

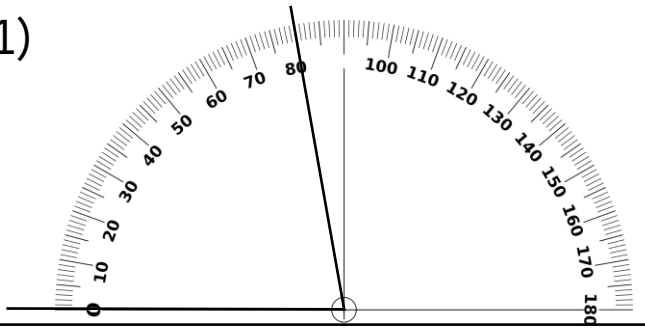
Name: _____ 6

Curriculum Connection
SS.1

Measuring Angles - Printed Protractor

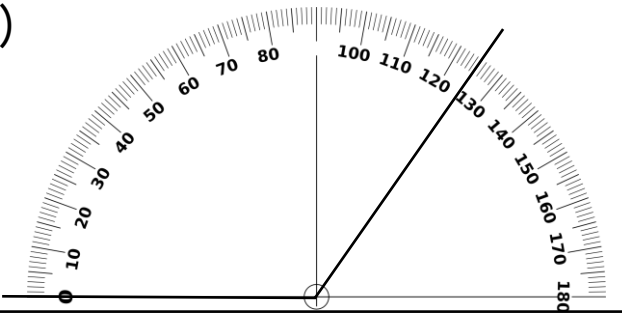
Questions Measure the angles and label them <u>acute</u>, <u>right</u> or <u>obtuse</u>

1)



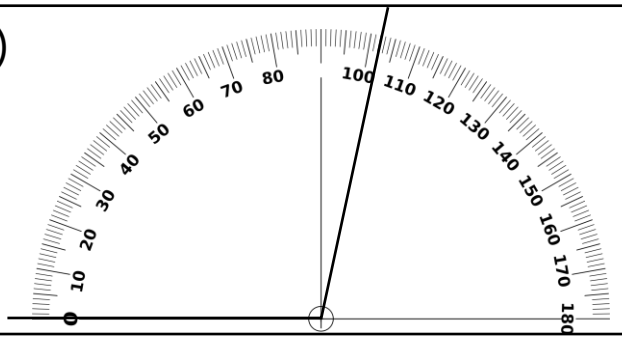
Angle = Type of Angle =

2)



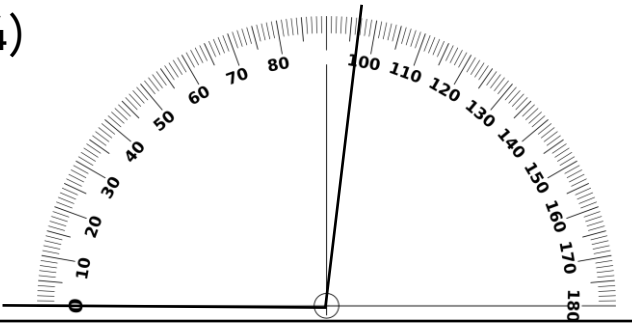
Angle = Type of Angle =

3)



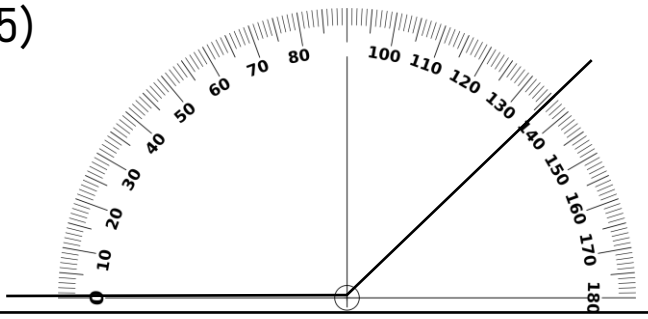
Angle = Type of Angle =

4)



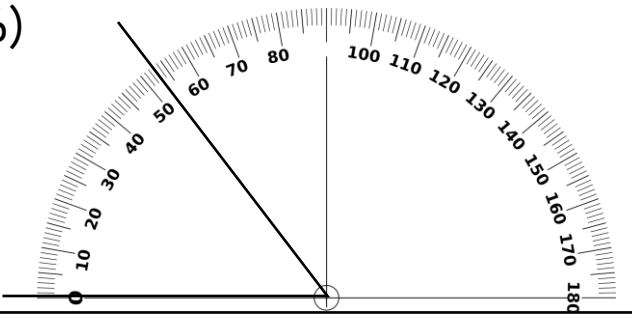
Angle = Type of Angle =

5)



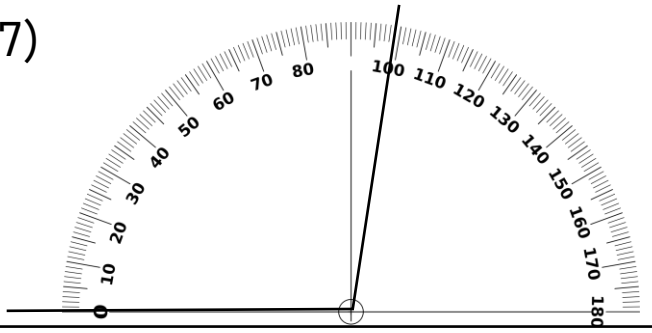
Angle = Type of Angle =

6)



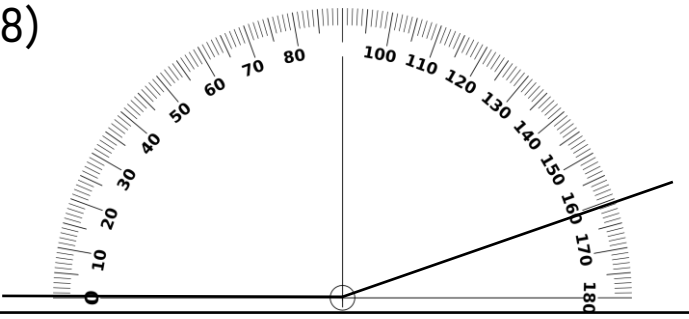
Angle = Type of Angle =

7)



Angle = Type of Angle =

8)



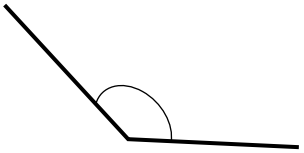
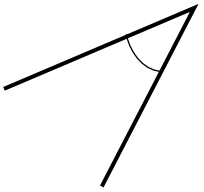
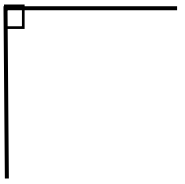
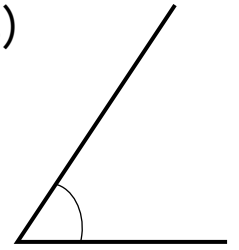
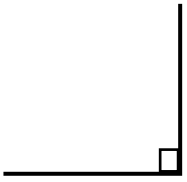
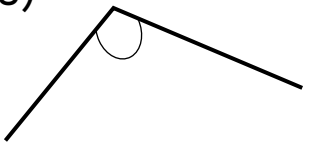
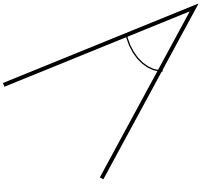
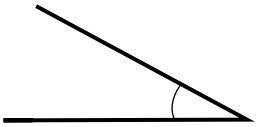
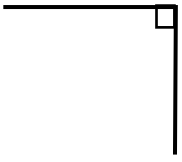
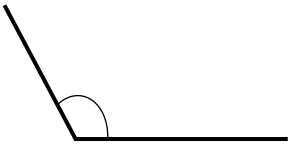
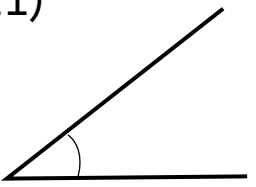
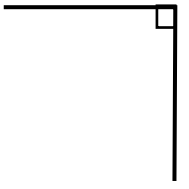
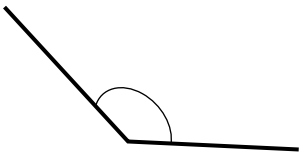
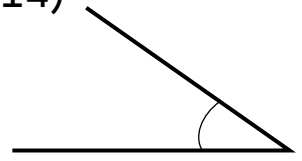
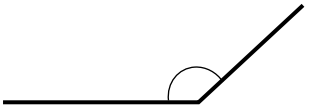
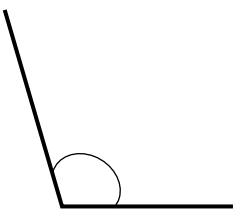
Angle = Type of Angle =

Name: _____ 7

Curriculum Connection
SS.1

Measuring Angles Up To 180°

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

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

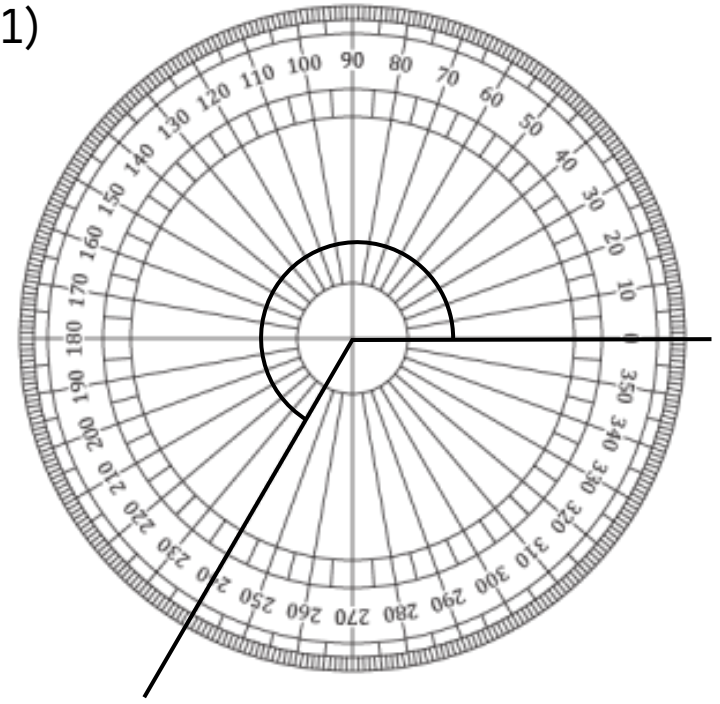
Name: _____ 8

Curriculum Connection
SS.1

Using Printed Protractor - Angles Up To 360°

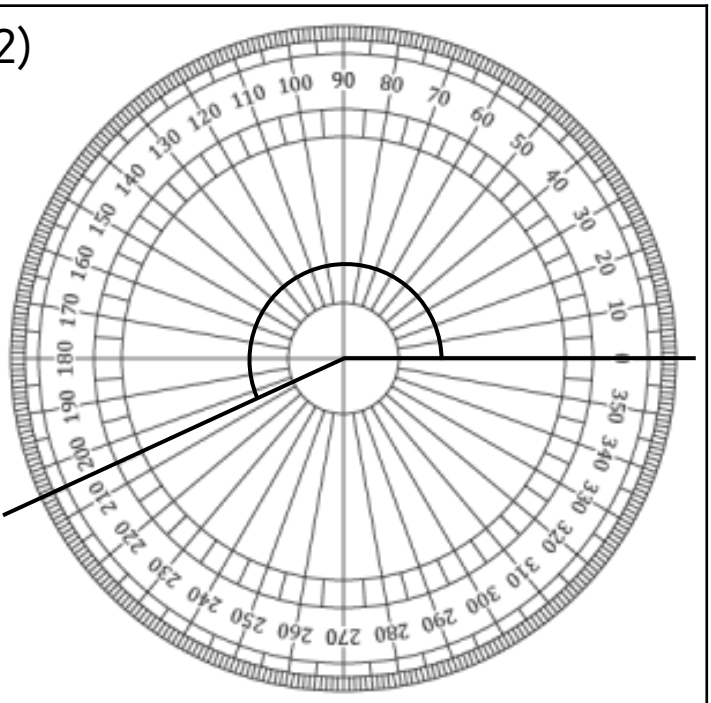
Questions Measure the angles below using the circular protractor

1)



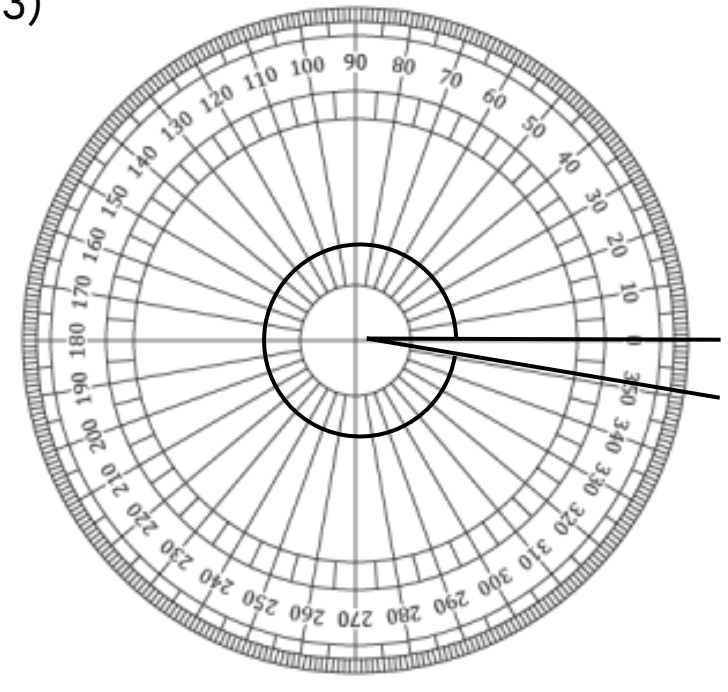
Angle = Type of Angle =

2)



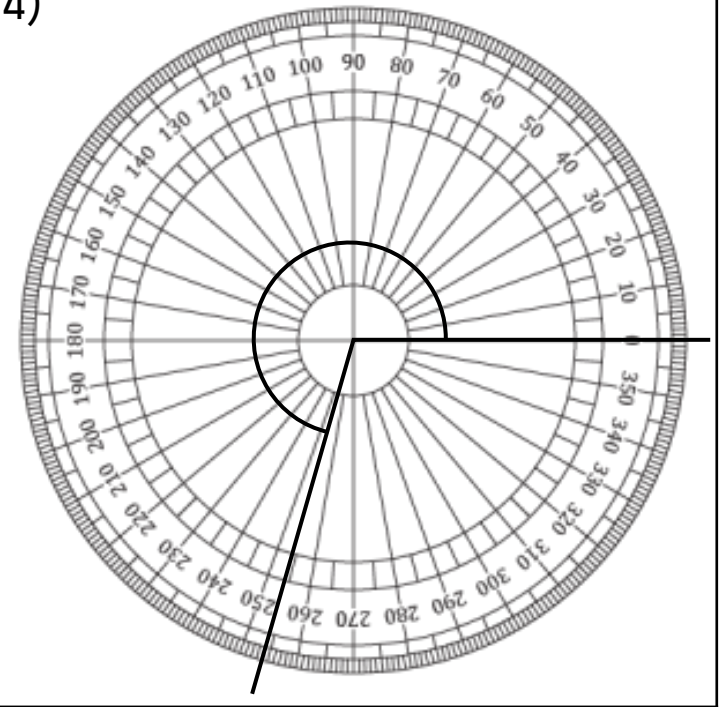
Angle = Type of Angle =

3)



Angle = Type of Angle =

4)



Angle = Type of Angle =

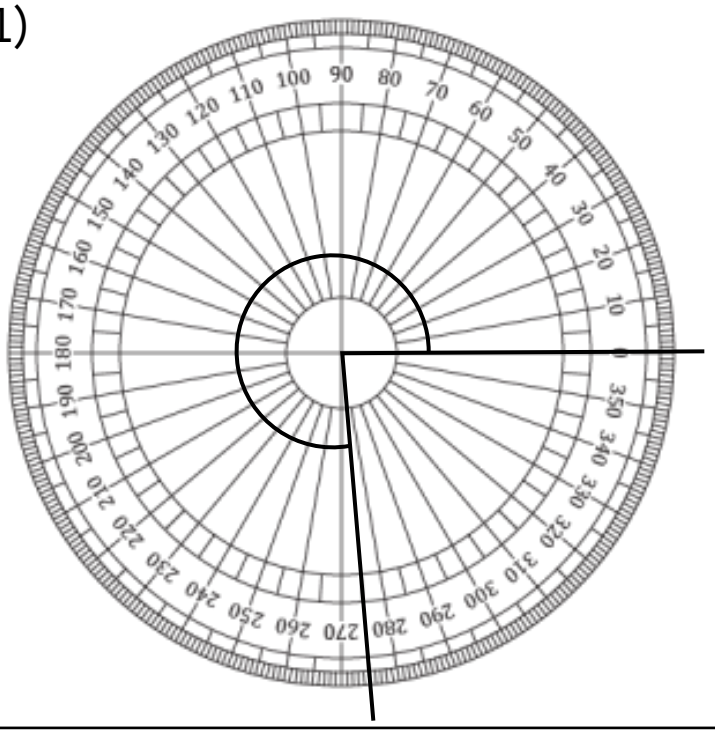
Name: _____ 9

Curriculum Connection
SS.1

Using Printed Protractor - Angles Up To 360°

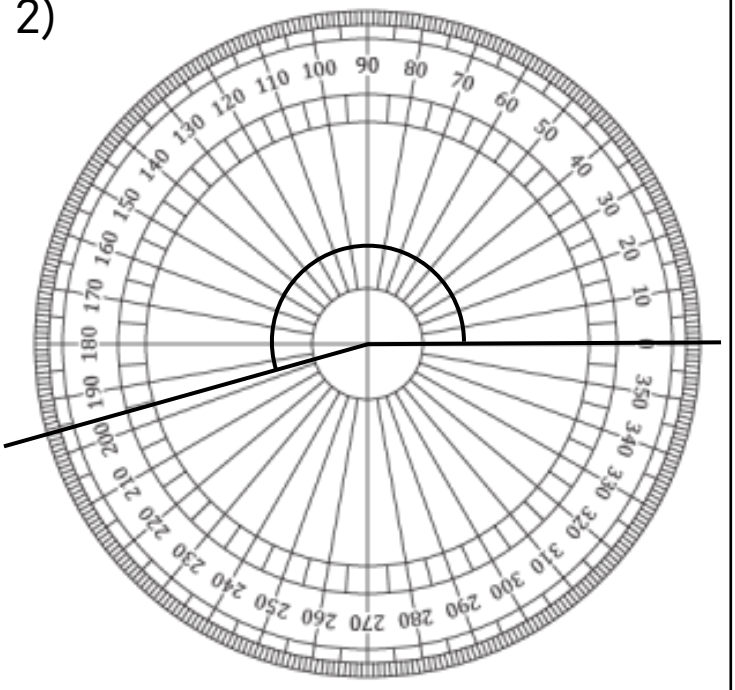
Questions Measure the angles below using the circular protractor

1)



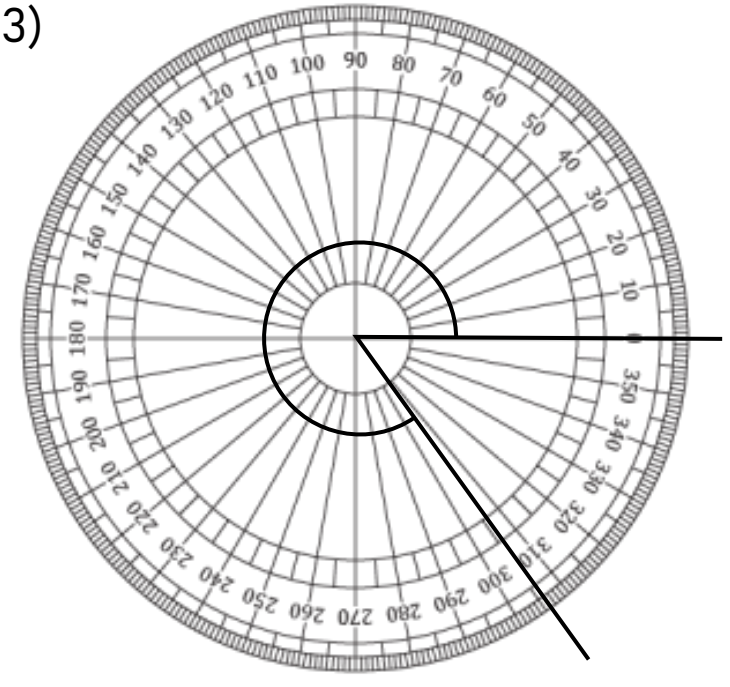
Angle = Type of Angle =

2)



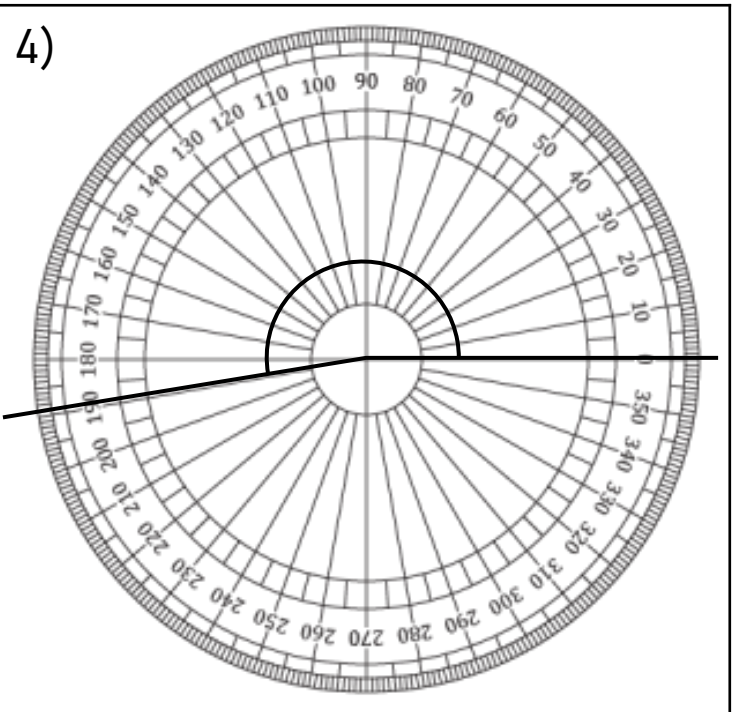
Angle = Type of Angle =

3)



Angle = Type of Angle =

4)



Angle = Type of Angle =

Name: _____ 10

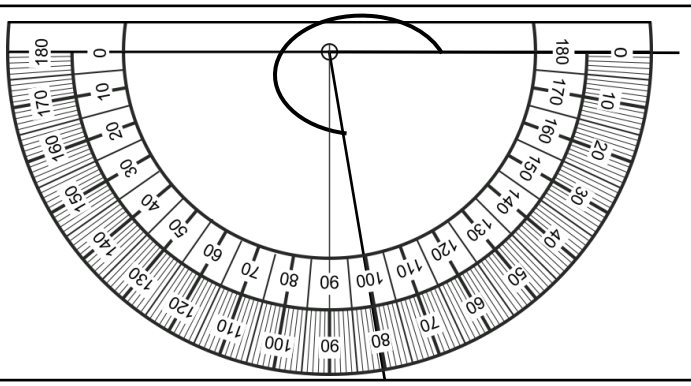
Curriculum Connection
SS.1

Measuring Angles Up To 360°

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

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

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



Solution

Strategy 1

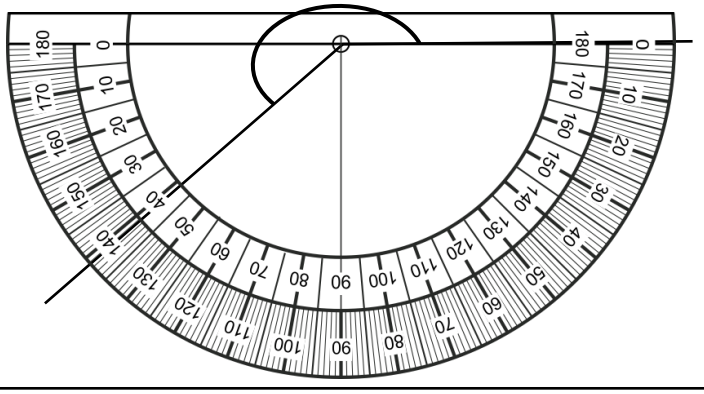
180 + 100 = 280

Strategy 2

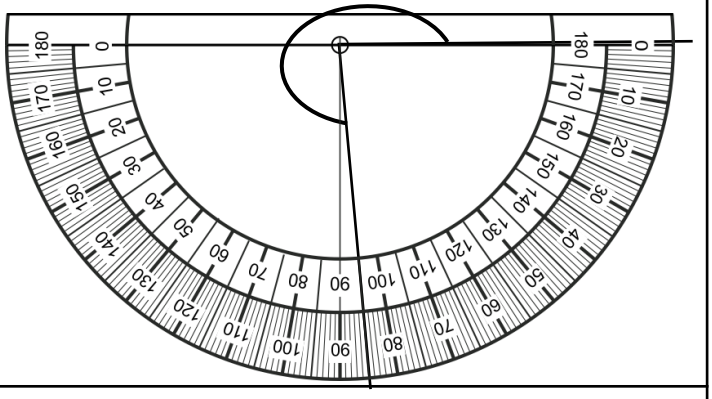
360 – 80 = 280

Questions

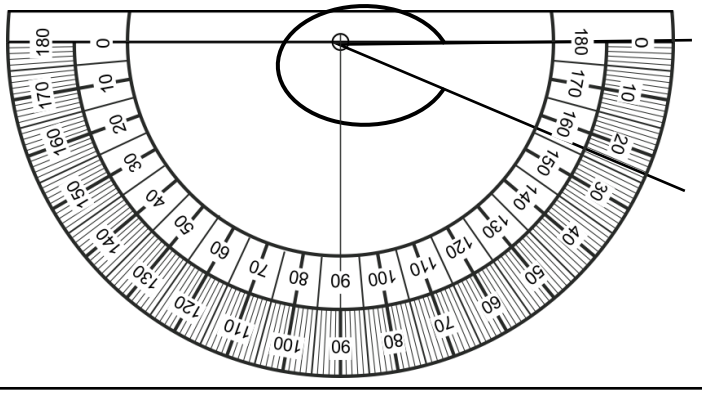
Measure the reflex angles below



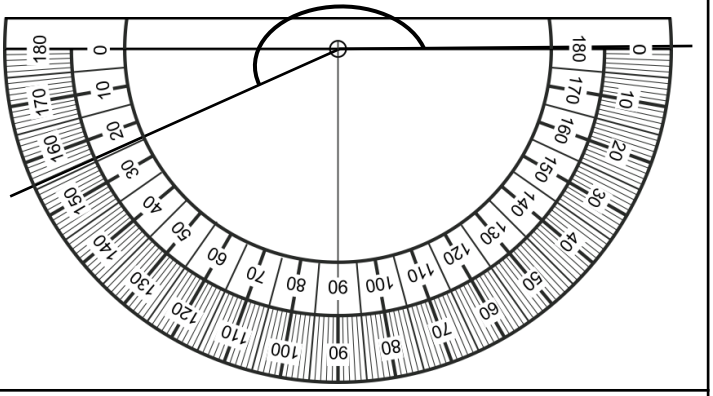
1) Angle Size =



2) Angle Size =



3) Angle Size =



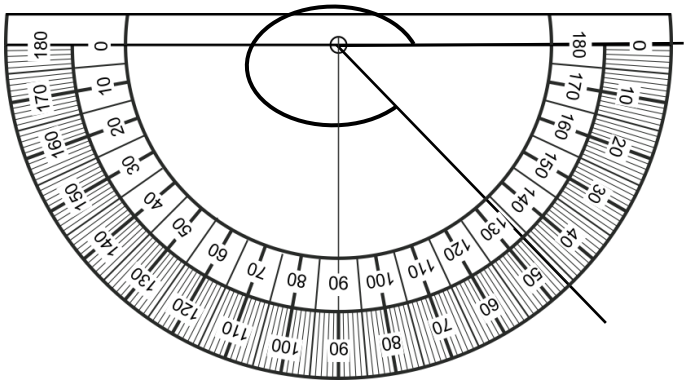
4) Angle Size =

Name: _____ 11

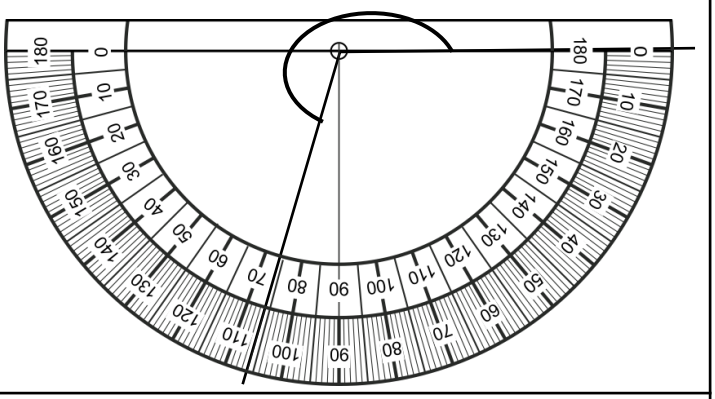
Curriculum Connection
SS.1

Measuring Angles Up To 360°

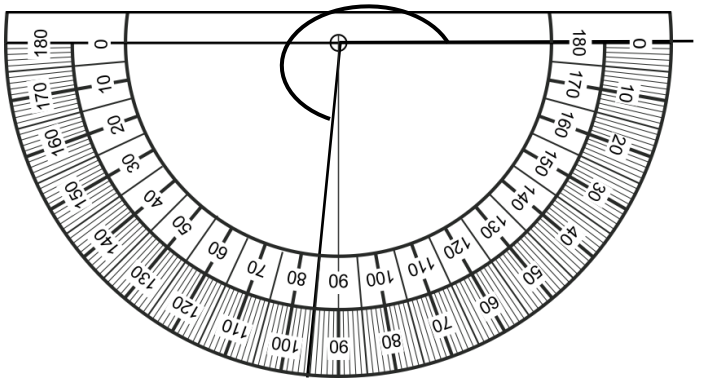
Questions Measure the reflex angles below



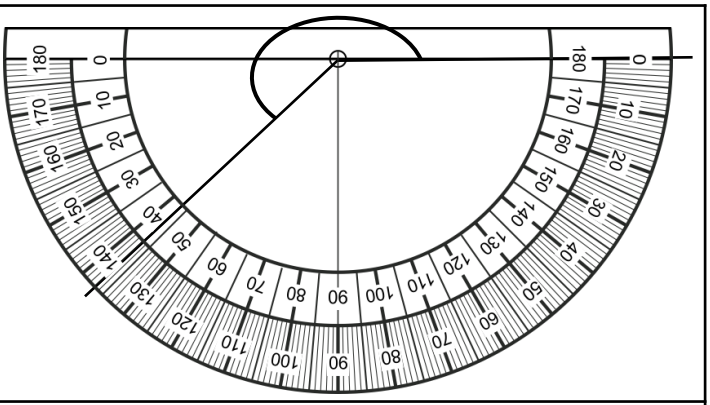
1) Angle Size =



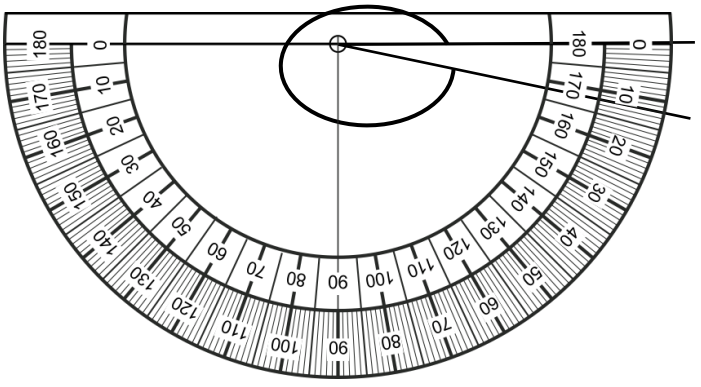
2) Angle Size =



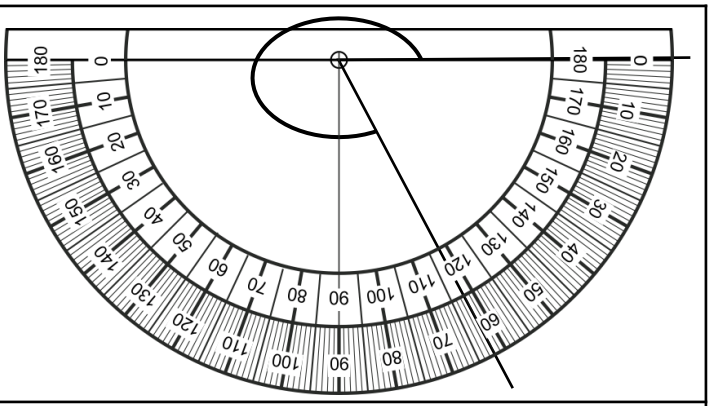
3) Angle Size =



4) Angle Size =



5) Angle Size =



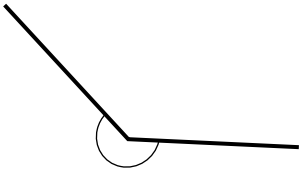
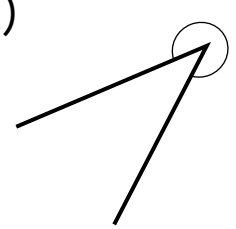
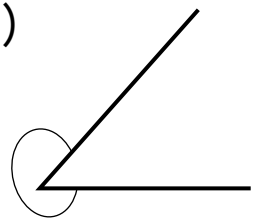
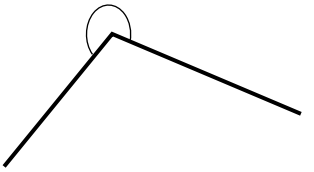
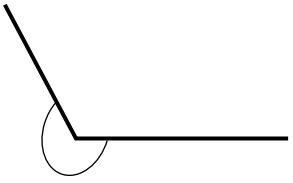
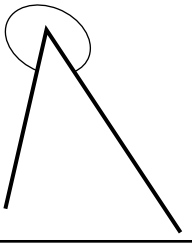
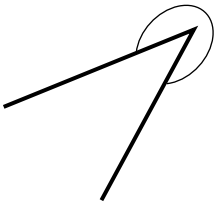
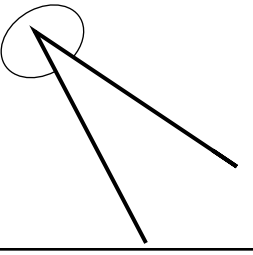
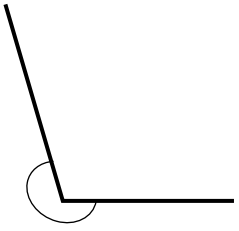
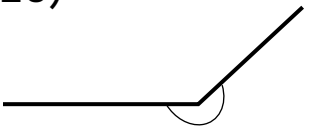
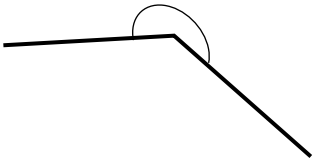
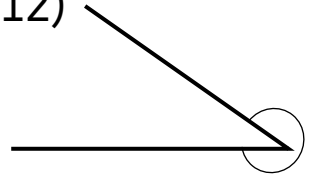
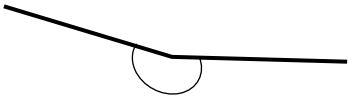
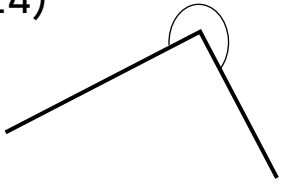
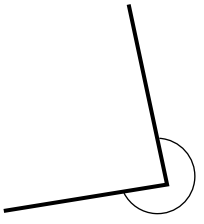
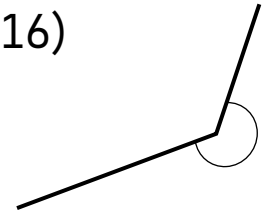
6) Angle Size =

Name: _____ 12

Curriculum Connection
SS.1

Measuring Angles Up To 360°

Questions Measure the angles below

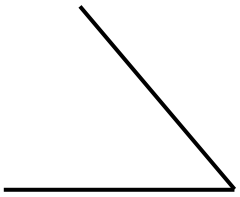
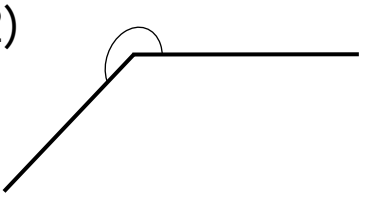
1) 	2) 	3) 	4) 
5) 	6) 	7) 	8) 
9) 	10) 	11) 	12) 
13) 	14) 	15) 	16) 

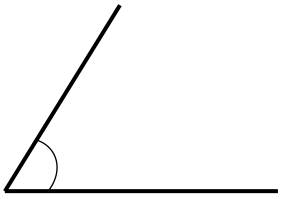
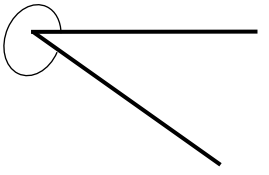
Name: _____ 13

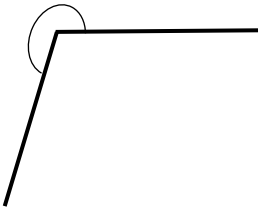
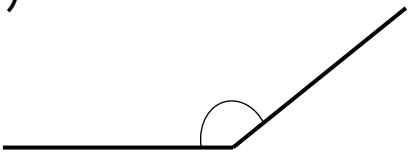
Curriculum Connection
SS.1

Constructing Angles - Estimating - Multiple Choice

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

1) 	2) 	3) 
a) ∠= 95°	a) ∠= 95°	a) ∠= 171°
b) ∠= 50°	b) ∠= 100°	b) ∠= 9°
c) ∠= 110°	c) ∠= 225°	c) ∠= 50°
d) ∠= 160°	d) ∠= 290°	d) ∠= 85°

4) 	5) 	6) 
a) ∠= 168°	a) ∠= 60°	a) ∠= 90°
b) ∠= 50°	b) ∠= 120°	b) ∠= 180°
c) ∠= 120°	c) ∠= 10°	c) ∠= 270°
d) ∠= 10°	d) ∠= 160°	d) ∠= 325°

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

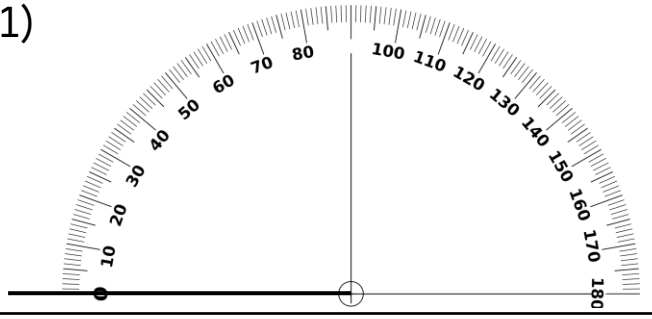
Name: _____ 14

Curriculum Connection
SS.1

Contruction Angles Up To 180°

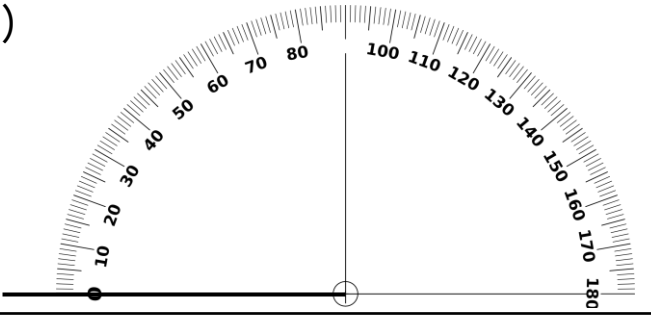
Questions Construct the angles and label them acute, right or obtuse

1)



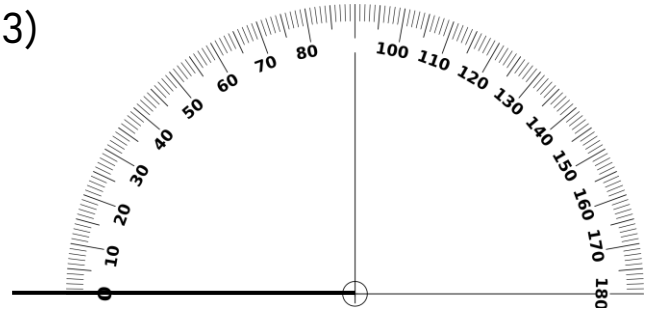
∠= 75° Type of Angle = _____

2)



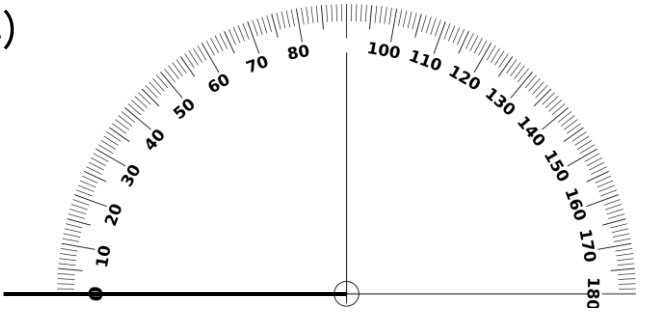
∠= 130° Type of Angle = _____

3)



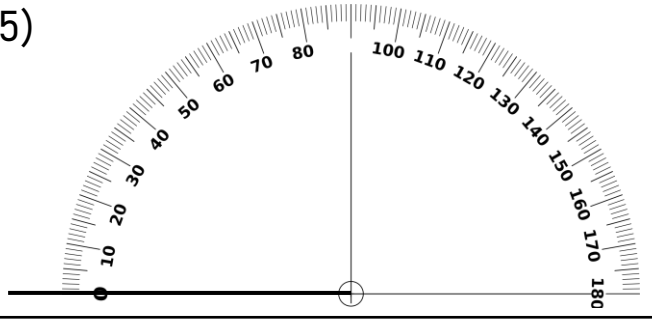
∠= 126° Type of Angle = _____

4)



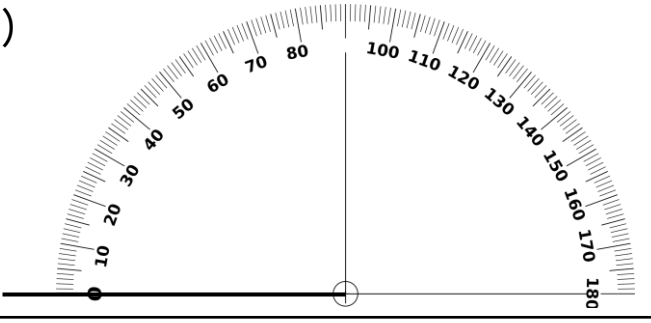
∠= 148° Type of Angle = _____

5)



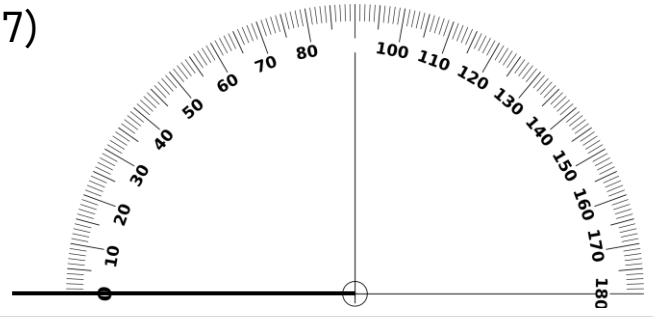
∠= 101° Type of Angle = _____

6)



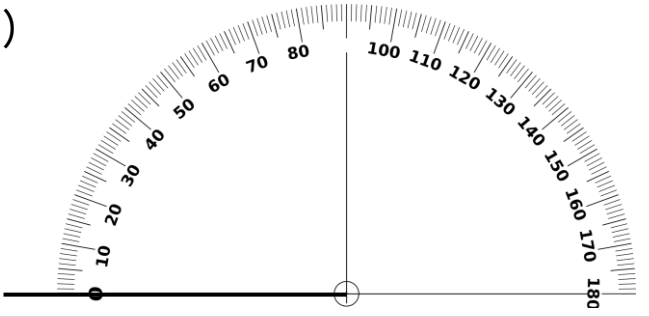
∠= 178° Type of Angle = _____

7)



∠= 156° Type of Angle = _____

8)



∠= 71° Type of Angle = _____

Name: _____ 15

Curriculum Connection
SS.1

Contruction Angles Up To 180°

Part 1

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

1)	2)	3)
∠= 65°	∠= 93°	∠= 137°

Part 2

Use a protractor to draw the angles below

1)	2)	3)
∠= 172°	∠= 117°	∠= 42°

4)	5)	6)
∠= 164°	∠= 38°	∠= 87°

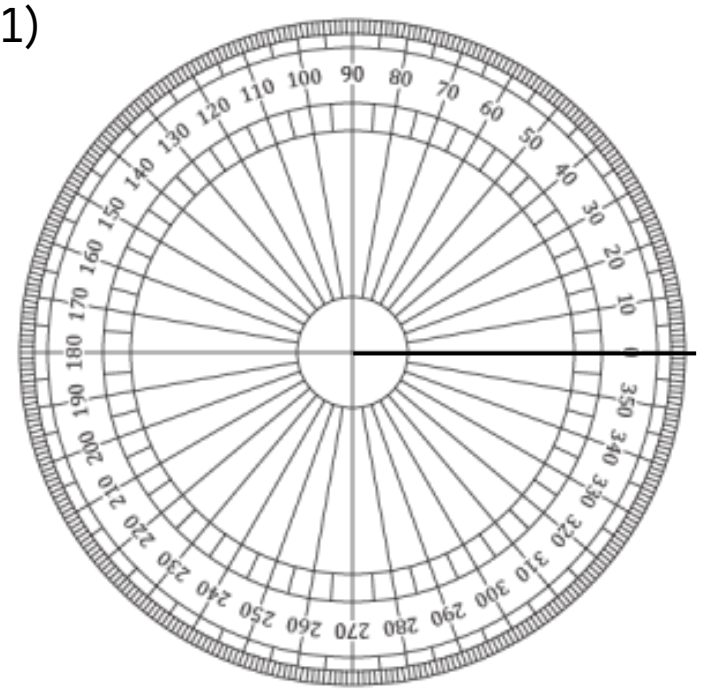
Name: _____ 16

Curriculum Connection
SS.1

Contruction Angles Up To 360°

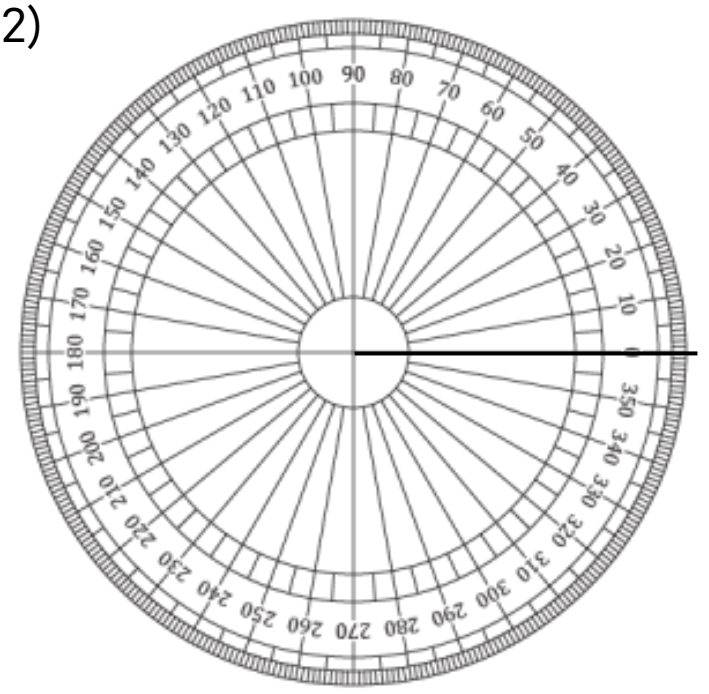
Questions | Construct the angles below

1)



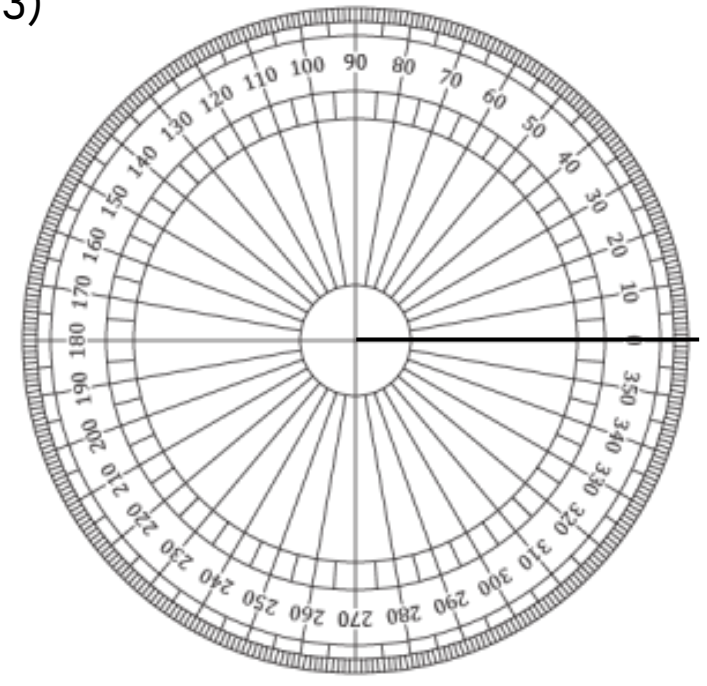
Angle = 195°

2)



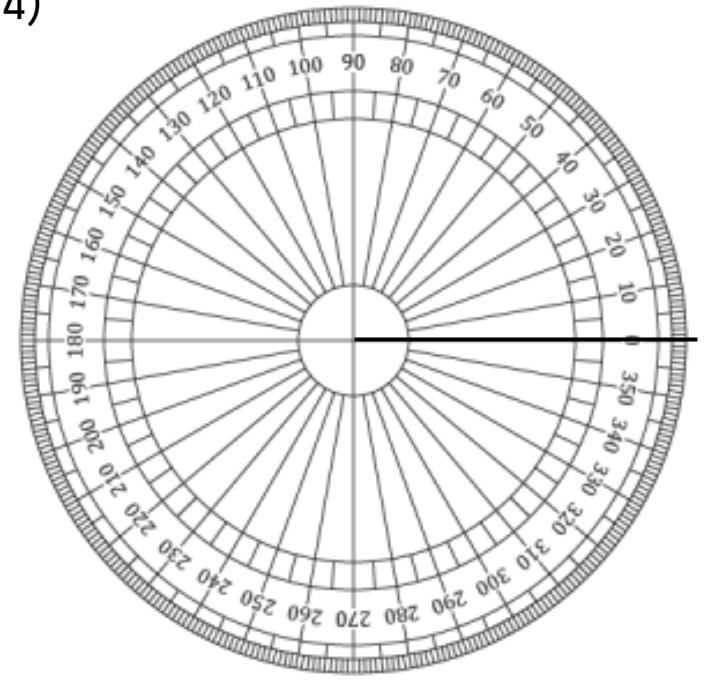
Angle = 292°

3)



Angle = 347°

4)



Angle = 262°

Name: _____ 17

Curriculum Connection
SS.1

Contruction Angles Up To 360°

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

1)	2)	3)
∠= 200°	∠= 275°	∠= 350°

Part 2 Use a protractor to draw the angles below

1)	2)	3)
∠= 287°	∠= 322°	∠= 196°

4)	5)	6)
∠= 248°	∠= 318°	∠= 264°

Name: _____ 18

Curriculum Connection
SS.1

Contruction Angles Up To 360°

Practice Use a protractor to draw the angles below

1)	2)	3)
∠= 267°	∠= 236°	∠= 184°

4)	5)	6)
∠= 326°	∠= 241°	∠= 279°

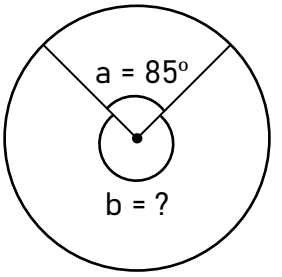
7)	8)	9)
∠= 351°	∠= 249°	∠= 355°

Name: _____ 19

Curriculum Connection
SS.1

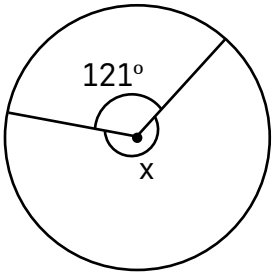
Introduction to Central Angles

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



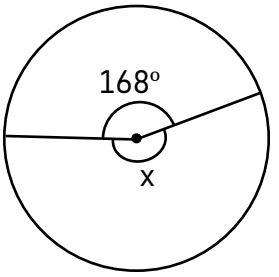
Practice Determine the value of angle *x*

1)



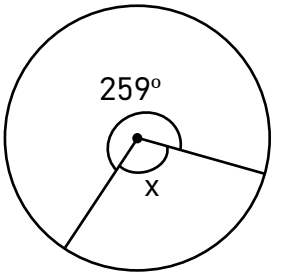
∠x =

2)



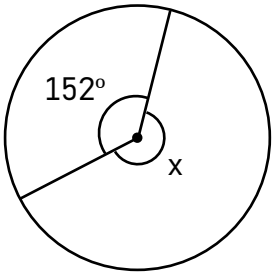
∠x =

3)



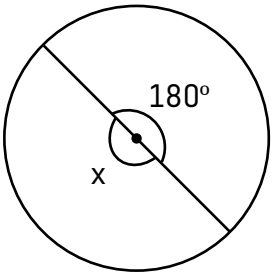
∠x =

4)



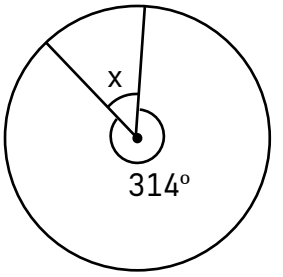
∠x =

5)



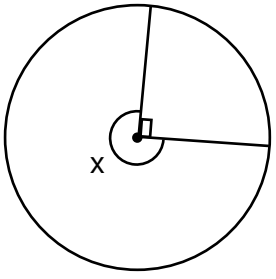
∠x =

6)



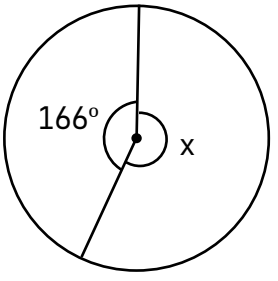
∠x =

7)



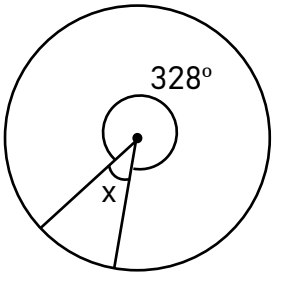
∠x =

8)



∠x =

9)



∠x =

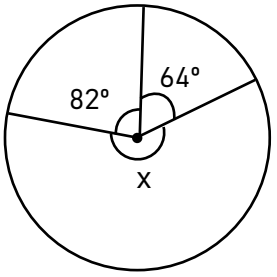
Name: _____ 20

Curriculum Connection
SS.1

Finding the Missing Angle - Central Angles

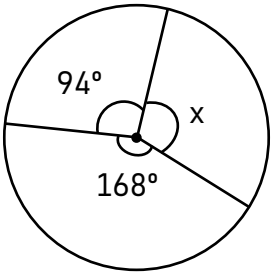
Practice Determine the value of angle *x*

1)



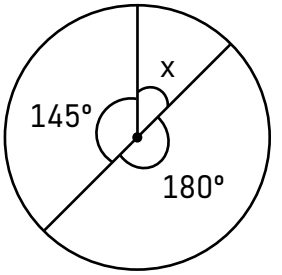
∠x =

2)



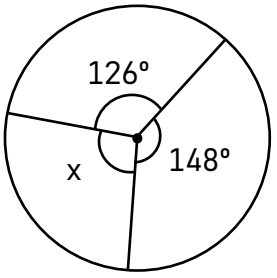
∠x =

3)



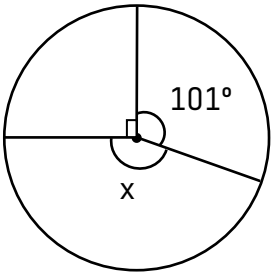
∠x =

4)



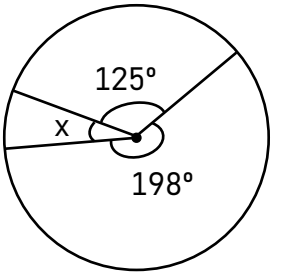
∠x =

5)



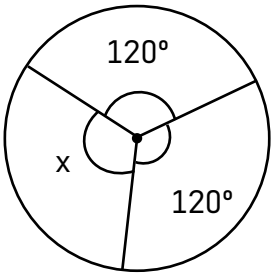
∠x =

6)



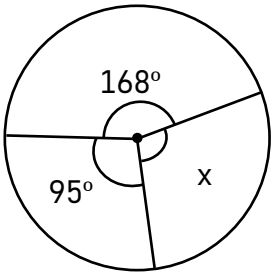
∠x =

7)



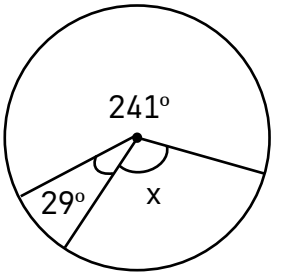
∠x =

8)



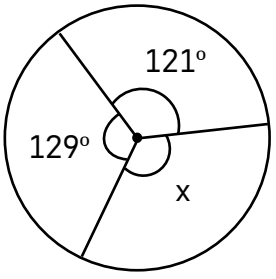
∠x =

9)



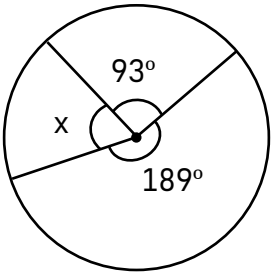
∠x =

10)



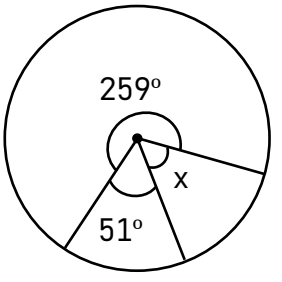
∠x =

11)



∠x =

12)



∠x =

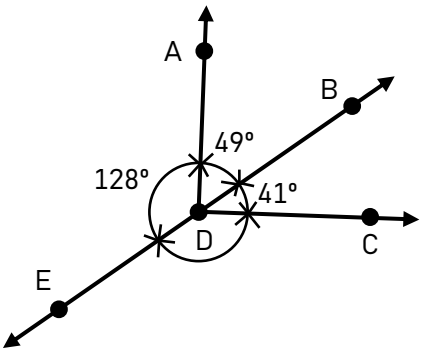
Name: _____ 21

Curriculum Connection
SS.1

Finding the Missing Angle - Central Angles

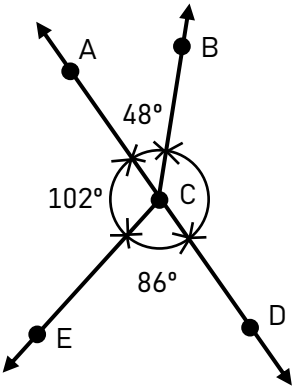
Practice Find the missing angles below

1)



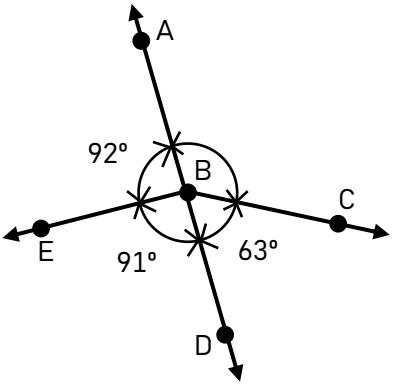
∠CDE =

2)



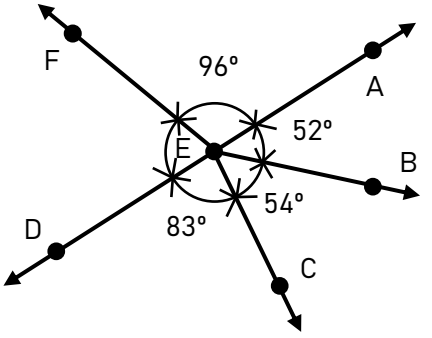
∠BCD =

3)



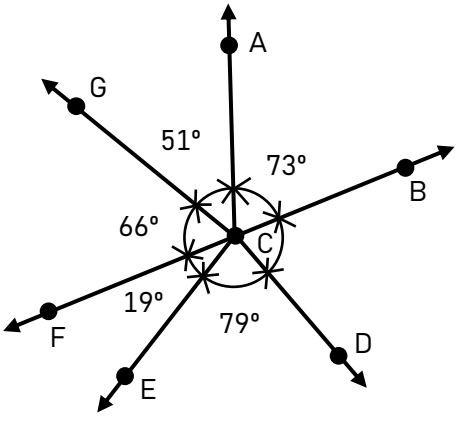
∠ABC =

4)



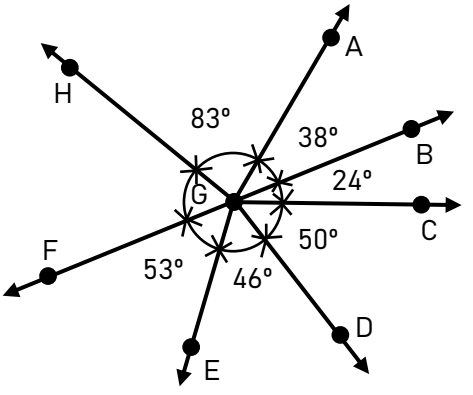
∠FED =

5)



∠BCD =

6)



∠FGH =

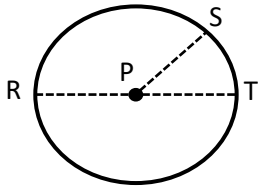
Name: _____ 22

Curriculum Connection
SS.1

Intro - Radius and Diameter

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

1)

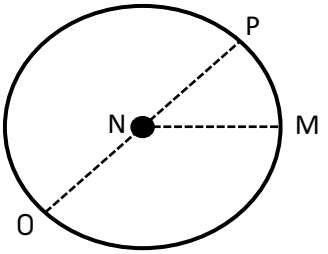


Centre = P

Radius = PS, PT, PR

Diameter = RT

2)

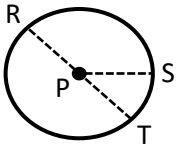


Centre = _____

Radius = _____

Diameter = _____

3)

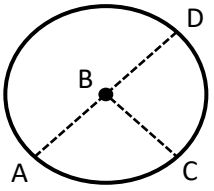


Centre = _____

Radius = _____

Diameter = _____

4)

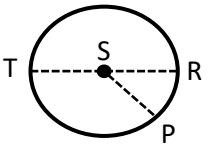


Centre = _____

Radius = _____

Diameter = _____

5)

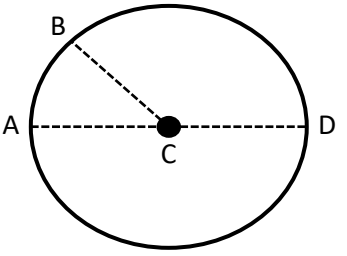


Centre = _____

Radius = _____

Diameter = _____

6)

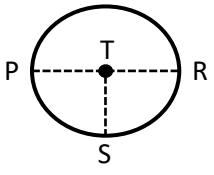


Centre = _____

Radius = _____

Diameter = _____

7)

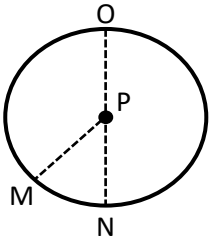


Centre = _____

Radius = _____

Diameter = _____

8)

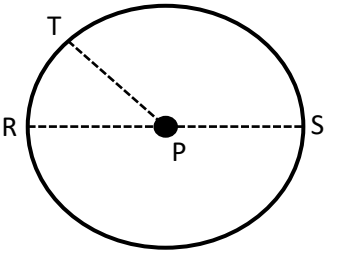


Centre = _____

Radius = _____

Diameter = _____

9)



Centre = _____

Radius = _____

Diameter = _____

Name: _____ 23

Curriculum Connection
SS.1

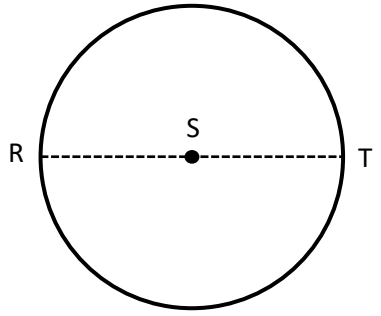
Relationship Between Radius and Diameter

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

Part 1

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

1)

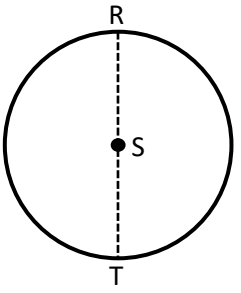


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

2)

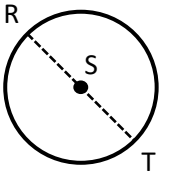


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

3)

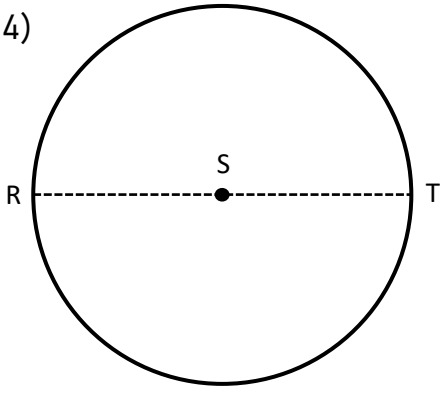


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

4)

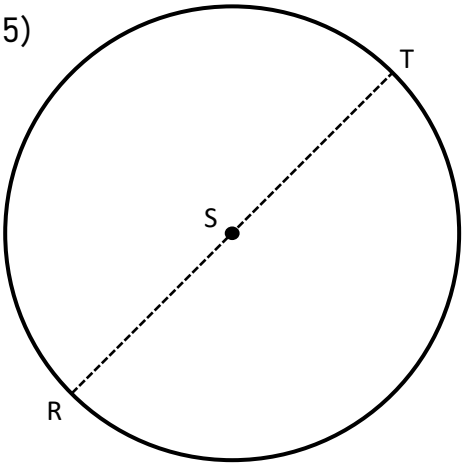


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

5)

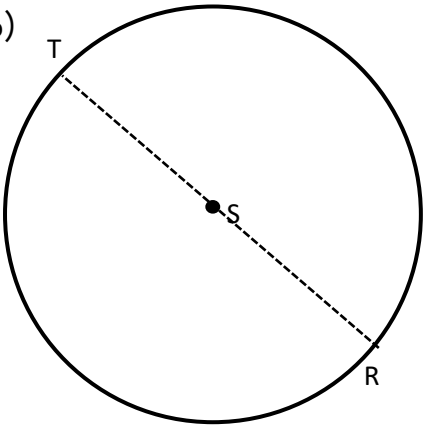


a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

6)



a) SR = _____ (radius)

b) ST = _____ (radius)

c) RT = _____ (diameter)

Part 2

Answer the questions below

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

Name: _____ 24

Curriculum Connection
SS.1

Calculating Radius and Diameter

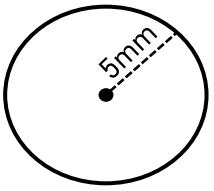
Calculating Radius Formula

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

Calculating Diameter Formula

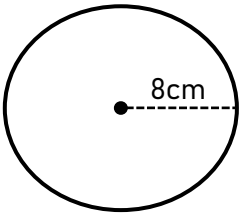
$d = 2r$ or $d = r \times 2$

Questions Find the radius and diameter of each circle below

1) 

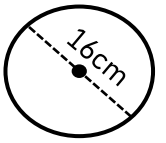
Radius = _____

Diameter = _____

2) 

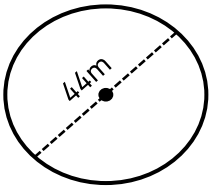
Radius = _____

Diameter = _____

3) 

Radius = _____

Diameter = _____

4) 

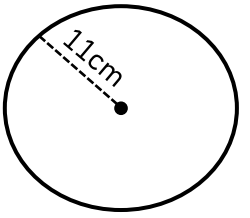
Radius = _____

Diameter = _____

5) 

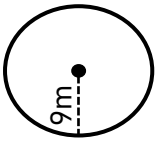
Radius = _____

Diameter = _____

6) 

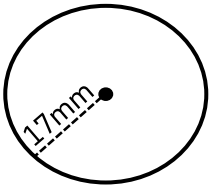
Radius = _____

Diameter = _____

7) 

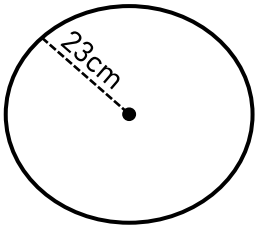
Radius = _____

Diameter = _____

8) 

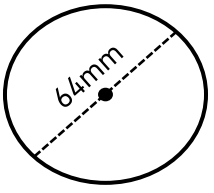
Radius = _____

Diameter = _____

9) 

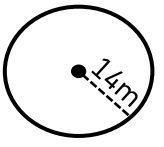
Radius = _____

Diameter = _____

10) 

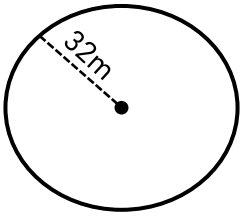
Radius = _____

Diameter = _____

11) 

Radius = _____

Diameter = _____

12) 

Radius = _____

Diameter = _____

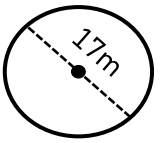
Name: _____ 25

Curriculum Connection
SS.1

Calculating Radius and Diameter

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

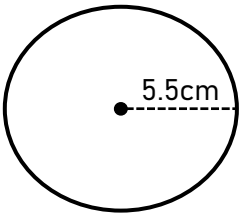
1)



Radius = _____

Diameter = _____

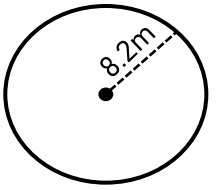
2)



Radius = _____

Diameter = _____

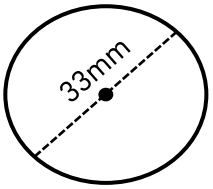
3)



Radius = _____

Diameter = _____

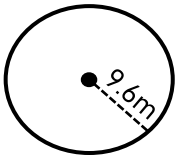
4)



Radius = _____

Diameter = _____

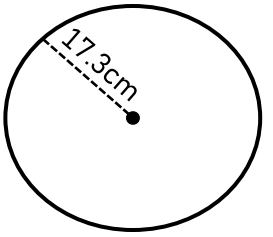
5)



Centre = _____

Radius = _____

6)



Radius = _____

Diameter = _____

Part 2 — Fill in the blanks below

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

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

Part 3 — Answer the word problems below

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

Name: _____ 26

Curriculum Connection
SS.1

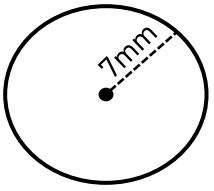
Estimating Circumference

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

Part 1

Estimate the circumference of the circles below

1)

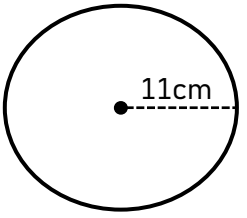


Radius = _____

Diameter = _____

Circumference = _____

2)



Radius = _____

Diameter = _____

Circumference = _____

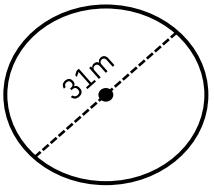
3)

Radius = _____

Diameter = _____

Circumference = _____

4)



Radius = _____

Diameter = _____

Circumference = _____

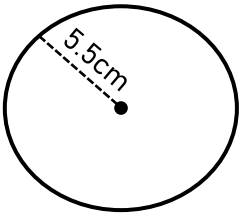
5)

Radius = _____

Diameter = _____

Circumference = _____

6)



Radius = _____

Diameter = _____

Circumference = _____

Part 2

Answer the word problems below

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

Name: _____ 27

Curriculum Connection
SS.1

Calculating Circumference

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

Calculating Circumference (Diameter)

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

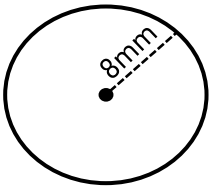
Calculating Circumference (Radius)

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

Practice

Calculate the circumference of the circles below

1)

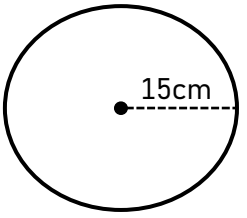


Radius = _____

Diameter = _____

Circumference = _____

2)

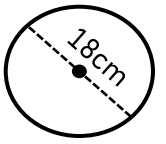


Radius = _____

Diameter = _____

Circumference = _____

3)

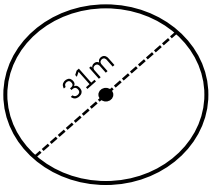


Radius = _____

Diameter = _____

Circumference = _____

4)

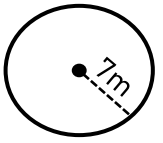


Radius = _____

Diameter = _____

Circumference = _____

5)

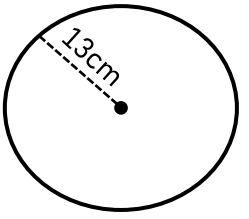


Radius = _____

Diameter = _____

Circumference = _____

6)

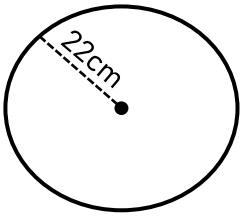


Radius = _____

Diameter = _____

Circumference = _____

7)

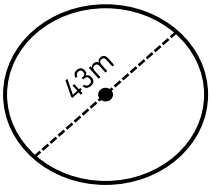


Radius = _____

Diameter = _____

Circumference = _____

8)

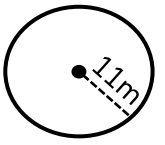


Radius = _____

Diameter = _____

Circumference = _____

9)



Radius = _____

Diameter = _____

Circumference = _____

Name: _____ 28

Curriculum Connection
SS.1

Calculating Circumference

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

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

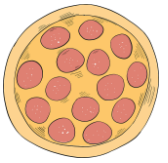
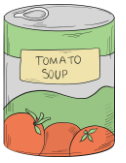
Part 1

Fill in the table with the missing information

	Radius	Diameter	Circumference
1)	6cm		
2)	17m		
3)		22m	
4)		46cm	
5)	16mm		
6)		33m	
7)	2.5km		
8)	6.8m		
9)		15.8m	
10)		48.6mm	

Part 2

Answer the word problems below

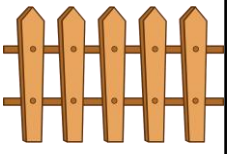
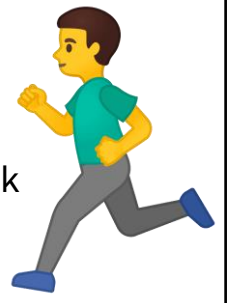
1)	Harrison is deciding which pizza to buy. He has two options. Option A: Pizza with the radius of 18cm Option B: Pizza with a circumference of 106cm Which pizza is larger? 	
2)	You need to wrap a label around a can. If the diameter of the can is 9.5cm, what length does the label need to be? 	
3)	Alexa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

Name: _____ 29

Curriculum Connection
SS.1

Circumference Word Problems

Questions Answer the word problems below

1)	An asteroid hit the moon and created a massive round crater. Scientists measured the diameter of the crater as 31.2km. What is the circumference of the crater? 
2)	George is building a fence around his circular yard. His house is in the centre of the yard. The distance from his house to the edge of the yard is 15.5 metres. a) What is the perimeter of his yard?  b) If 1 metre of fencing costs $8.60, how much will his fence cost him?
3)	Mark can run 100m in 14 seconds. He is at a new circular track and is trying to figure out how long it will take him to run 4 laps. The track has a diameter of 16m. a) What distance is the track?  b) Approximately how long will it take him to run around the track four times?
4)	The radius of your bicycle wheel is 40cm. a) How far will your bike move in one turn of your wheel?  b) Neill thinks it will take around 3 rotations of the wheel to move 1m. Dane thinks it will take around 4. Who is correct?

Name: _____ 30

Curriculum Connection
SS.1

Circumference, Radius, and Diameter

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

Calculating Diameter (Circumference)

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

Calculating Radius (Circumference)

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

Practice

Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Diameter	Radius
1)	28 mm	8.9 mm	4.5 mm
2)	15 cm		
3)	36 m		
4)	47 cm		
5)	55 m		
6)	32 mm		
7)	59 km		
8)	64 m		
9)	71 cm		
10)	68 mm		

Part 2

Answer the word problems below

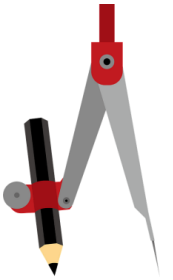
	Questions	Answer
1)	The circumference of a bicycle wheel is 44cm. What is the diameter?	
2)	A donut has a circumference of 12cm. What is the radius?	
3)	A 20cm wire is bent into a circle. What is the diameter of the circle?	
4)	A pizza has a circumference of 1m. What is the radius of the pizza in centimeters?	

Name: _____ 31

Curriculum Connection
SS.1

Drawing Circles Using Radius and Diameter

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



Draw Use a compass and a ruler to draw circles below

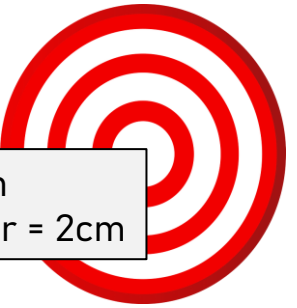
1) Radius = 2cm Diameter = _____	2) Radius = _____ Diameter = 3cm
3) Radius = _____ Diameter = 6cm	4) Radius = 2.5cm Diameter = _____
5) Radius = _____ Diameter = 40mm	6) Radius = 1cm Diameter = _____

Name: _____ 32

Curriculum Connection
SS.1

Drawing Circles Using Radius and Diameter

Draw Draw a target using the measurements below



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

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

Name: _____ 33

Curriculum Connection
SS.1

Drawing Circles Using Circumference

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

Calculating Radius

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

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

1) Circumference = 12.5cm	2) Circumference = 62.8mm
3) Circumference = 19cm	4) Circumference = 15.7cm
5) Circumference = 20.4cm	6) Circumference = 14.1cm

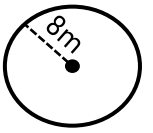
Name: _____ 34

Curriculum Connection
SS.2

Area of a Circle - Radius

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

Calculating Area Using Radius



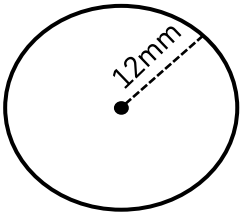
$a = \pi r^2$

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

$a = 200.96m^2$

Practice Calculate the area of the circles using the radius

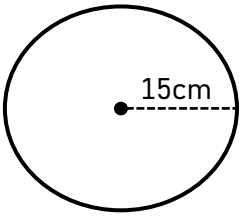
1)



Radius = _____

Area = _____

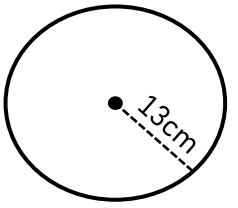
2)



Radius = _____

Area = _____

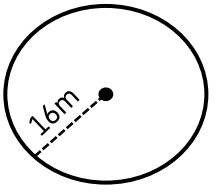
3)



Radius = _____

Area = _____

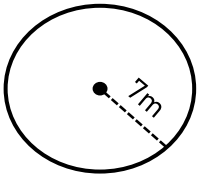
4)



Radius = _____

Area = _____

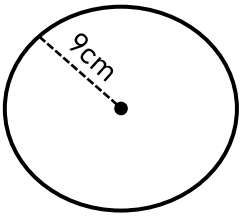
5)



Radius = _____

Area = _____

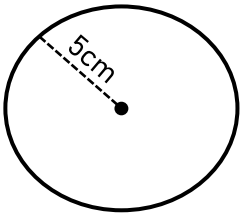
6)



Radius = _____

Area = _____

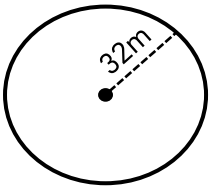
7)



Radius = _____

Area = _____

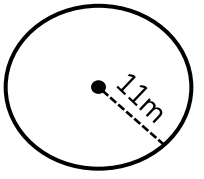
9)



Radius = _____

Area = _____

10)



Radius = _____

Area = _____

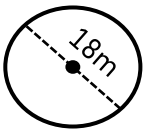
Name: _____ 35

Curriculum Connection
SS.2

Area of a Circle - Diameter

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

Calculating Area Using Diameter

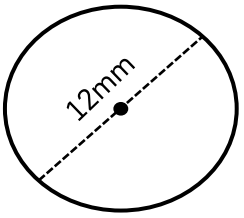


$a = \pi r^2$
diameter = 18, radius = 9
$a = \pi \times 9 \times 9$
$a = 254.34m^2$

Practice

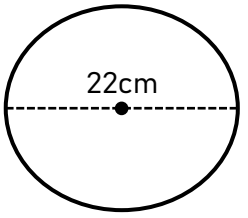
Calculate the area of the circles using the radius

1)



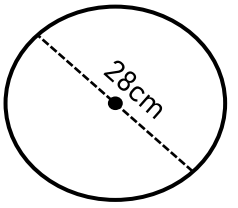
Diameter = _____
Radius = _____
Area = _____

2)



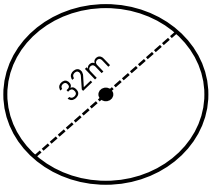
Diameter = _____
Radius = _____
Area = _____

3)



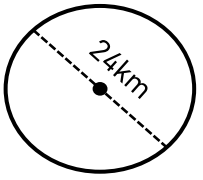
Diameter = _____
Radius = _____
Area = _____

4)



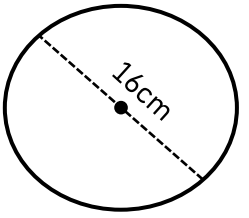
Diameter = _____
Radius = _____
Area = _____

5)



Diameter = _____
Radius = _____
Area = _____

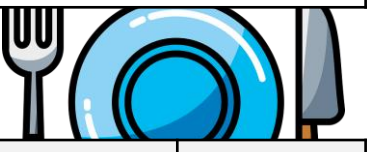
6)



Diameter = _____
Radius = _____
Area = _____

Word Problems

Solve the problems below



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

Name: _____ 36

Curriculum Connection
SS.2

Calculating Area of a Circle - Circumference

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

Calculating Radius From Circumference

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

Calculating Area Using Radius

$$a = \pi r^2$$

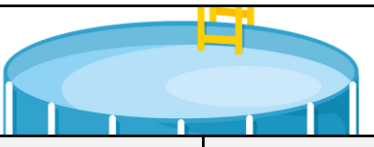
Practice

Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Radius	Area
1)	12 mm	1.9 mm	11.3 mm^2
2)	18 cm		
3)	22 m		
4)	42 cm		
5)	36 m		
6)	58 mm		
7)	55 km		
8)	17 m		
9)	63 cm		
10)	76 mm		

Part 2

Answer the word problems below



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

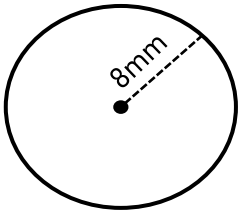
Name: _____ 37

Curriculum Connection
SS.1, SS.2

Circles - Mixed Review

Practice Fill in the blanks below

1)



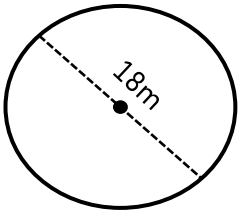
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

2)



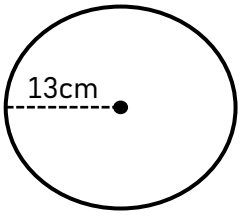
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

3)



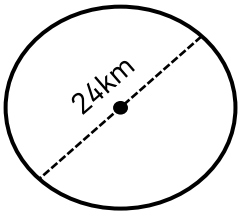
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

4)



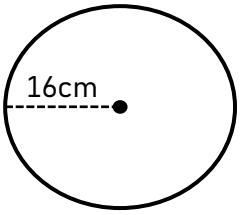
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

5)



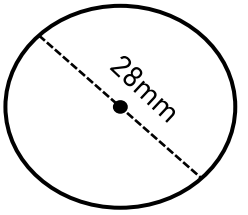
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

6)



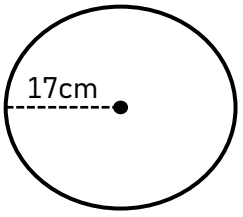
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

7)



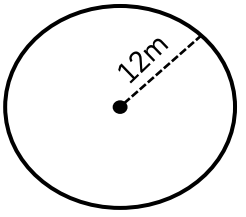
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

8)



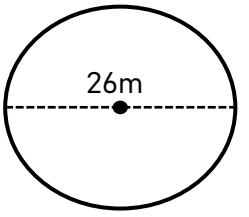
Radius = _____

Diameter = _____

Circumference = _____

Area = _____

9)



Radius = _____

Diameter = _____

Circumference = _____

Area = _____

Name: _____ 38

Curriculum Connection
SS.1, SS.2

Circles - Word Problems

Questions Answer the word problems below

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

Name: _____ 39

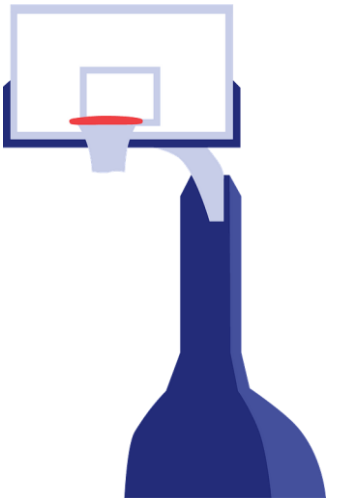
Curriculum Connection
SS.1

Circles - Basketball Word Problem

Questions Answer the word problems below

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

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

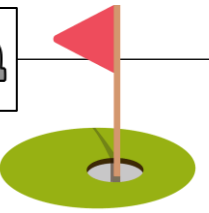


b) A WNBA basketball has a circumference of 72cm. Will 2 WNBA basketballs fit through the hoop at the same time?

Name: _____ 40

Curriculum Connection
SS.1

Circles - Putting Word Problem



Questions | Answer the word problems below

A golf hole has a diameter of 11cm.

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

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

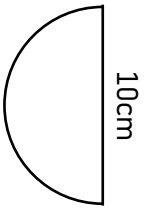
c) Will 2 or 3 golf balls fit in a line across the middle of a golf hole? Explain.

Name: _____ 41

Curriculum Connection
SS.2

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

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

$a = 78.5cm^2 \div 2$

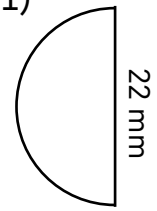
area of semi-circle = $39.25cm^2$

Part 1 — Fill in the table below

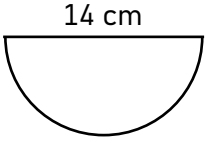
	Diameter	Radius	Area of Full Circle	Area of Semi-Circle
1)	6 cm			
2)	4 km			
3)	24 m			
4)	10 mm			
5)	16 m			
6)	30 cm			

Part 2 — Calculate the area of the semi-circles

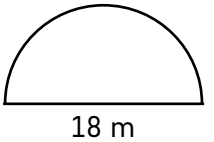
1)



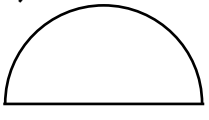
2)



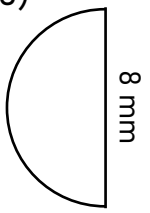
3)



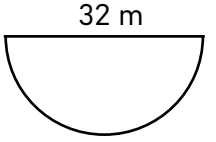
4)



5)



6)

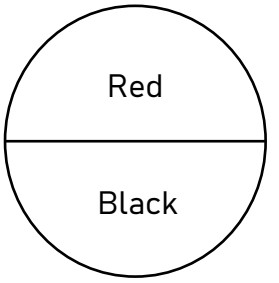
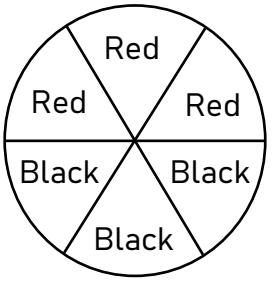
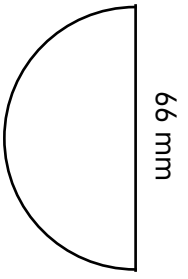


Name: _____ 42

Curriculum Connection
SS.2

Semi-Circles - Word Problems

Questions Answer the word problems below

1)	A semi-circle shaped rug has a diameter of 44cm. What is the area of the rug? 
2)	A circular spinner has 2 sections, half red and half green. The spinner has a radius of 8cm. What is the area of the red side of the spinner? 
3)	A circular spinner has 6 sections. Half are red and half are black. If the diameter of the spinner is 18cm, what is the area of one section of the spinner? 
4)	A semi-circle window has a diameter of 66cm. What is the area of the window? 

Name: _____ 43

Quiz - Circles

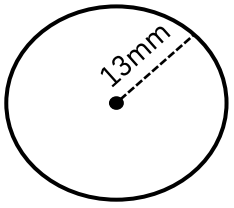
Part 1 — Fill in the blanks below

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

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

Part 2 — Fill in the blanks

1)

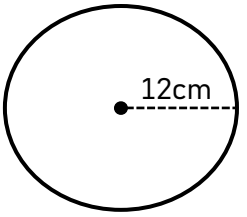


Radius = _____

Diameter = _____

Circumference = _____

2)



Radius = _____

Diameter = _____

Circumference = _____

3)

Radius = _____

Diameter = _____

Circumference = _____

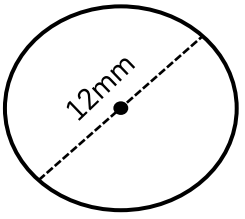
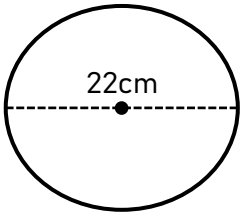
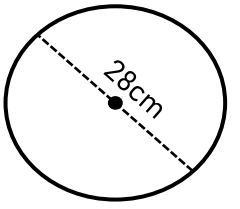
Part 3 — Calculate the diameter and radius. Round to the nearest tenth

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

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

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

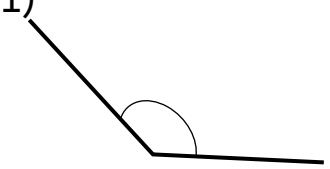
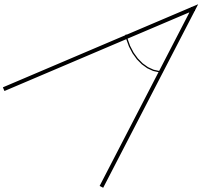
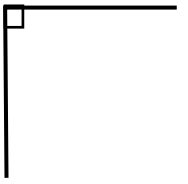
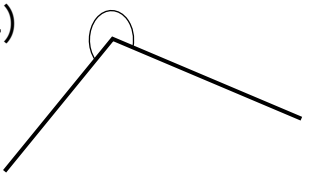
Part 5 — Calculate the area of the circles

1)	2)	3)
		
Diameter = _____ Radius = _____ Area = _____	Diameter = _____ Radius = _____ Area = _____	Diameter = _____ Radius = _____ Area = _____

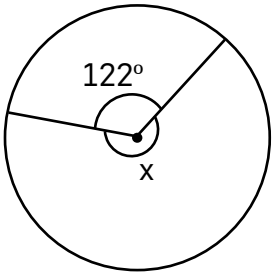
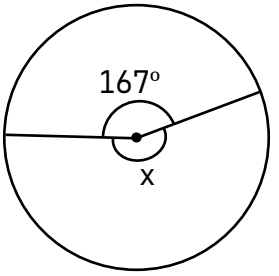
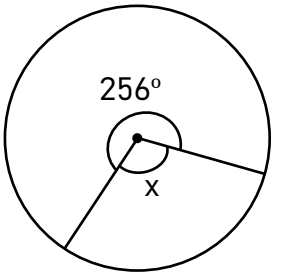
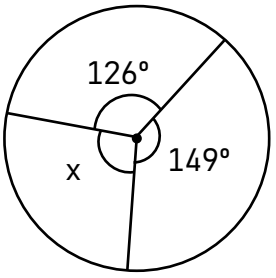
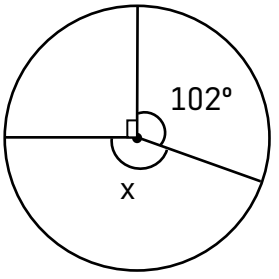
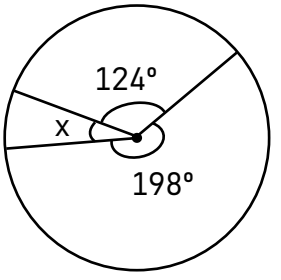
Part 6 — Solve the problems below

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

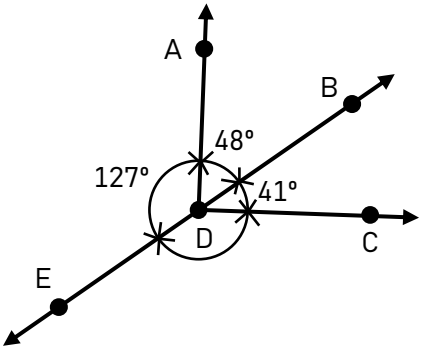
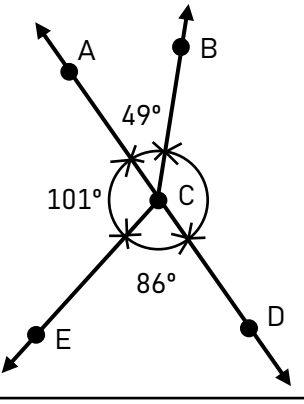
Part 7 — Measure the angles and label them acute, right, obtuse, or reflex

1)	2)	3)	4)
			

Part 8 — Determine the value of angle *x*

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

Part 9 — Find the missing angles below

1)	2)
	
∠CDE =	∠BCD =

Name: _____ 46

Curriculum Connection
SS.2

Finding the Area of Rectangles

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

1)

4cm

8cm

Area = _____

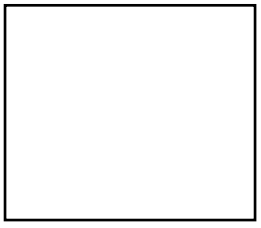
2)

3m

10m

Area = _____

3)



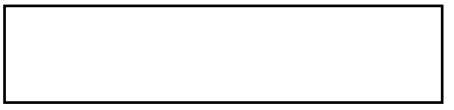
7cm

7cm

Area = _____

4)

4cm



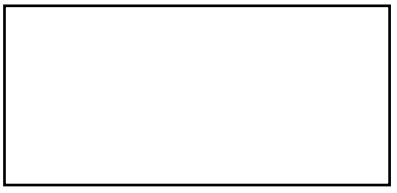
15cm

Area = _____

5)

11m

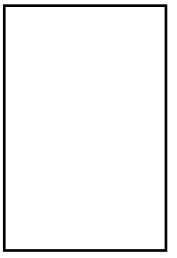
5m



Area = _____

6)

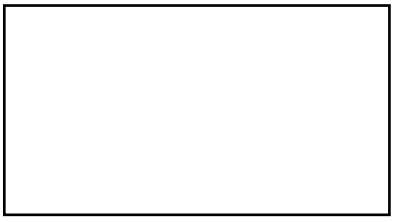
13cm



4cm

Area = _____

7)



6cm

15cm

Area = _____

8)

12m

3m

Area = _____

9)

5cm

20cm

Area = _____

10)

6cm

14cm

Area = _____

Name: _____ 47

Curriculum Connection
SS.2

Finding the Area of Rectangles

Questions Write the area as any metric unit of measurement

1)

80mm

8cm

Area = _____

2)

4m

900cm

Area = _____

3)

900cm

9m

Area = _____

4)

3m

1100cm

Area = _____

5)

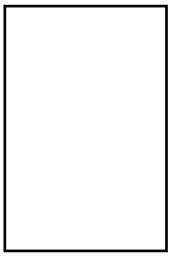
90mm

5cm

Area = _____

6)

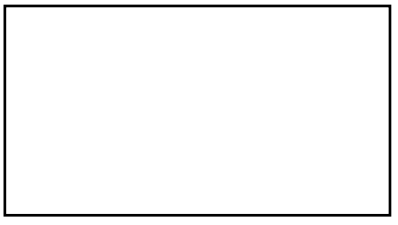
12m



5000mm

Area = _____

7)



6000m

12km

Area = _____

8)

9 000 000mm

3km

Area = _____

9)

4cm

120mm

Area = _____

10)

0.6cm

11mm

Area = _____

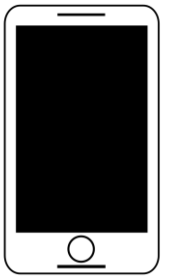
Name: _____ 48

Curriculum Connection
SS.2

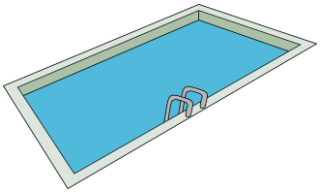
Area Word Problems

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

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



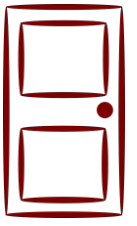
2) A pool is 12m by 400cm. What is the area of the pool?



4) A candy wrapper is 40mm wide and 0.10m long. What is the area of the wrapper in cm?

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

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



Name: _____ 49

Curriculum Connection
SS.2

Finding the Missing Information

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

1)

11m

A=44m²

Base = _____
Height = _____
Area = _____

2)

1m A=14m²

Base = _____
Height = _____
Area = _____

3)

7cm A=63cm²

Base = _____
Height = _____
Area = _____

4)

4m A=48m²

Base = _____
Height = _____
Area = _____

5)

3cm A=27cm²

Base = _____
Height = _____
Area = _____

6)

A=77cm²

11cm

Base = _____
Height = _____
Area = _____

7)

A=45cm²

5cm

Base = _____
Height = _____
Area = _____

8)

A=72cm²

8cm

Base = _____
Height = _____
Area = _____

9)

9cm A=45cm²

Base = _____
Height = _____
Area = _____

10)

A=56cm²

8cm

Base = _____
Height = _____
Area = _____

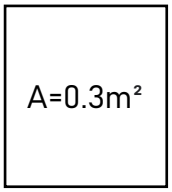
Name: _____ 50

Curriculum Connection
SS.2

Finding the Missing Information

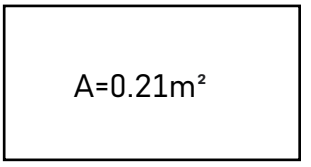
Questions Find the missing value (A= b x h)

1)



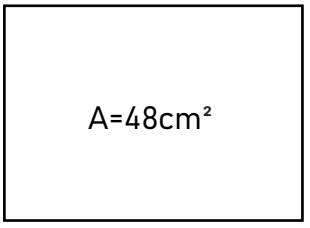
Base = _____
Height = _____
Area = _____

2)

3cm 

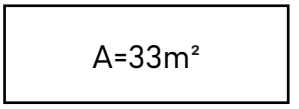
Base = _____
Height = _____
Area = _____

3)



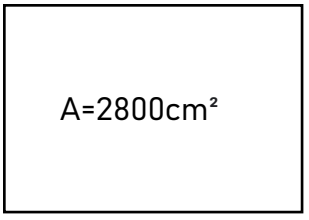
Base = _____
Height = _____
Area = _____

4)

1100cm


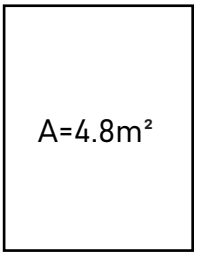
Base = _____
Height = _____
Area = _____

5)

4m 

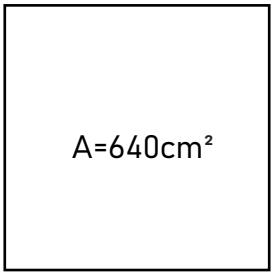
Base = _____
Height = _____
Area = _____

6)



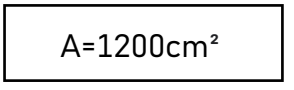
Base = _____
Height = _____
Area = _____

7)



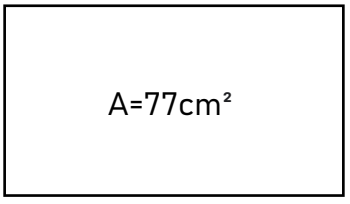
Base = _____
Height = _____
Area = _____

8)

1m 

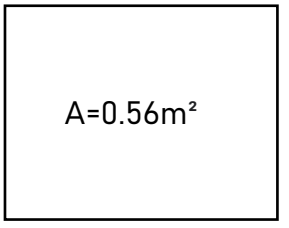
Base = _____
Height = _____
Area = _____

9)



Base = _____
Height = _____
Area = _____

10)

7cm 

Base = _____
Height = _____
Area = _____

Name: _____ 51

Curriculum Connection
SS.2

Finding the Missing Information - Word Problems

Questions Use the information you have to find the missing height or base

1) A piece of paper has an area of 88cm². The base of the paper is 8cm. What is the height of the paper?

2) Jack's yard has an area of 56m². The height of the yard is 8m. What is the base?

3) A bus has an area of 24m². The height of the bus in 3m. What is the base?

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

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

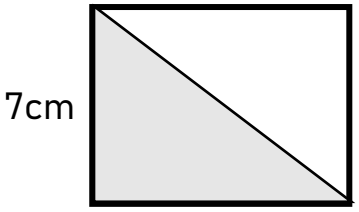
Name: _____ 52

Curriculum Connection
SS.2

Introduction - Area of a Triangle

Questions Find the area of the rectangles and triangles below

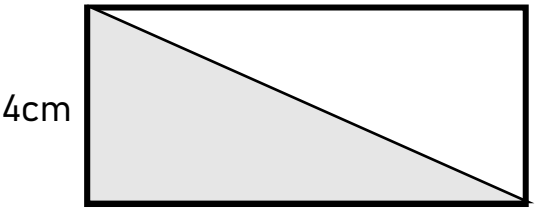
1)



Area of a rectangle = _____

Area of a triangle = _____

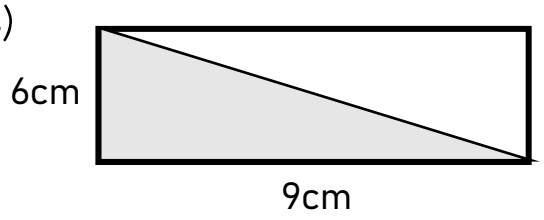
2)



Area of a rectangle = _____

Area of a triangle = _____

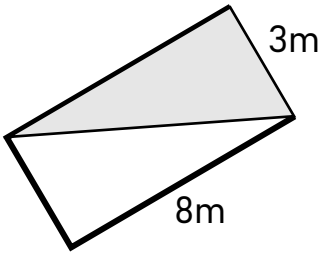
3)



Area of a rectangle = _____

Area of a triangle = _____

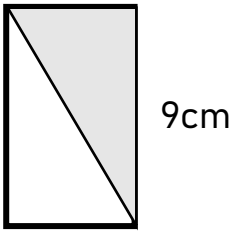
4)



Area of a rectangle = _____

Area of a triangle = _____

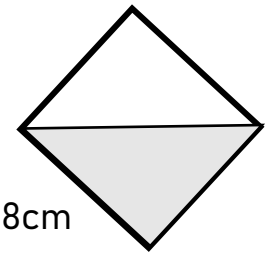
5)



Area of a rectangle = _____

Area of a triangle = _____

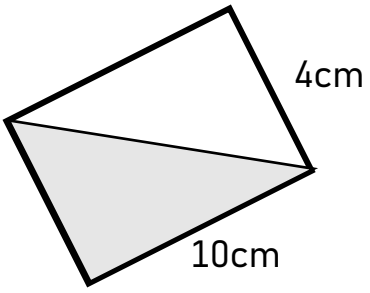
6)



Area of a square = _____

Area of a square = _____

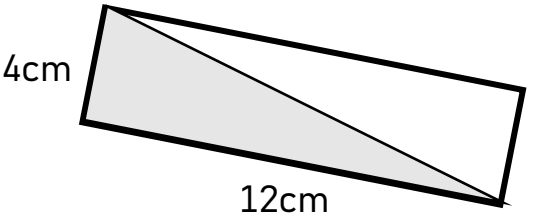
7)



Area of a rectangle = _____

Area of a triangle = _____

8)



Area of a rectangle = _____

Area of a triangle = _____

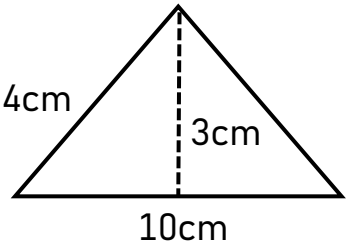
Name: _____ 53

Curriculum Connection
SS.2

Area of a Triangle

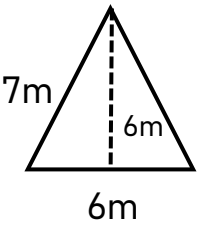
Questions Find the area of the triangles below (A= b x h ÷ 2)

1)



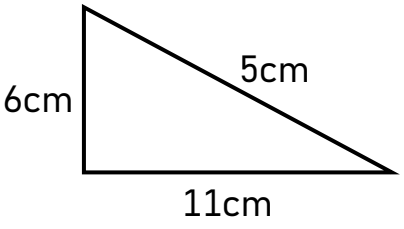
Area = _____

2)



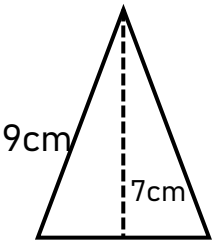
Area = _____

3)



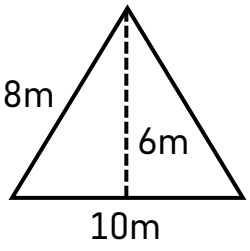
Area = _____

4)



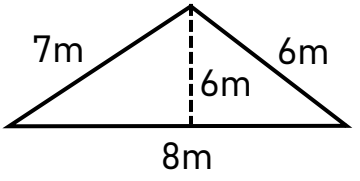
Area = _____

5)



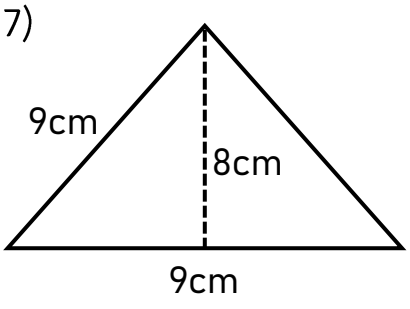
Area = _____

6)



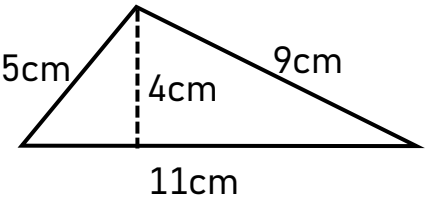
Area = _____

7)



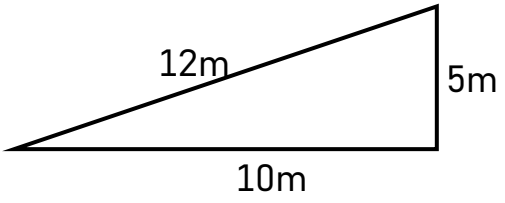
Area = _____

8)



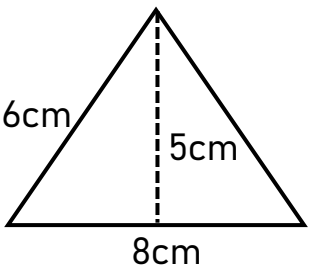
Area = _____

9)



Area = _____

10)



Area = _____

Name: _____ 54

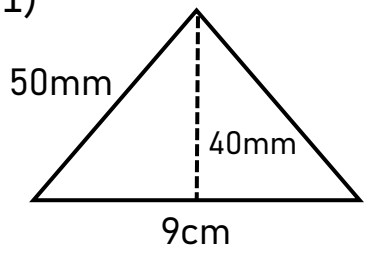
Curriculum Connection
SS.2

Area of a Triangle

Part 1

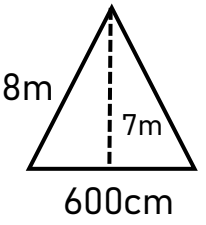
Find the area of the triangles below (A= b x h ÷ 2)

1)



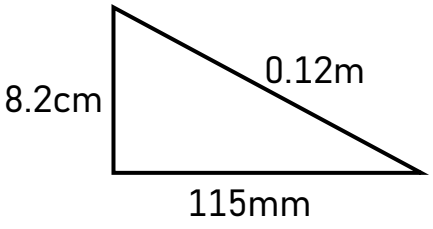
Area = _____

2)



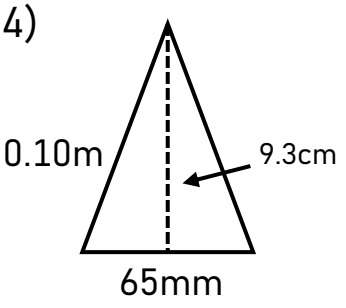
Area = _____

3)



Area = _____

4)

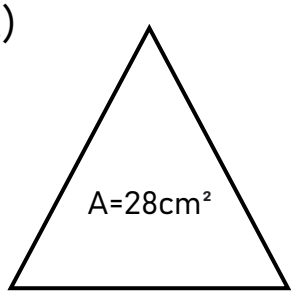


Area = _____

Part 2

Find the missing value

1)

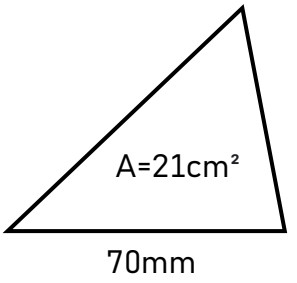


Base = _____

Height = _____

Area = _____

2)

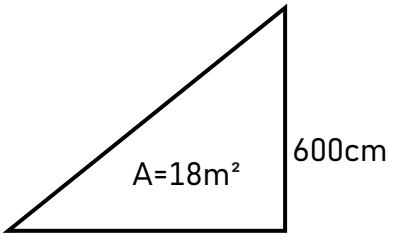


Base = _____

Height = _____

Area = _____

3)

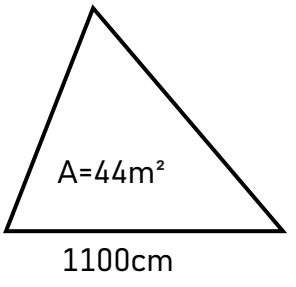


Base = _____

Height = _____

Area = _____

4)



Base = _____

Height = _____

Area = _____

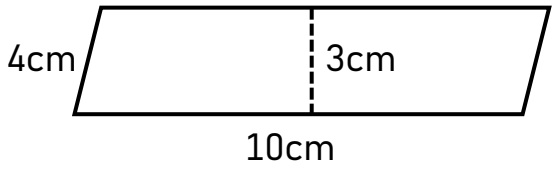
Name: _____ 55

Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

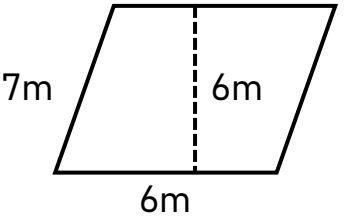
Questions Find the perimeter and area of the parallelograms below (A= b x h)

1)



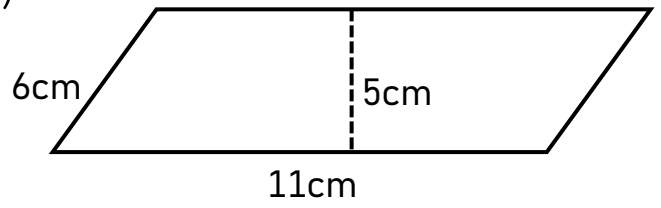
Perimeter = _____ Area = _____

2)



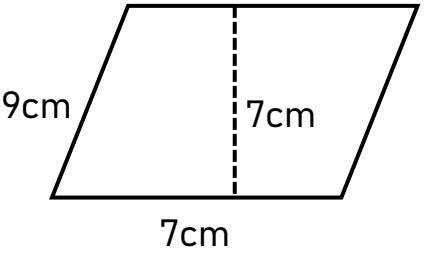
Perimeter = _____ Area = _____

3)



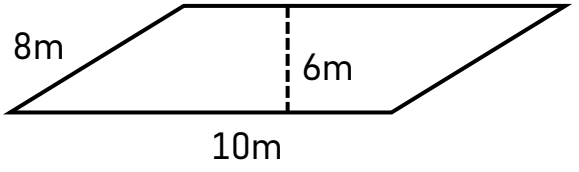
Perimeter = _____ Area = _____

4)



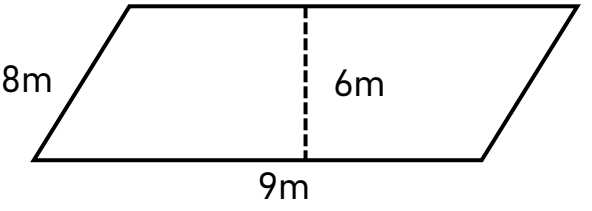
Perimeter = _____ Area = _____

5)



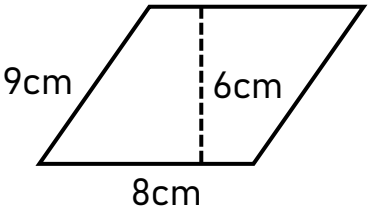
Perimeter = _____ Area = _____

6)



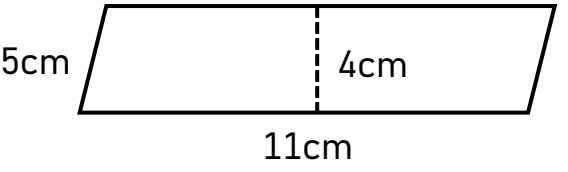
Perimeter = _____ Area = _____

7)



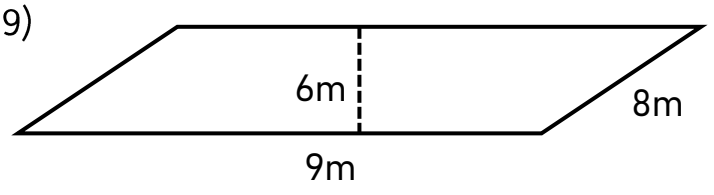
Perimeter = _____ Area = _____

8)



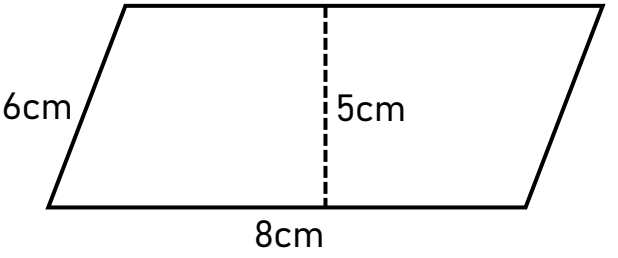
Perimeter = _____ Area = _____

9)



Perimeter = _____ Area = _____

10)



Perimeter = _____ Area = _____

Name: _____ 56

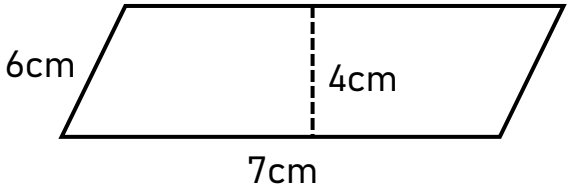
Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

Part 1

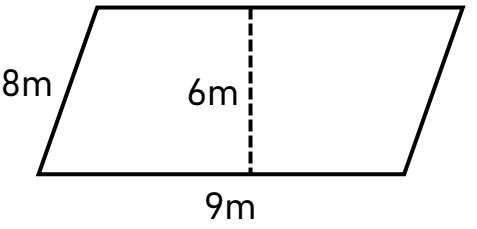
Find the perimeter and area of the parallelograms below (A= b x h)

1)



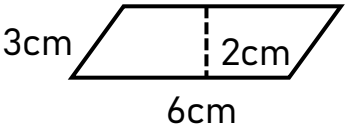
Perimeter = _____ Area = _____

2)



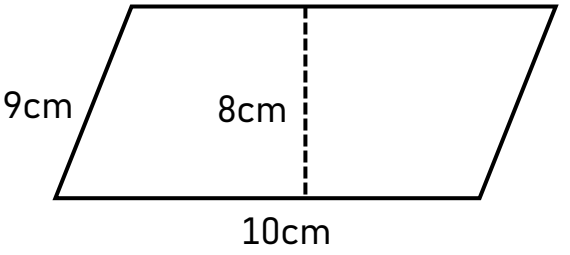
Perimeter = _____ Area = _____

3)



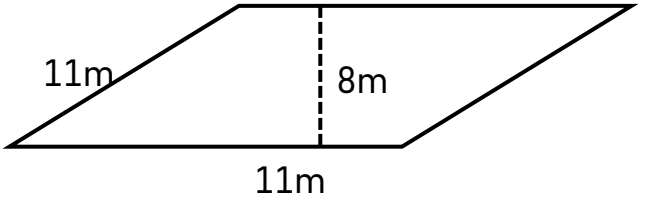
Perimeter = _____ Area = _____

4)



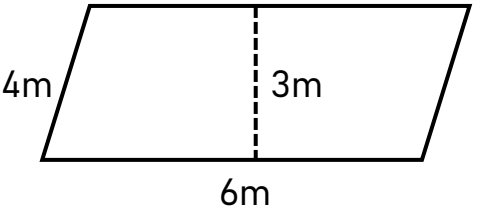
Perimeter = _____ Area = _____

5)



Perimeter = _____ Area = _____

6)



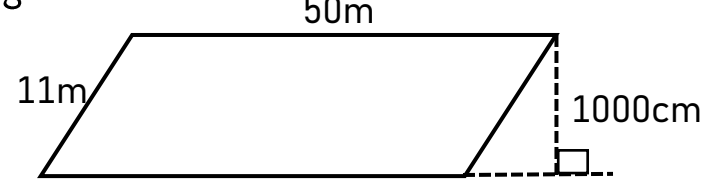
Perimeter = _____ Area = _____

Part 2

Answer the word problems below

1) A parallelogram has a top side length of 12cm. The height of the parallelogram is 7cm. What is the area of the parallelogram?

2) A parking lot is constructed in the shape of a parallelogram. What is the area of the parking lot?



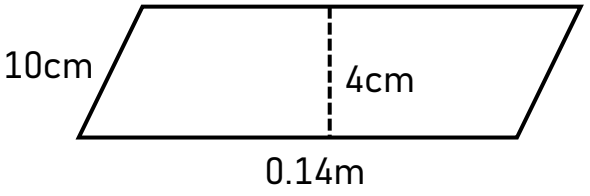
Name: _____ 57

Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

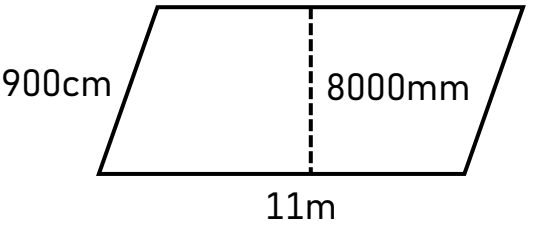
Part 1 Find the perimeter and area of the parallelograms below (A= b x h)

1)



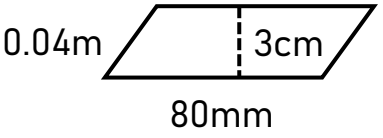
Perimeter = _____ Area = _____

2)



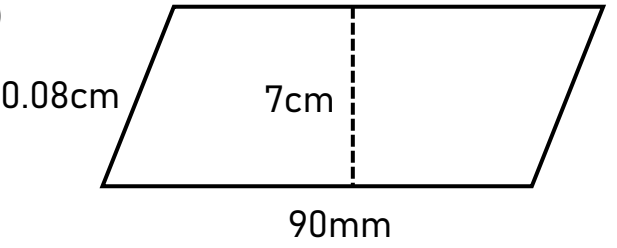
Perimeter = _____ Area = _____

3)



Perimeter = _____ Area = _____

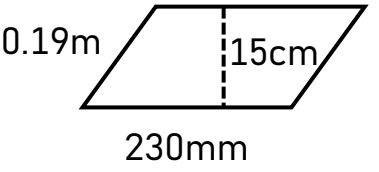
4)



Perimeter = _____ Area = _____

Part 2 Answer the word problems below

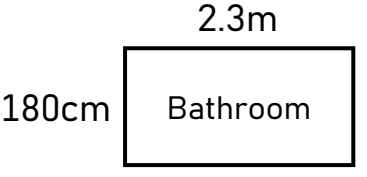
A bathroom is being tiled with parallelogram shaped tiles. The dimensions of the tiles are below.



1) What is the area of the parallelogram?

2) The dimensions of the bathroom are displayed below.

a) What is the area of the bathroom?



b) How many tiles will fit in the bathroom?

Name: _____ 58

Curriculum Connection
SS.2

Area of a Triangle/Parallelogram Word Problems

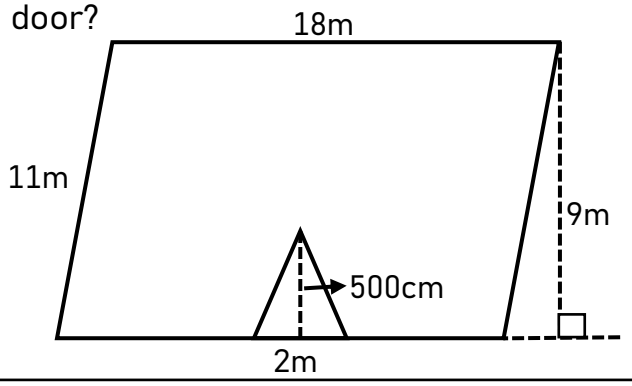
Questions Draw a picture of the problem and then find the area

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

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

3) Christina is painting her triangular artwork. The artwork has a base of 14cm and a height of 80mm. What is the area of her artwork in millimetres?

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



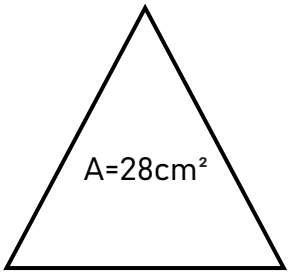
Name: _____ 59

Curriculum Connection
SS.2

Finding the Missing Information

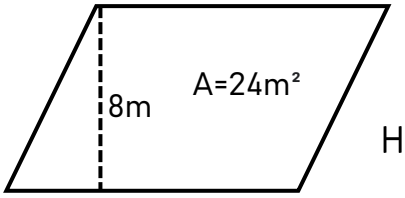
Questions Find the missing value (A= b x h)

1)



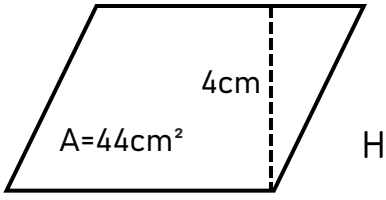
Base = _____
Height = _____
Area = _____

2)



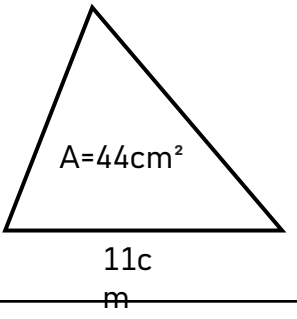
Base = _____
Height = _____
Area = _____

3)



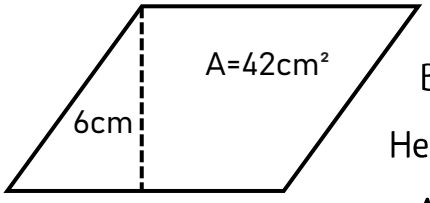
Base = _____
Height = _____
Area = _____

4)



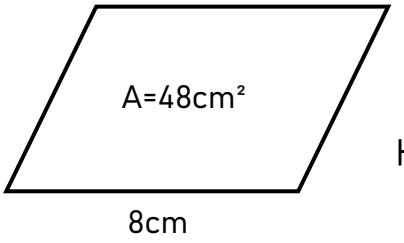
Base = _____
Height = _____
Area = _____

5)



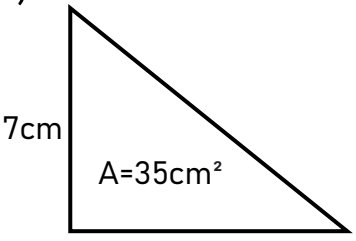
Base = _____
Height = _____
Area = _____

6)



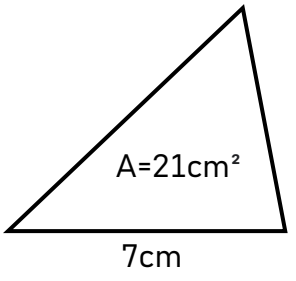
Base = _____
Height = _____
Area = _____

7)



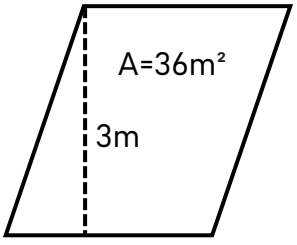
Base = _____
Height = _____
Area = _____

8)



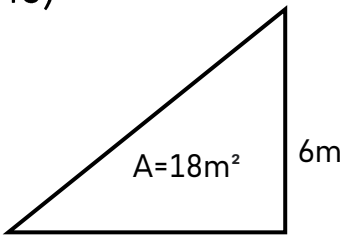
Base = _____
Height = _____
Area = _____

9)



Base = _____
Height = _____
Area = _____

10)



Base = _____
Height = _____
Area = _____

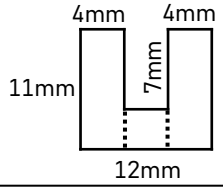
Name: _____ 60

Curriculum Connection
SS.2

Area of Composite Polygons

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

Example



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

Rectangle 1:
A = 11 x 4
A = 44 mm²

Rectangle 2:
A = 4 x 4
A = 16mm²

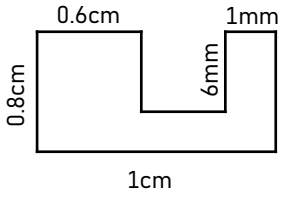
Rectangle 3:
A = 4 x 11
A = 44mm²

Area = 44 + 44 + 16
A = 104mm²

Questions

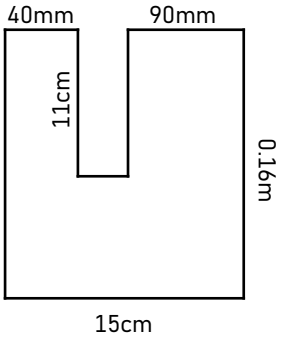
Find the area of the composite polygons below

1)



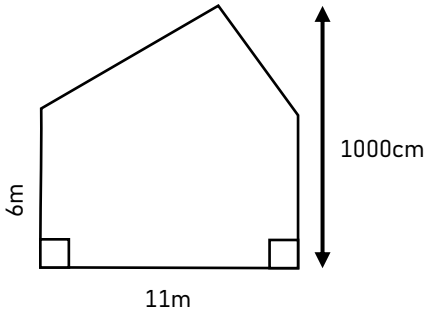
Area = _____

2)



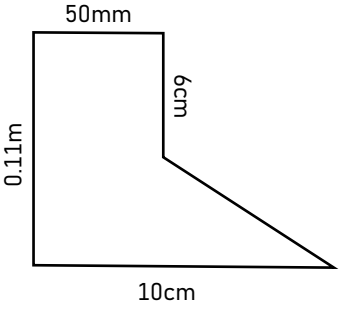
Area = _____

3)



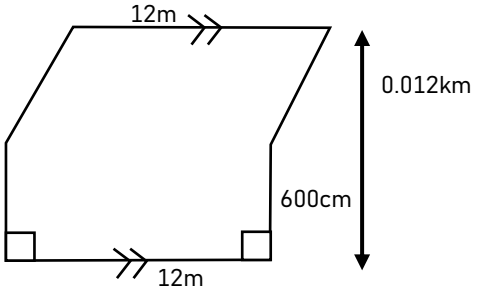
Area = _____

4)



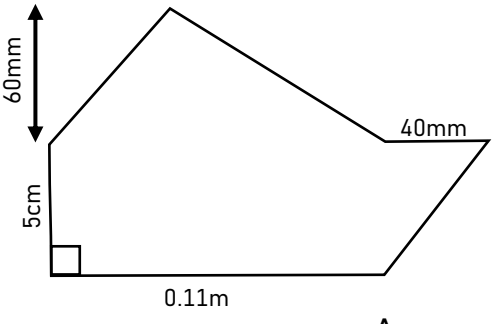
Area = _____

5)



Area = _____

6)



Area = _____

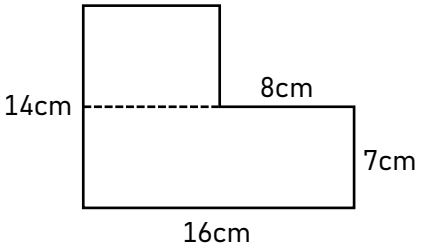
Name: _____ 61

Curriculum Connection
SS.2

Area of Composite Polygons

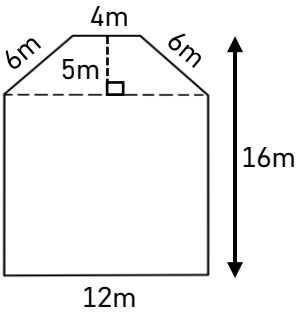
Questions Find the area of each composite shape

1)



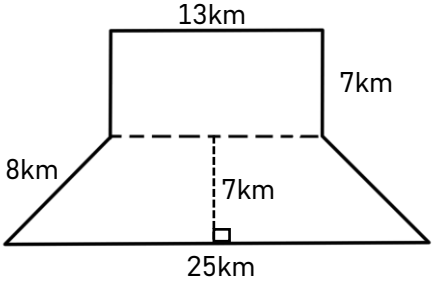
Area: _____

2)



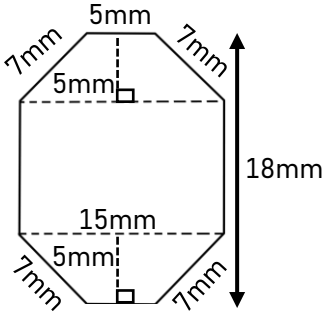
Area: _____

3)



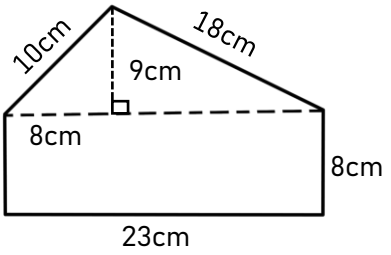
Area: _____

4)



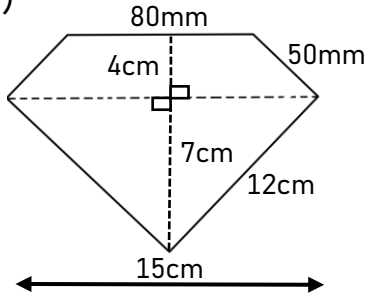
Area: _____

5)



Area: _____

6)



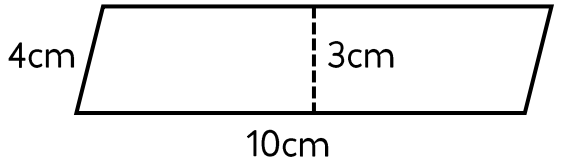
Area: _____

Name: _____ 62

Area Quiz - Triangles and Parallelograms

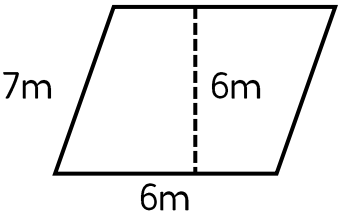
Part 1 — Find the area of the parallelograms below

1)



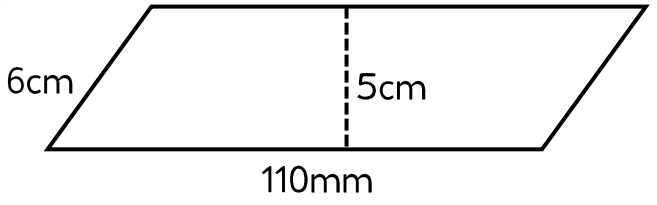
Area = _____

2)



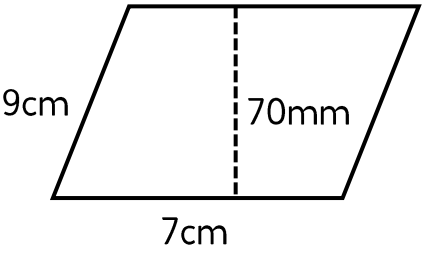
Area = _____

3)



Area = _____

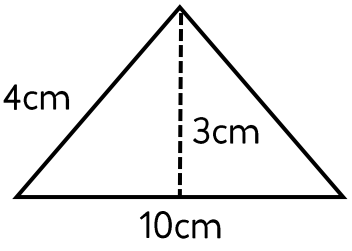
4)



Area = _____

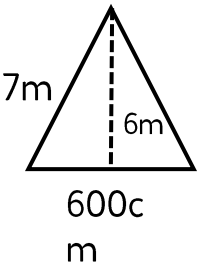
Part 2 — Find the area of the triangles below

1)



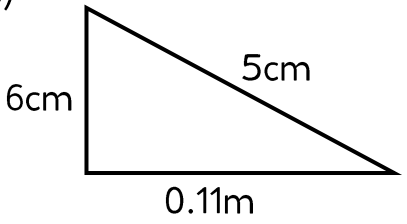
Area = _____

2)



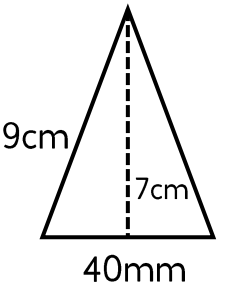
Area = _____

3)



Area = _____

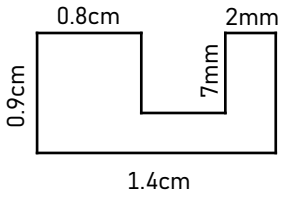
4)



Area = _____

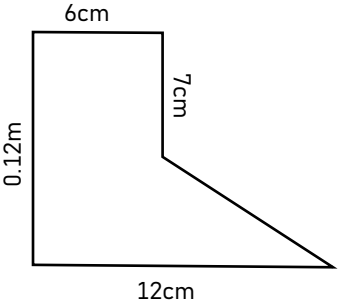
Part 3 — Find the area of the composite polygons below

1)



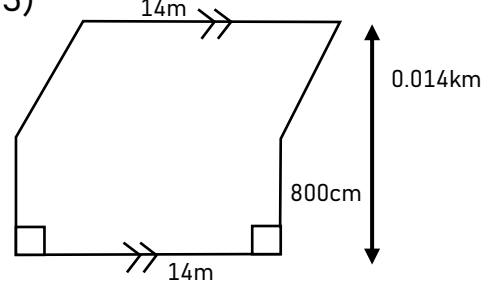
Area = _____

2)



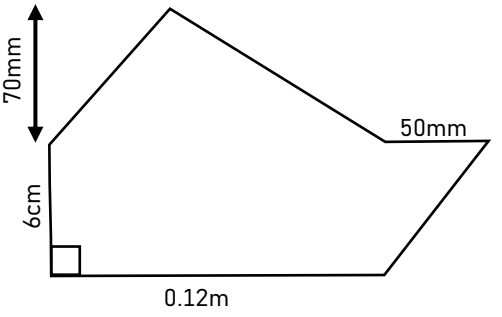
Area = _____

3)



Area = _____

4)

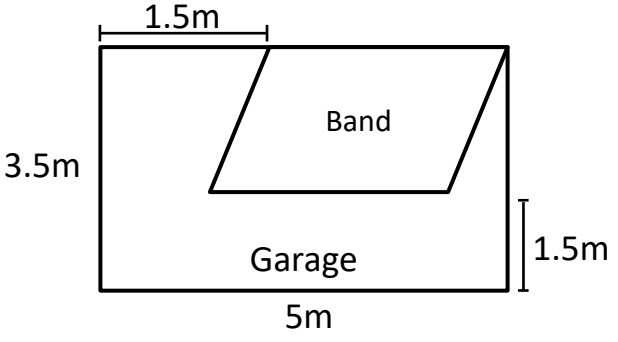


Area = _____

Part 4 — Solve the word problems below. Make sure to show your work

1) Jeremy's triangular picture frame has a base of 10cm and a height of 0.12m. What is the area of the triangular frame?

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



Grade 7

(3-D Objects and 2-D Shapes) and (Transformations)

	Curriculum Expectations	**Pages That Cover the Expectations**
SS.3	Perform geometric constructions, including: · perpendicular line segments · parallel line segments · perpendicular bisectors · angle bisectors	65 – 77
SS.4	Identify and plot points in the four quadrants of a Cartesian plane using ordered pairs.	78 – 82
SS.5	Perform and describe transformations of a 2-D shape in all four-quadrants of a Cartesian plane (limited to integral vertices).	83 - 111

Name: _____ 65

Curriculum Connection
SS.3

Lines, Rays, and Line Segments

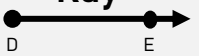
Point

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

Line

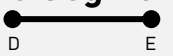
A **line** is straight and goes on forever in both directions (arrows). Lines can have points on them (AB or BA)

Ray



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

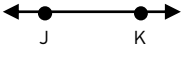
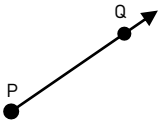
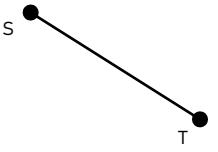
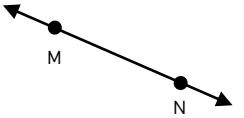
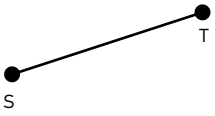
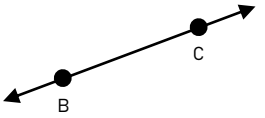
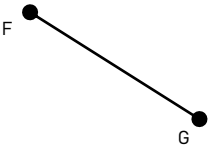
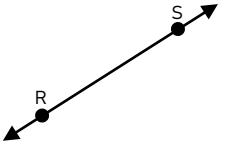
Line Segment



A **line segment** is a straight line between two points. The line segment above is DE or ED.

Part 1

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

1) 	2) 	3) 	4) 
Line JK or KJ JK or KJ			
5) 	6) 	7) 	8) 
9) 	10) 	11) 	12) 

Part 2

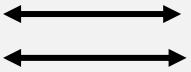
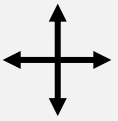
Construct a ray, line, point, and line segment. Label each.

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

Name: _____ 66

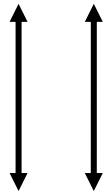
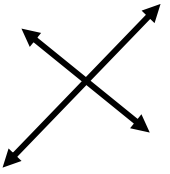
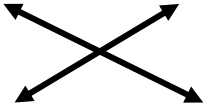
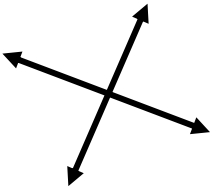
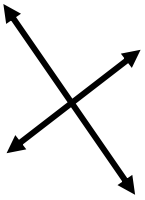
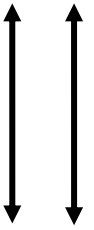
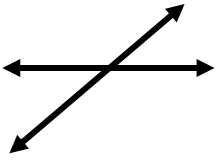
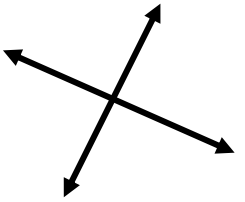
Curriculum Connection
SS.3

Parallel, Perpendicular and Intersecting Lines

 = Parallel Lines  = Perpendicular Lines  = Intersecting Lines

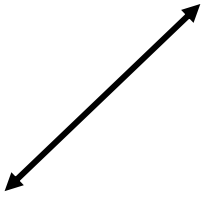
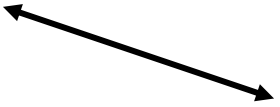
Part 1

Label the lines parallel, perpendicular, or intersecting

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

Part 2

Draw a second line that is intersecting, perpendicular, or parallel to the other line

1) 	2)	3)	4) 
Perpendicular	Parallel	Intersecting	Parallel
5) 	6) 	7) 	8)
Intersecting	Perpendicular	Intersecting	Parallel

Name: _____ 67

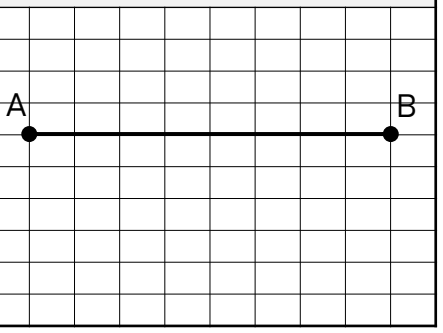
Curriculum Connection
SS.3

Perpendicular and Parallel Line Segments

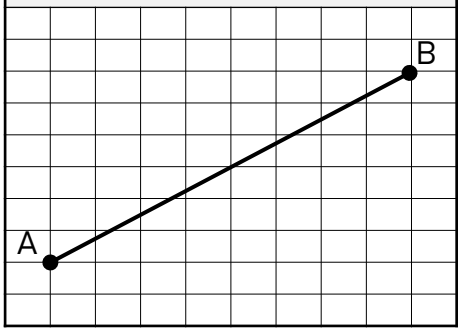
Part 1

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

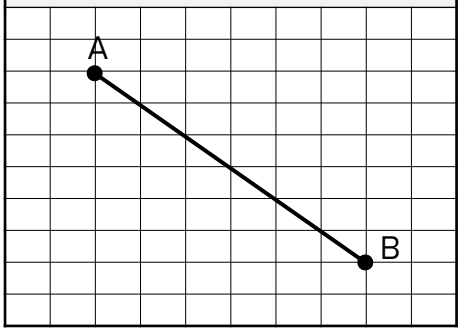
1)



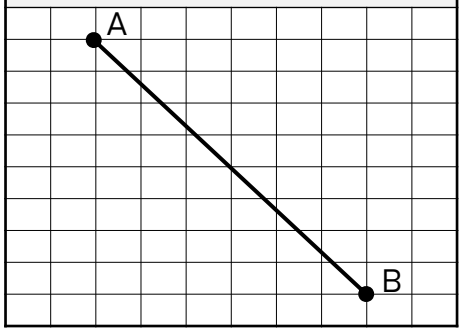
2)



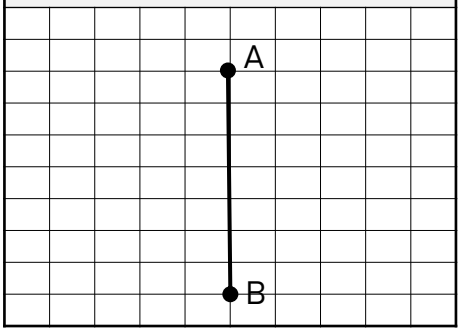
3)



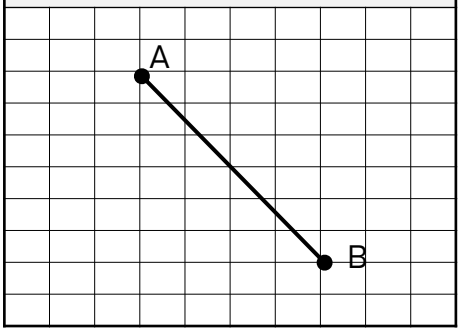
4)



5)



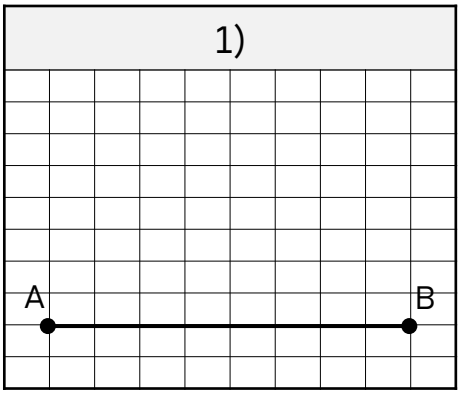
6)



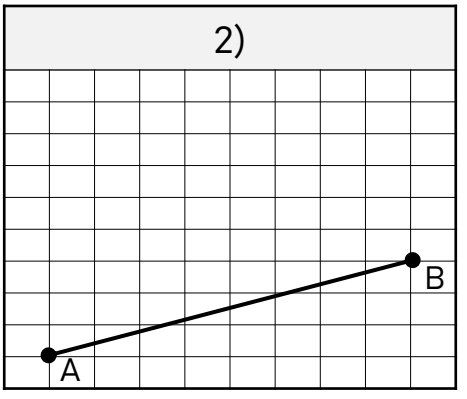
Part 2

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

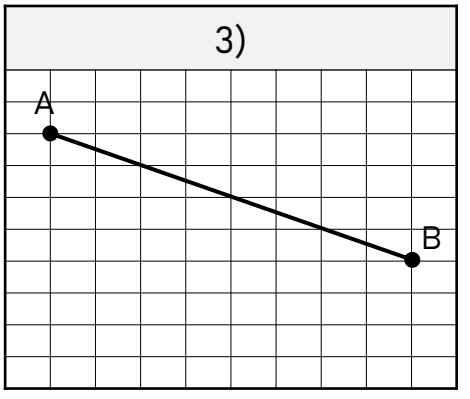
1)



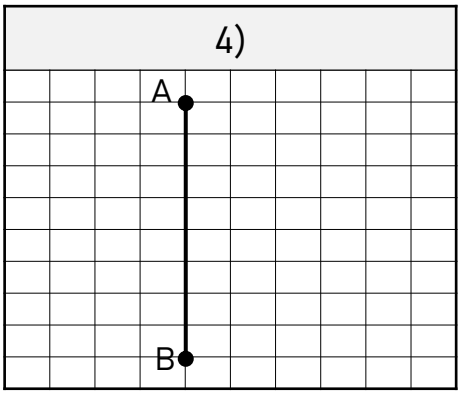
2)



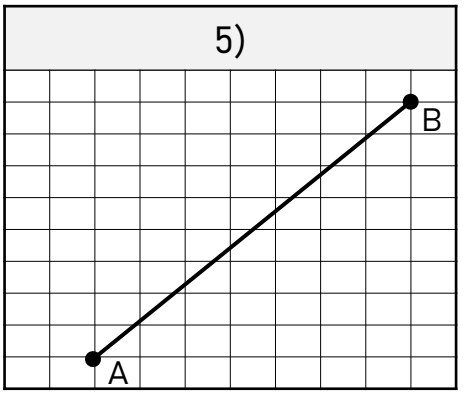
3)



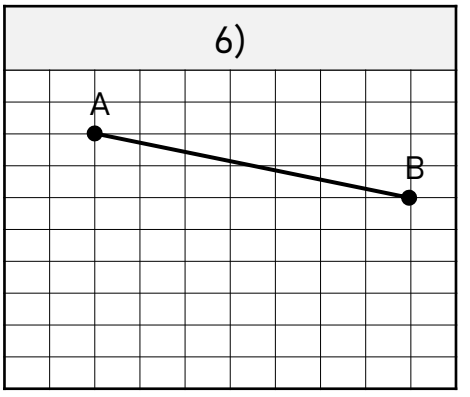
4)



5)



6)

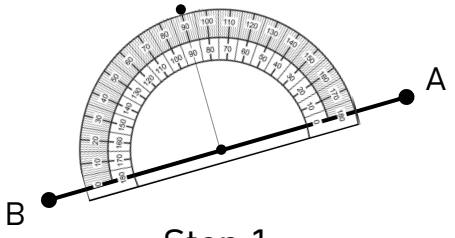


Name: _____ 68

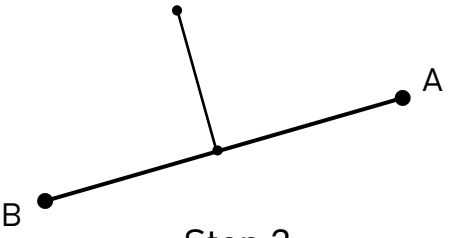
Curriculum Connection
SS.3

Perpendicular Line Segments

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



Step 1

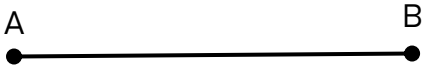


Step 2

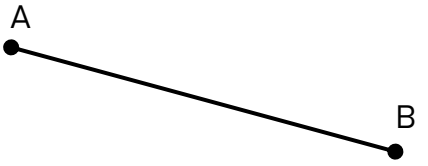
Questions

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

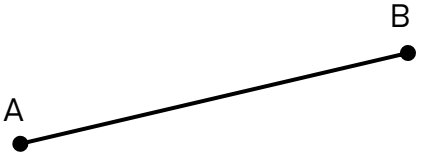
1)



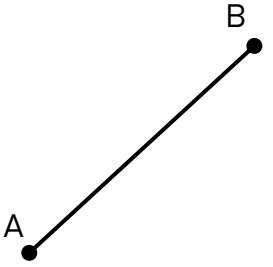
2)



3)

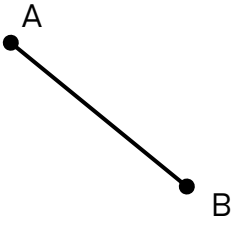


4)

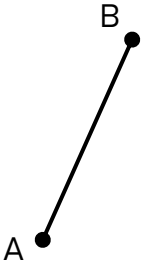


5)

6)



7)



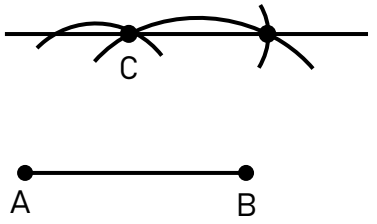
8)

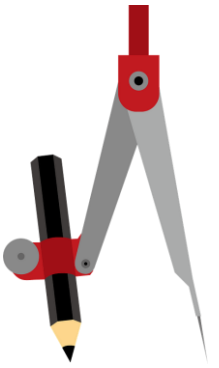
Name: _____ 69

Curriculum Connection
SS.3

Parallel Line Segments

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

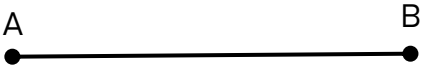




Questions

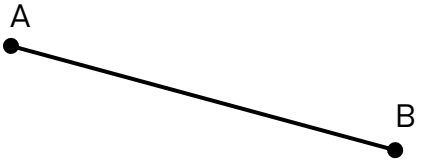
Construct parallel lines of the line segments $\overline{AB}$

1)

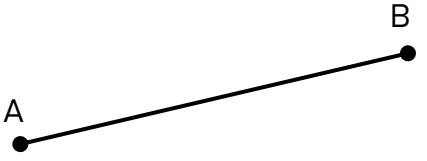


2)

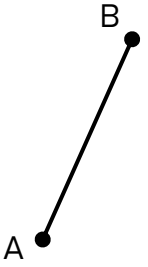
3)



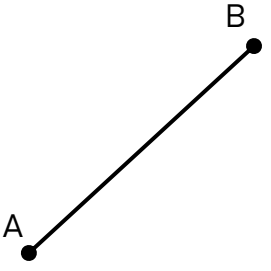
4)



5)



6)



Name: _____ 70

Curriculum Connection
SS.3

Constructing Quadrilaterals - Parallel and Perpendicular Lines

Questions Construct the quadrilaterals below using parallel and perpendicular lines

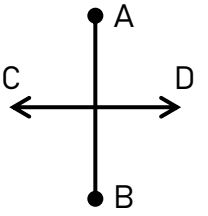
1)	2)
Square	Rectangle
3)	4)
Parallelogram (2 sets of parallel lines)	Trapezoid (bases have parallel lines)
5)	6)
Rhombus (parallel opposite sides)	Kite (diagonal lines are perpendicular)

Name: _____ 71

Curriculum Connection
SS.3

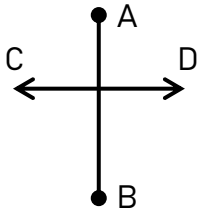
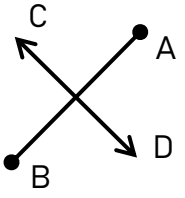
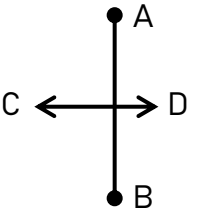
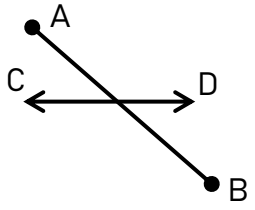
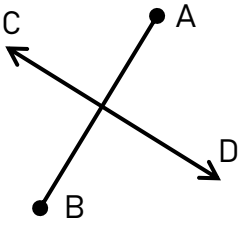
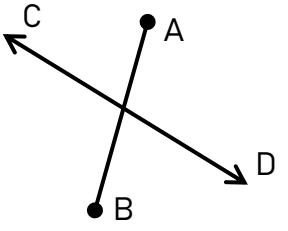
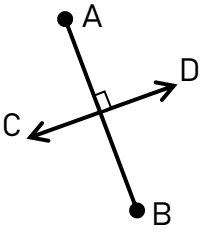
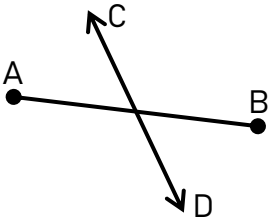
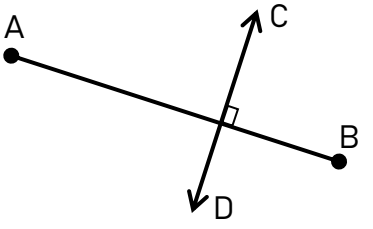
Perpendicular Bisector

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



Part 1

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

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

Part 2

Write what the terms below mean in your own words

Term	Definition
Perpendicular	
Midpoint	

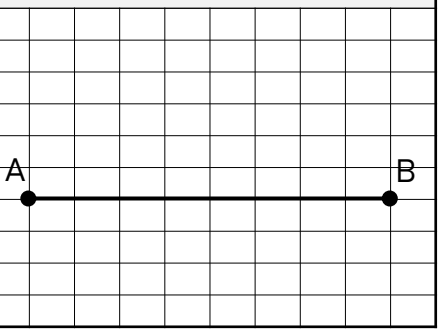
Name: _____ 72

Curriculum Connection
SS.3

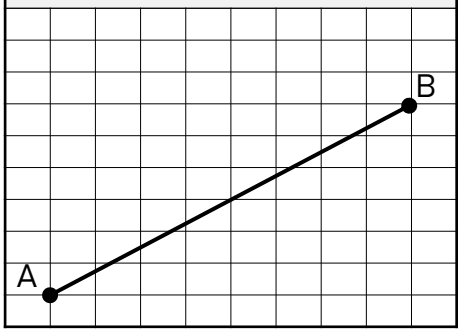
Perpendicular Bisector

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

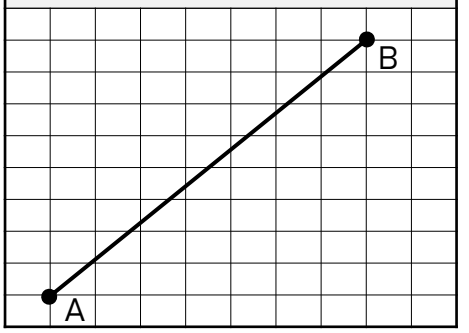
1)



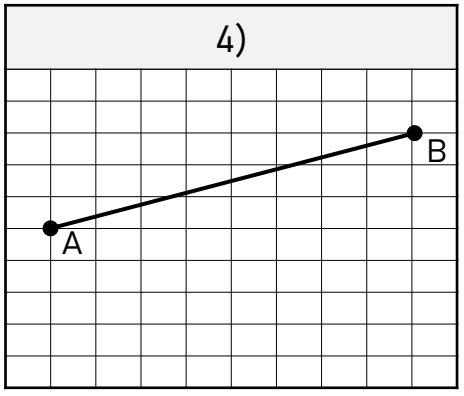
2)



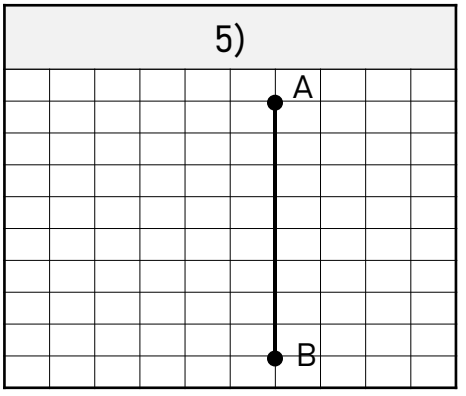
3)



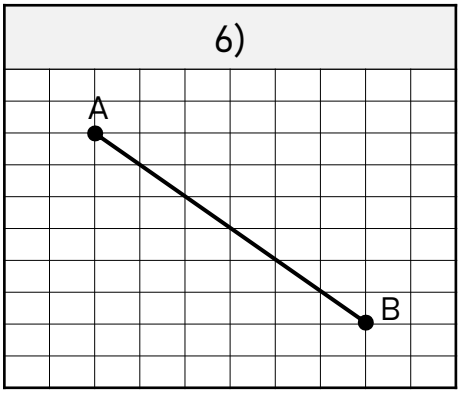
4)



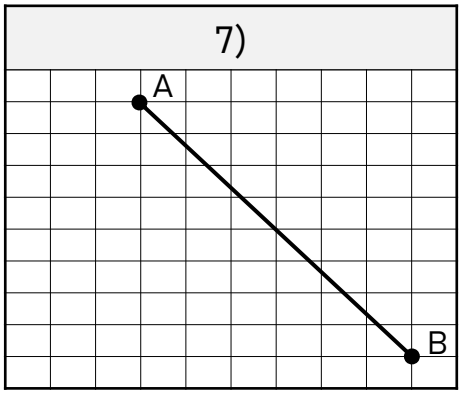
5)



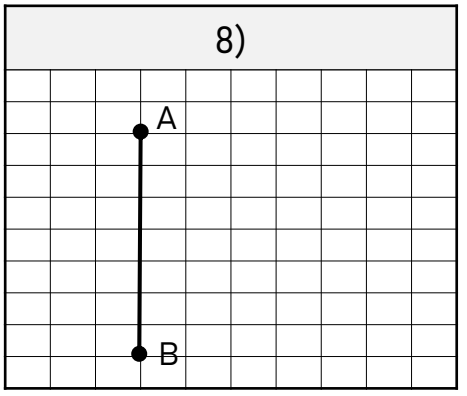
6)



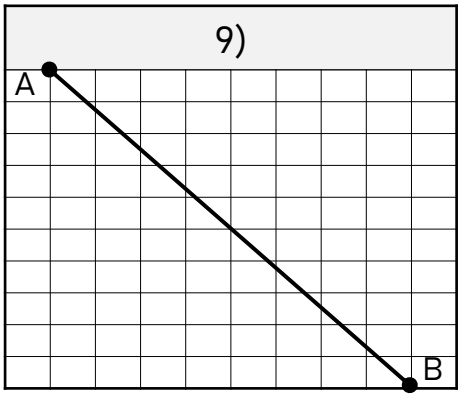
7)



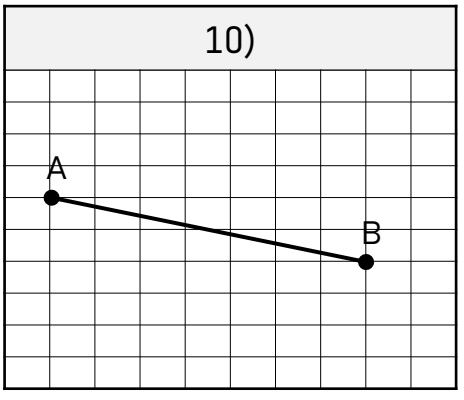
8)



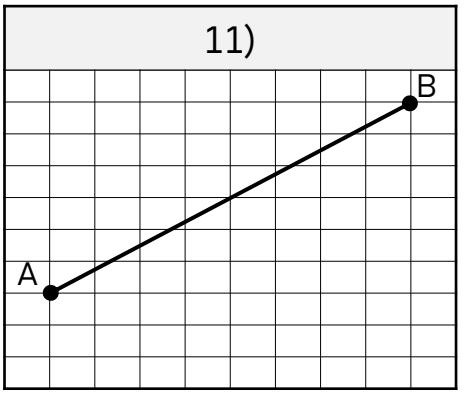
9)



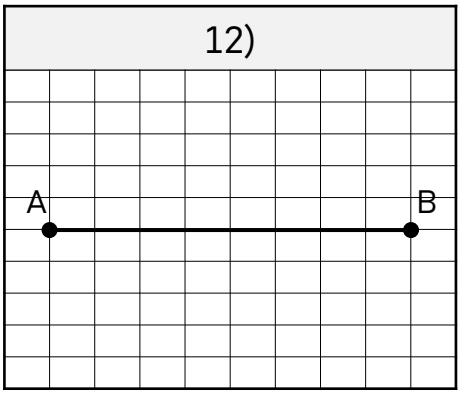
10)



11)



12)



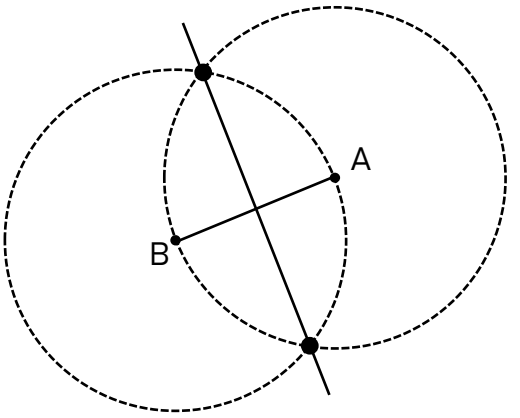
Name: _____ 73

Curriculum Connection
SS.3

Perpendicular Bisector

Example - Perpendicular line bisector of the line segment AB

- Use a compass to sketch a circle around point A
- Use a compass to sketch a circle around point B
- Where the circles intersect, place a point
- Connect the two points to finish constructing your perpendicular bisector

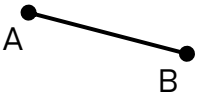


Questions

Construct perpendicular bisectors of the line segment $\overline{AB}$

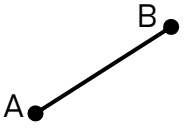
1)

2)



3)

4)



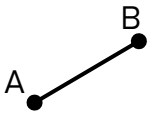
Name: _____ 74

Curriculum Connection
SS.3

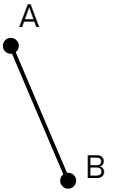
Perpendicular Bisector

Questions Construct perpendicular bisectors of the line segment $\overline{AB}$

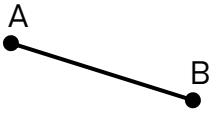
1)



2)

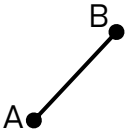


3)

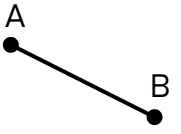


4)

5)



6)

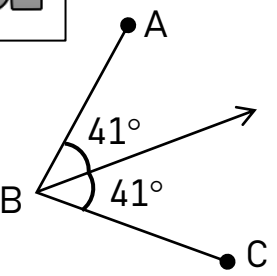


Name: _____ 75

Curriculum Connection
SS.3

Angle Bisector

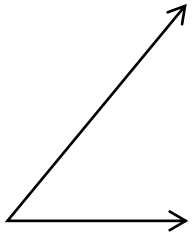
An **angle bisector** is a line that cuts an angle into two identical (congruent) parts. For example, if we construct an angle bisector on a 90° angle, we will have two 45° angles.



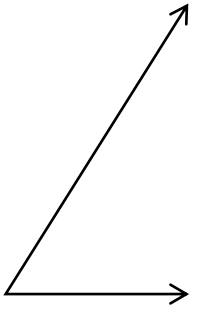
∠ABC =82°

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

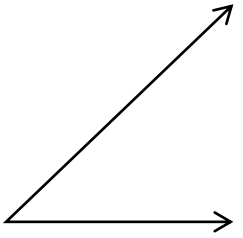
1)



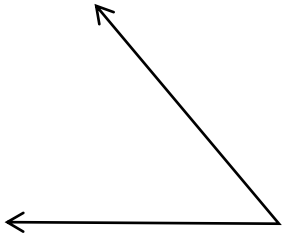
2)



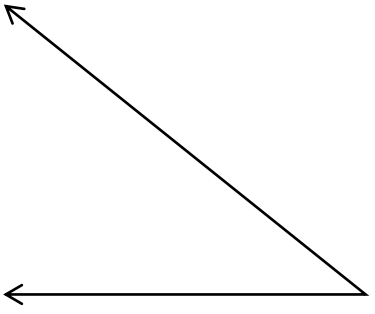
3)



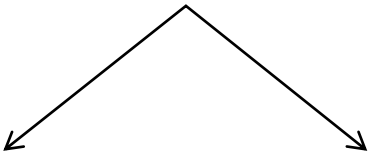
4)



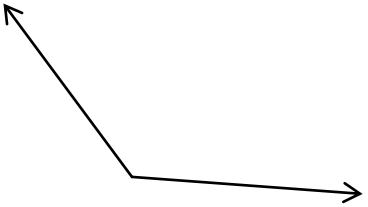
5)



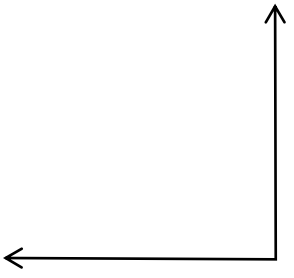
6)



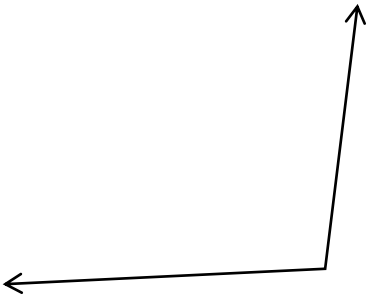
7)



8)



9)



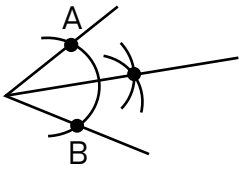
Name: _____ 76

Curriculum Connection
SS.3

Angle Bisector

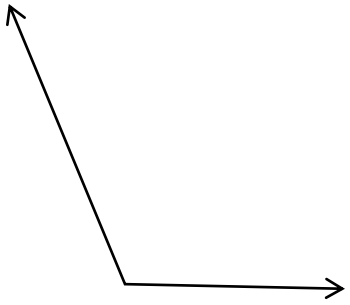
We can also use a compass to find an angle bisector.

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

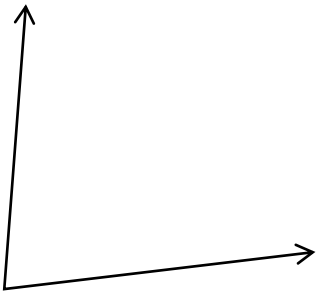


Directions Construct an angle bisector of the angles below using a compass

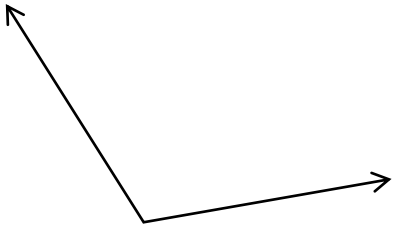
1)



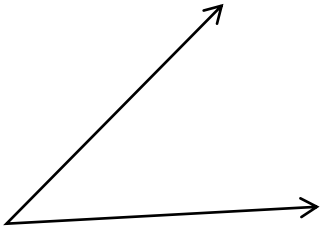
2)



3)



4)



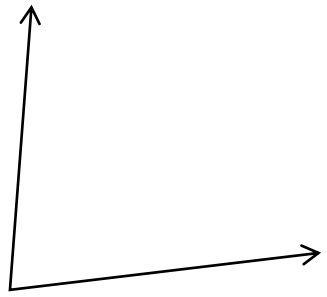
Name: _____ 77

Curriculum Connection
SS.3

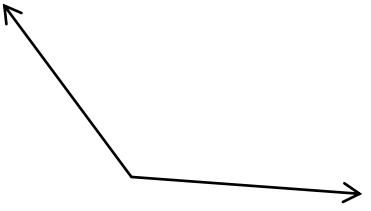
Angle Bisector

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

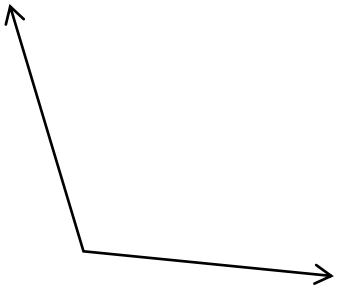
1)



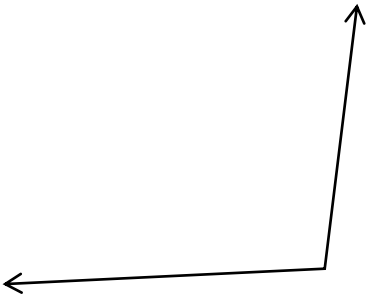
2)



3)



4)

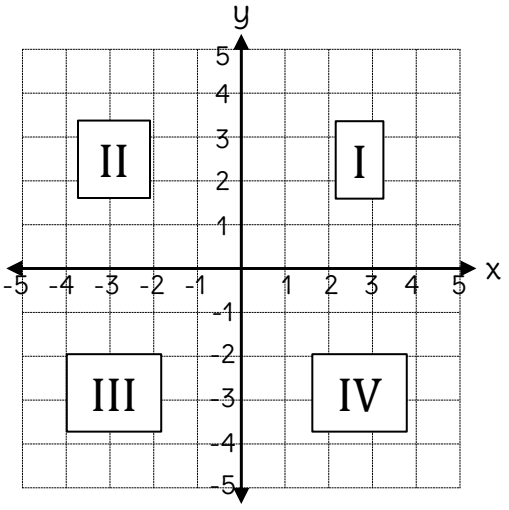


Name: _____ 78

Curriculum Connection
SS.4

Four Quadrants - Cartesian Plane

Part 1 Write which quadrant the points would be found



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

Part 2 Write your own coordinates for a point that could be found in the quadrant

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

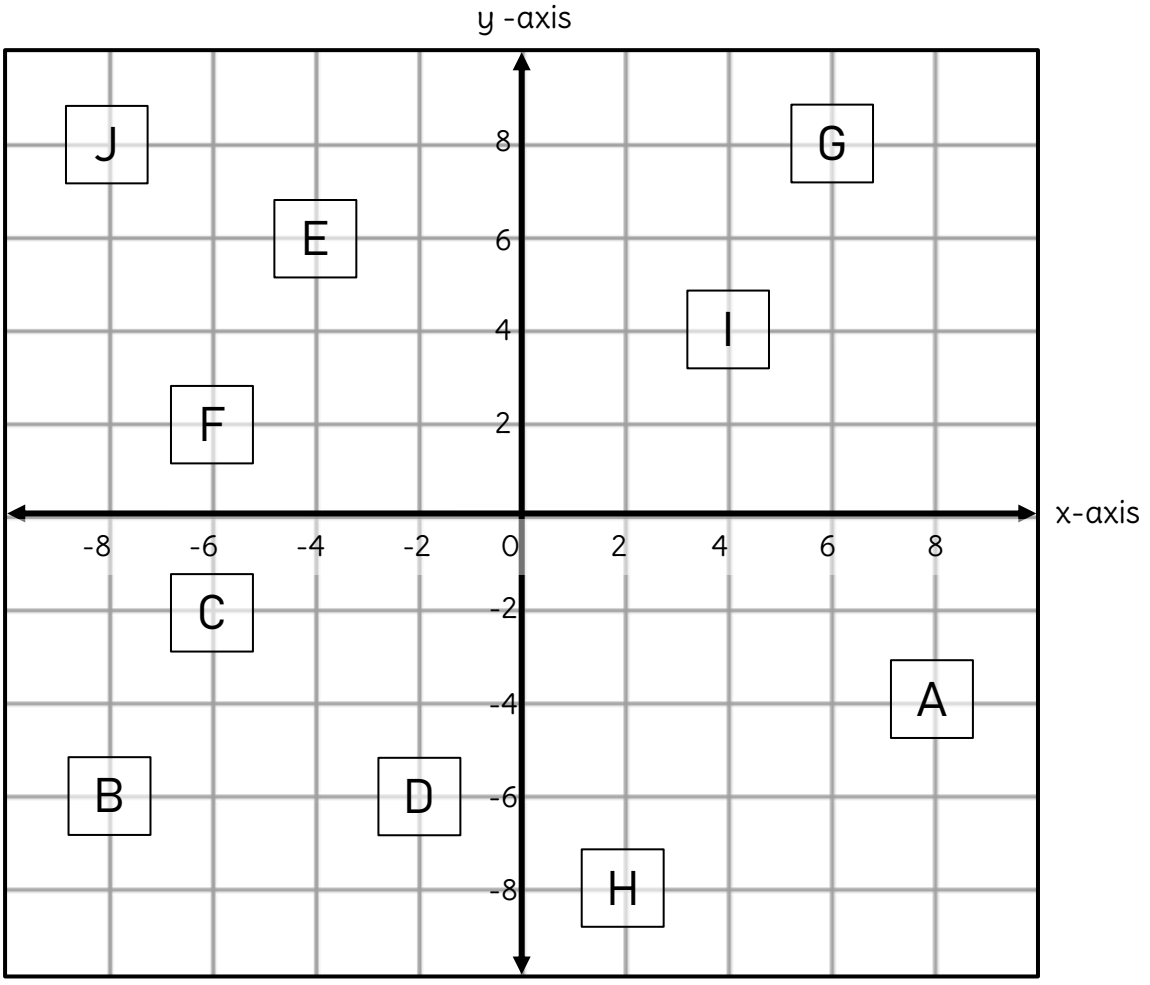
Part 3 Which quadrant number is associated with the descriptions below

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

Name: _____ 79

Curriculum Connection
SS.4

Using 4 Quadrants on a Cartesian Plane



Questions Write the coordinates for each object on the cartesian plane

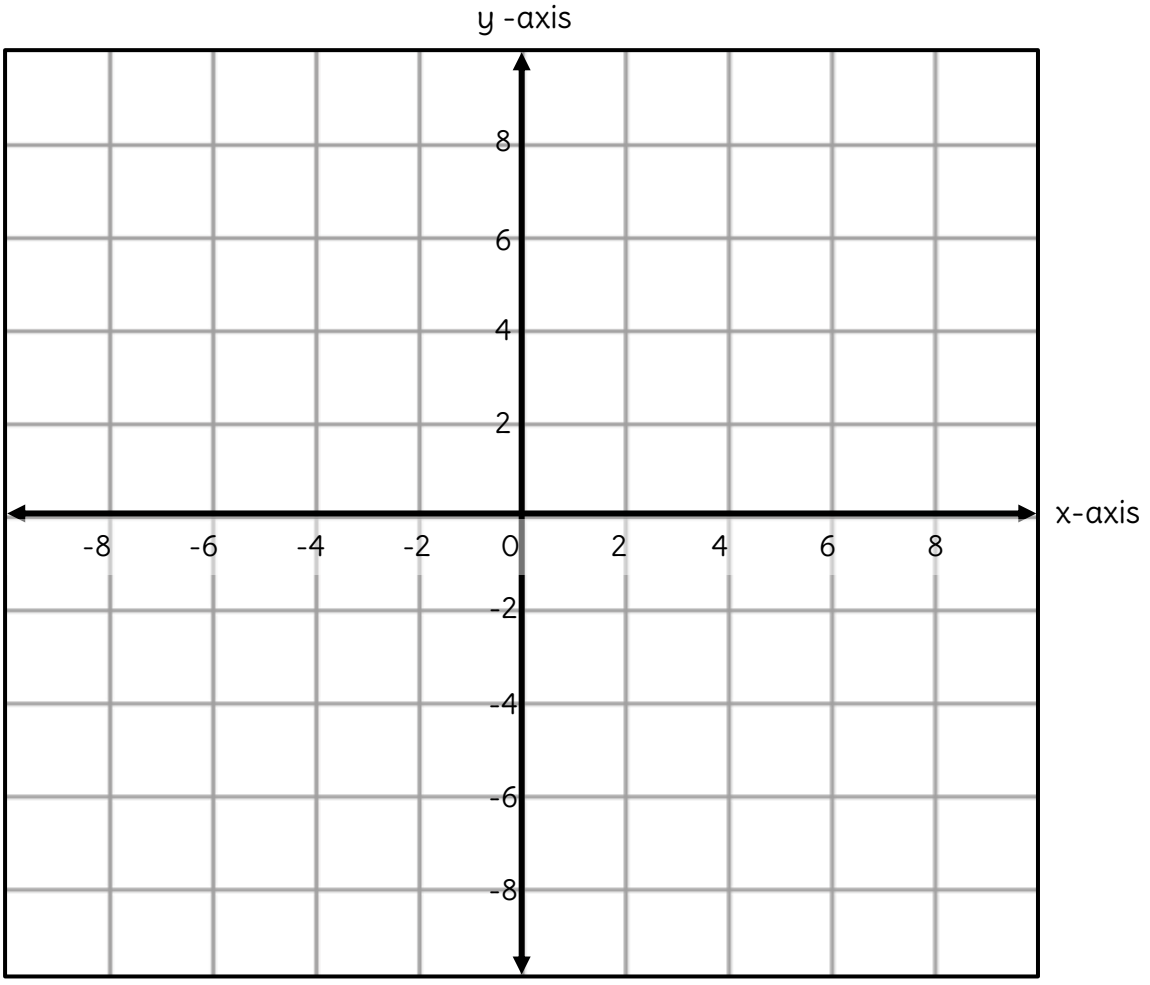
Symbol	**Coordinates** (x, y)
A	(8, -4)
B	(_____, _____)
C	(_____, _____)
D	(_____, _____)
E	(_____, _____)

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

Name: _____ 80

Curriculum Connection
SS.4

Using 4 Quadrants on a Cartesian Plane



Questions

Write the letters on the grid according to the coordinates

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

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

Name: _____ 81

Curriculum Connection
SS.4

Plotting Ordered Pairs on Cartesian Plane

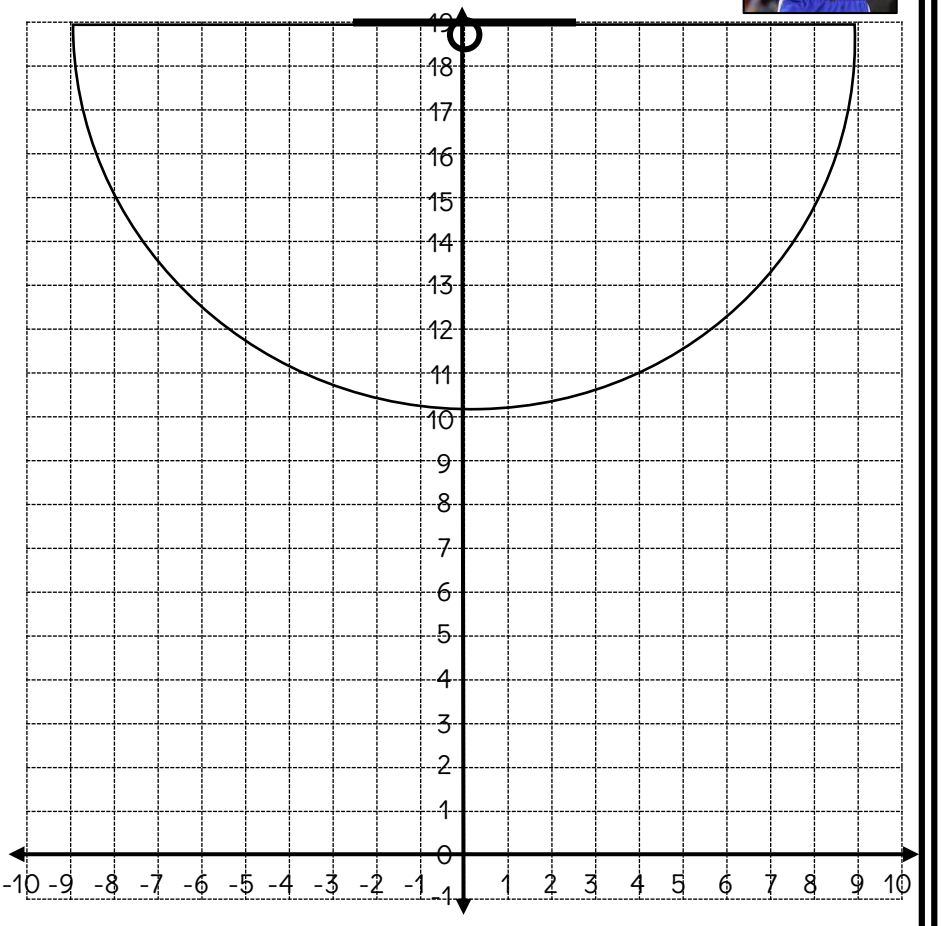
Directions Plot the ordered pairs on the cartesian plane

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

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

If the shot is missed, plot a red dot using the coordinates.

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



Questions Answer the questions below

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

Name: _____ 82

Curriculum Connection
SS.4

Plotting Ordered Pairs on Cartesian Plane

Directions

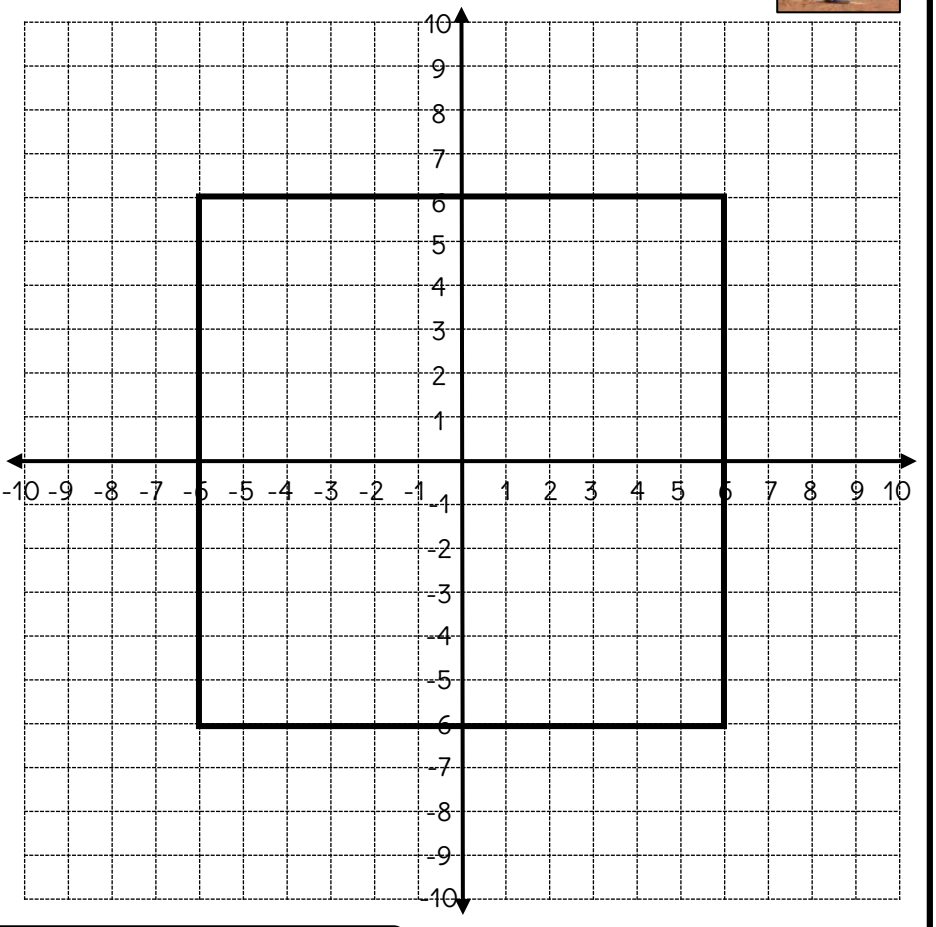
Plot the ordered pairs on the cartesian plane

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

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

If the pitch is hit, plot a red dot using the coordinates.

Strikes	Hits
(-3, 0)	(0, 0)
(-6, -6)	(0, 2)
(5, -5)	(-1, -1)
(3, 6)	(-2, 2)
(-7, 6)	(2, -1)
(6, 6)	(-3, -2)
(-5, -4)	(3, -2)
(-8, -4)	(-2, -3)
(5, 5)	(2, -2)
(-3, 5)	



Questions

Answer the questions below

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

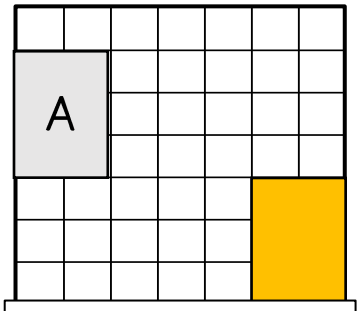
Name: _____ 83

Curriculum Connection
SS.5

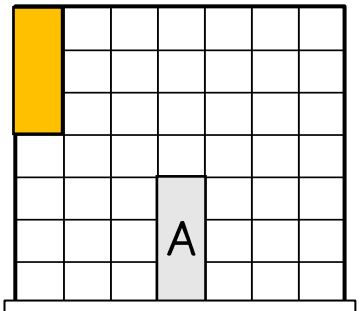
Transformations - Translations

Part 1

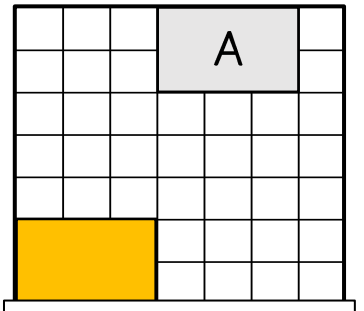
Describe the translations below. Shape A is the original object



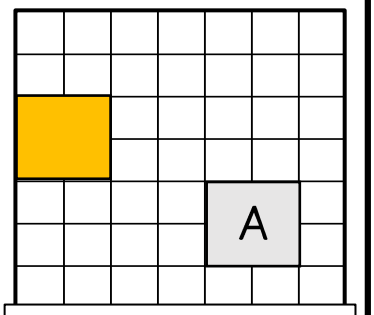
1) down 3, right 5



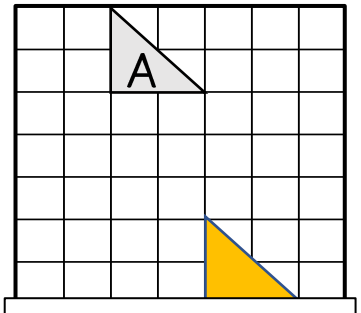
2) _____



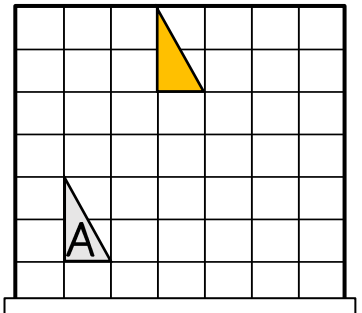
3) _____



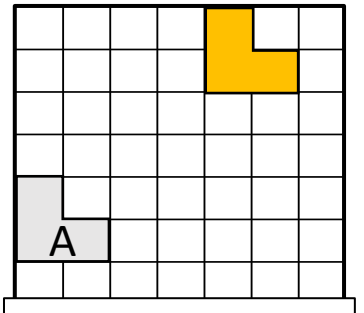
4) _____



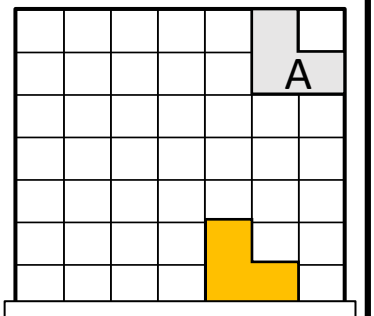
5) _____



6) _____



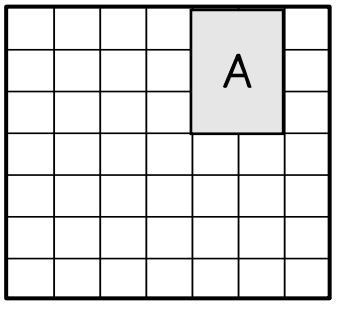
7) _____



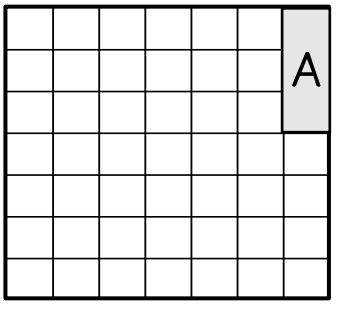
8) _____

Part 2

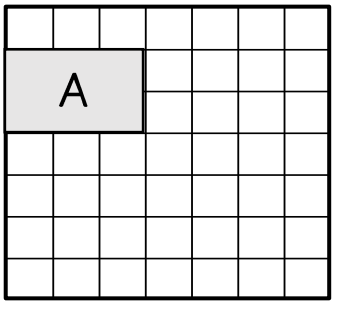
Draw the translations below



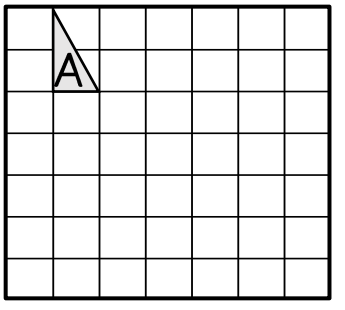
1) 4 ↓



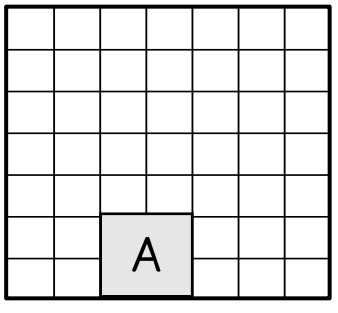
2) 3 ↓, 4 ←



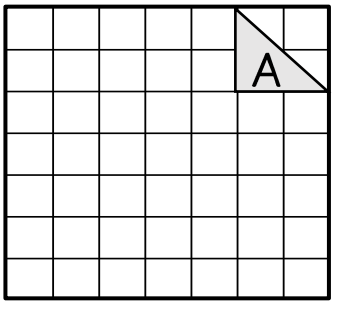
3) 2 ↓, 4 →



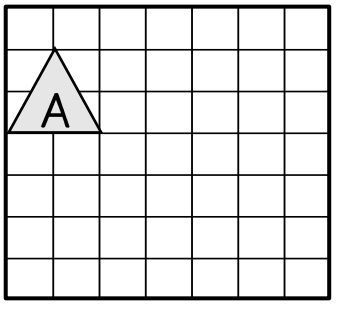
4) 4 ↓ , 3 →



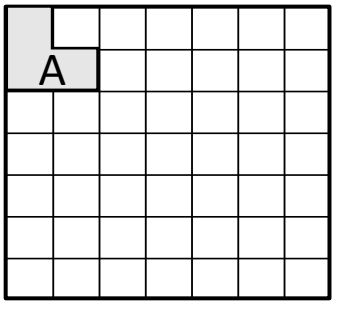
5) 4 ↑, 2 →



6) 5 ↓, 4 ←



7) 2 ↓, 5 →



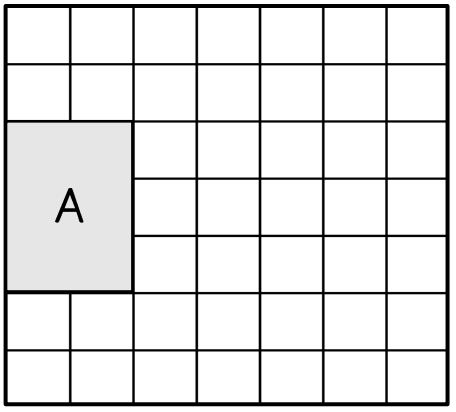
8) 3 ↓, 5 →

Name: _____ 84

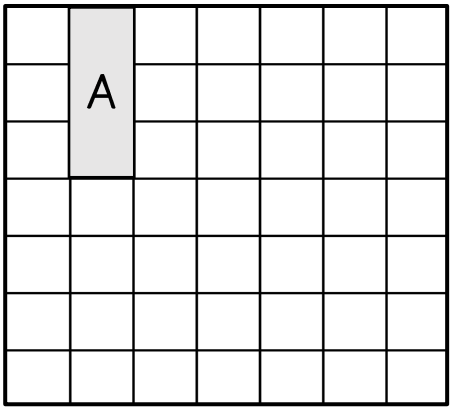
Curriculum Connection
SS.5

Performing Translations

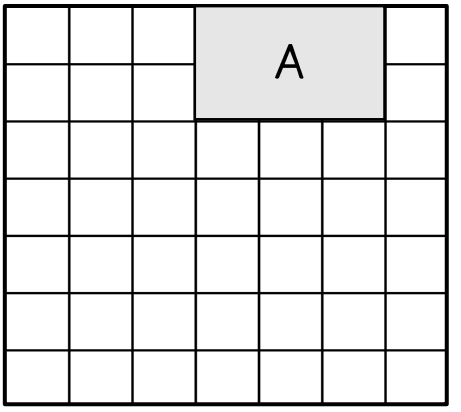
Questions Draw the new shape after reading the 3 steps



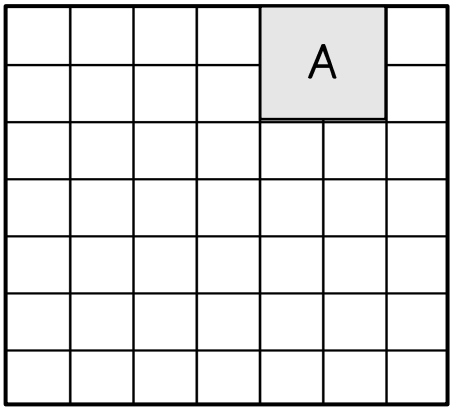
1) 2↑, 5→, 3↓



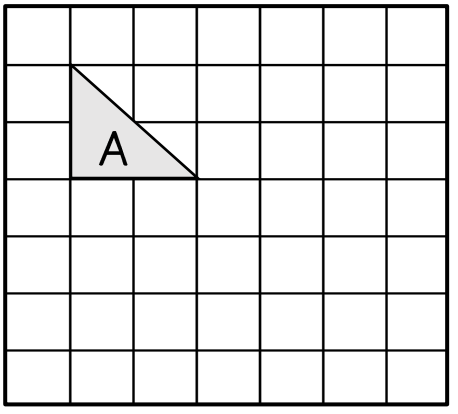
2) 3↓, 4→, 1↓



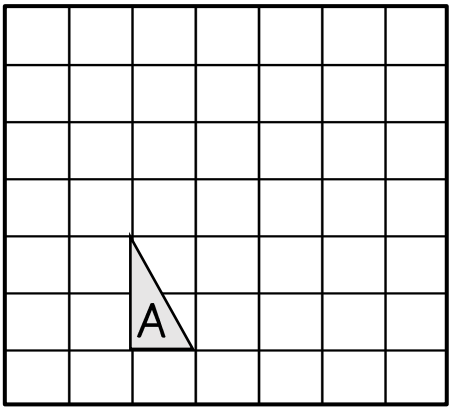
3) 1↓, 3←, 2↓



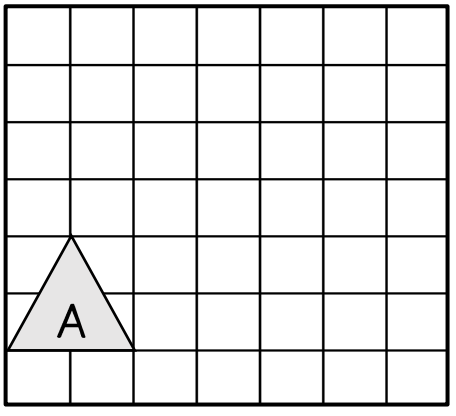
4) 4↓, 3←, 2↑



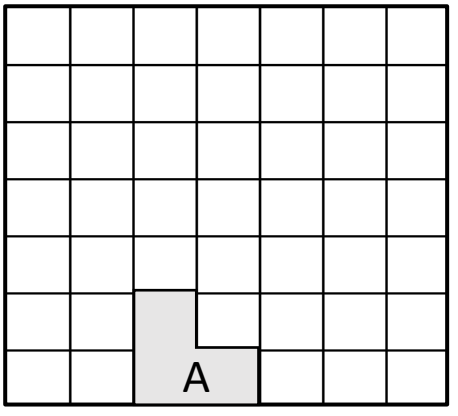
5) 3↓, 3→, 4↑



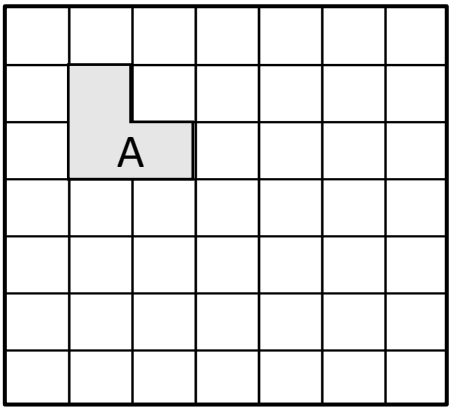
6) 4↑, 3→, 2↓



7) 4↑, 3→, 1←



8) 5↑, 2→, 4↓



9) 3↓, 3→, 3↑

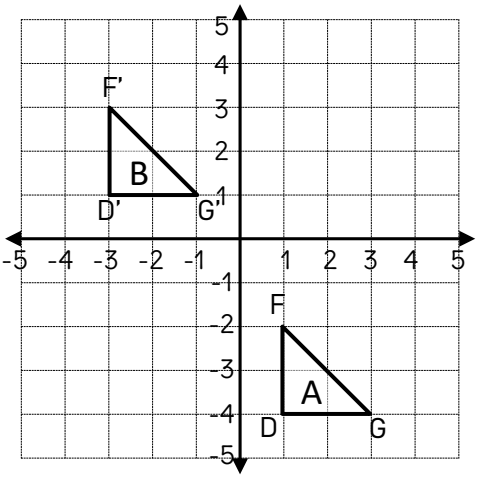
Name: _____ 85

Curriculum Connection
SS.5

Translations - Mapping Rules

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

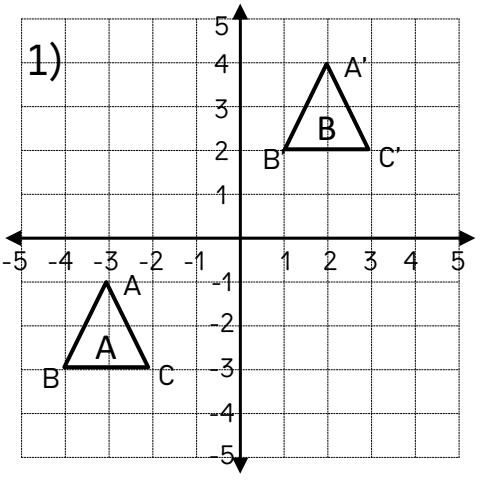
1) Choose 1 coordinate from the shape to translate
2) We need to move the x coordinate –4 spaces to the left. This means we subtract 4.
3) We need to move the y coordinate +5 spaces up. This means we add 5.
4) The **mapping rule** is: (x, y) → (x – 4, y + 5)
5) Remember: if we move to the left or down,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



Questions

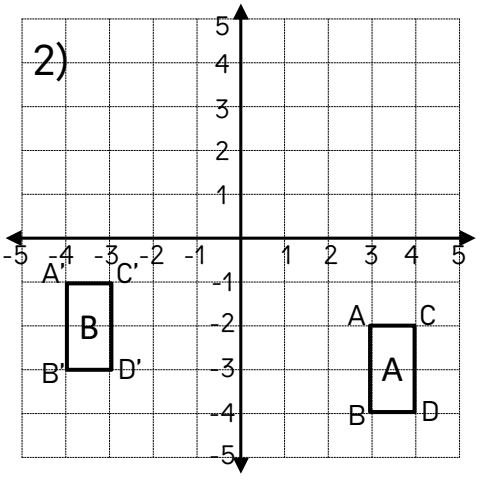
Fill in the mapping rule that translates figure A to figure B

1)



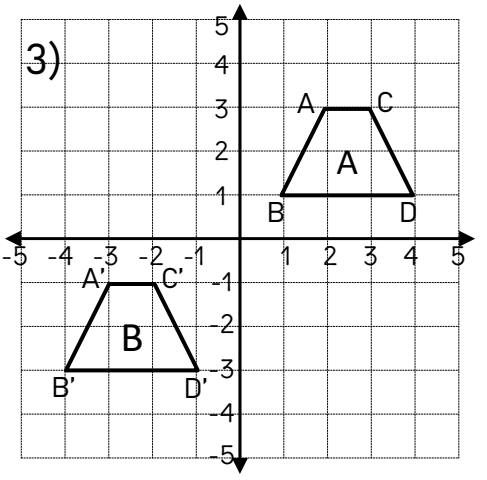
Mapping Rule	(x☐__, y☐__)

2)



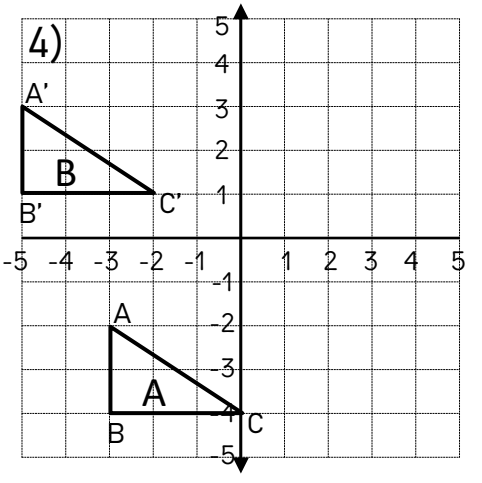
Mapping Rule	(x☐__, y☐__)

3)



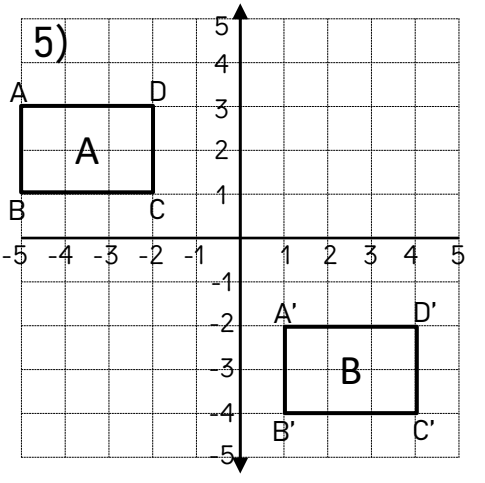
Mapping Rule	(x☐__, y☐__)

4)



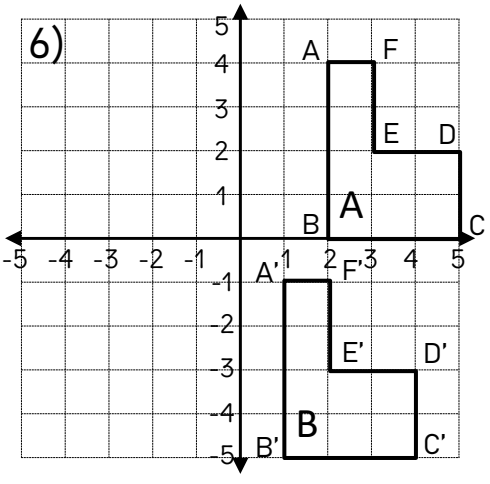
Mapping Rule	(x☐__, y☐__)

5)



Mapping Rule	(x☐__, y☐__)

6)



Mapping Rule	(x☐__, y☐__)

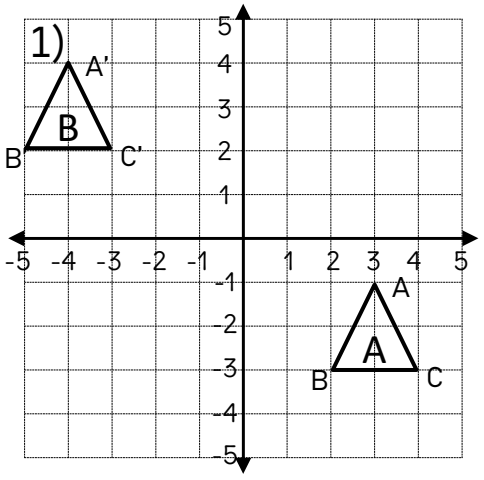
Name: _____ 86

Curriculum Connection
SS.5

Translations - Mapping Rules

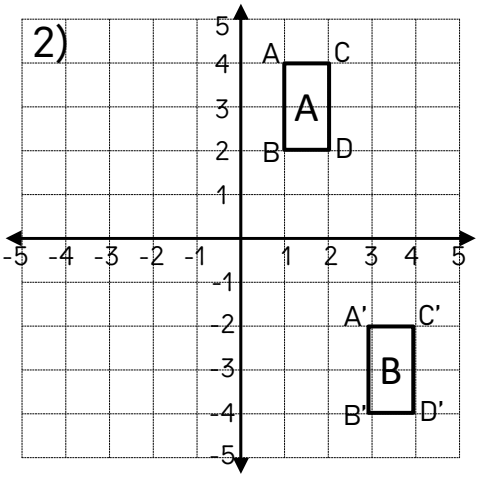
Questions Fill in the mapping rule

1)



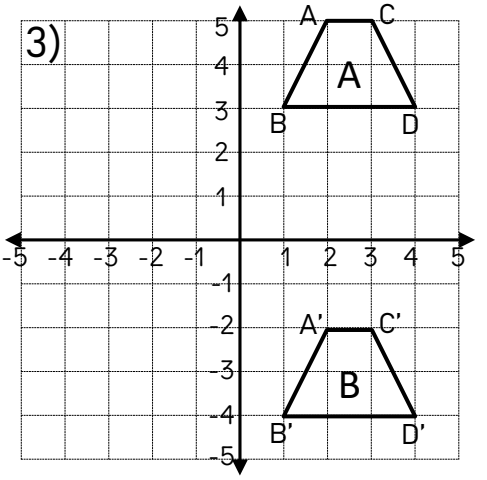
Mapping Rule	

2)



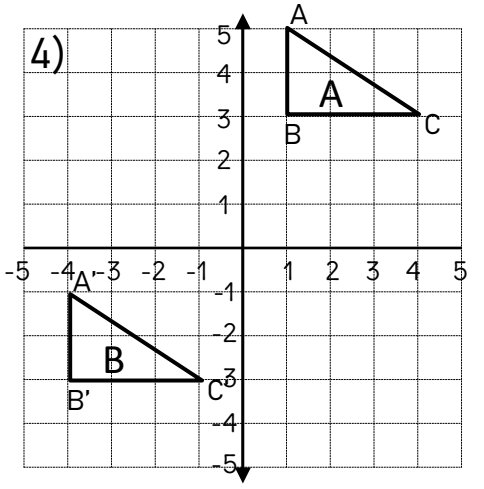
Mapping Rule	

3)



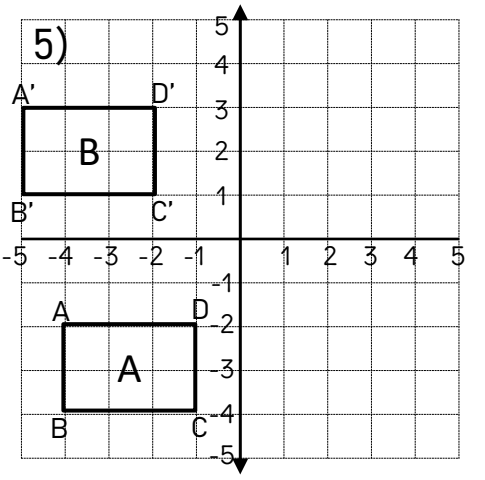
Mapping Rule	

4)



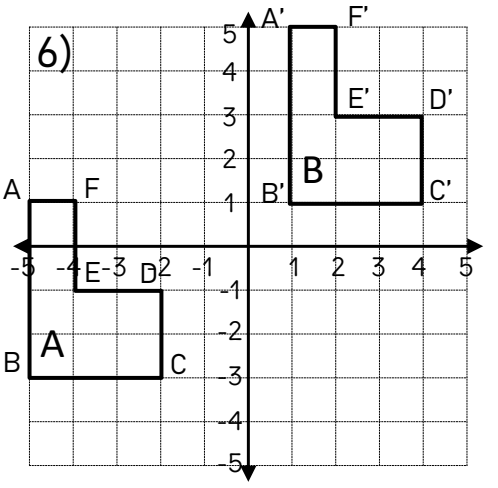
Mapping Rule	

5)



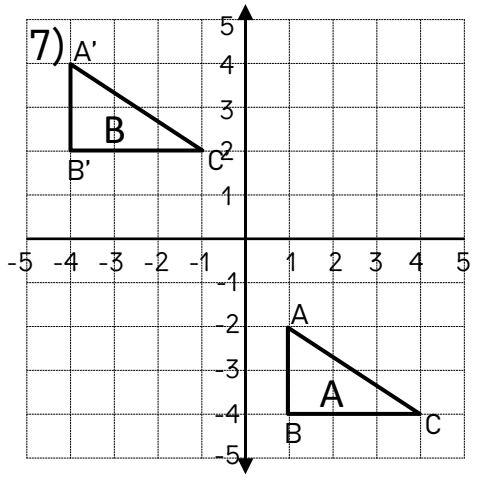
Mapping Rule	

6)



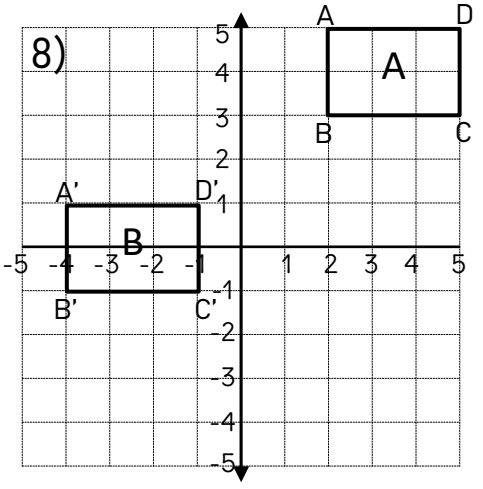
Mapping Rule	

7)



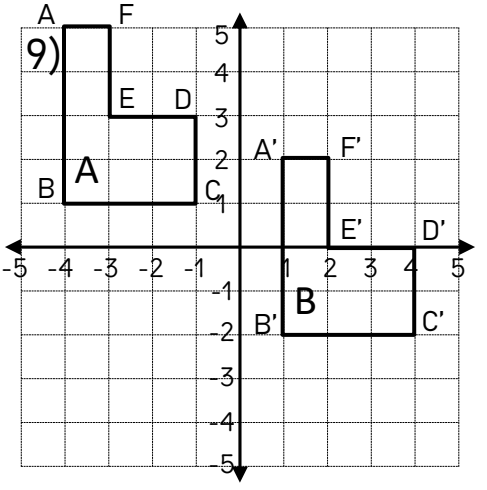
Mapping Rule	

8)



Mapping Rule	

9)



Mapping Rule	

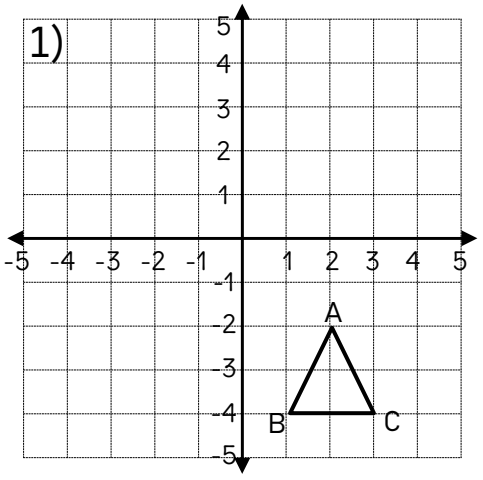
Name: _____ 87

Curriculum Connection
SS.5

Translations - Mapping Rules

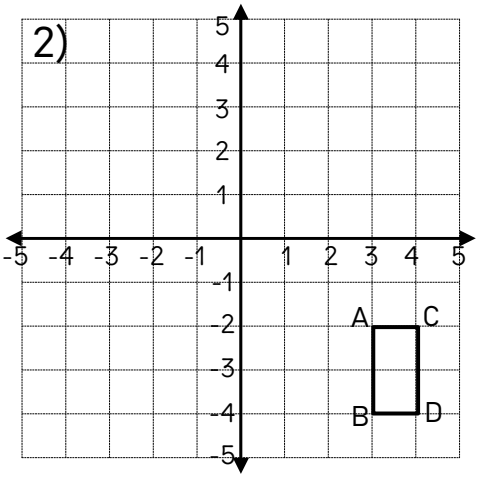
Questions Translate the shape using the mapping rule

1)



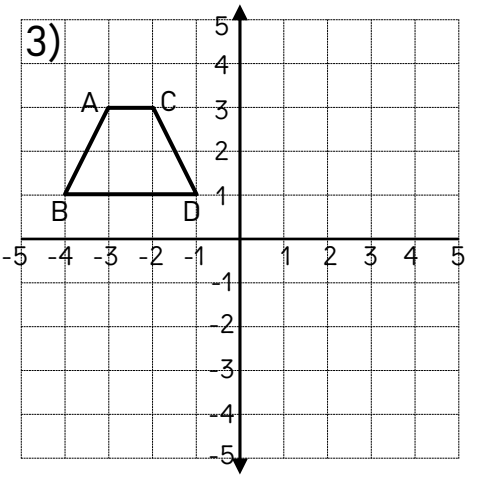
Mapping Rule	(x – 5, y + 4)

2)



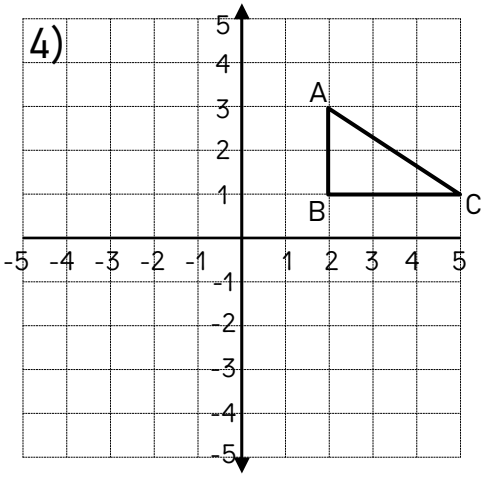
Mapping Rule	(x – 7, y + 6)

3)



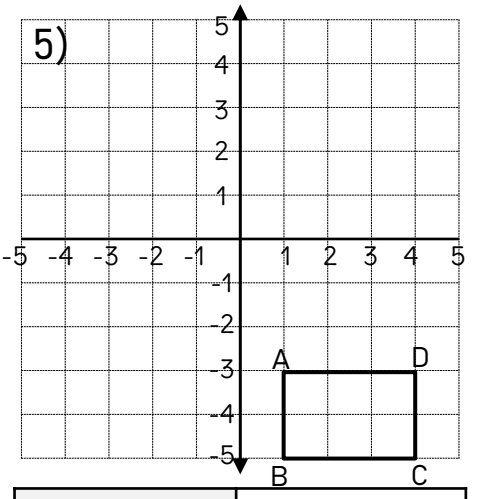
Mapping Rule	(x + 5, y – 4)

4)



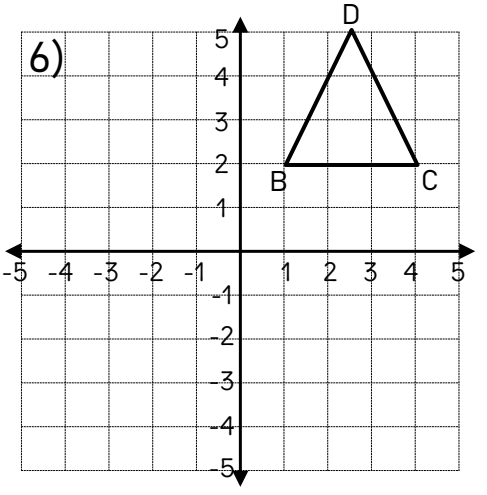
Mapping Rule	(x – 5, y + 2)

5)



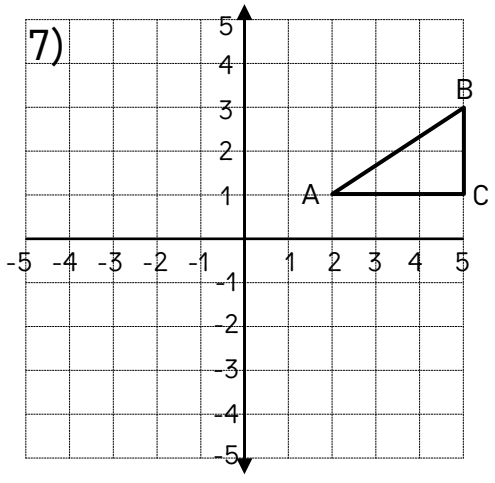
Mapping Rule	(x – 5, y + 8)

6)



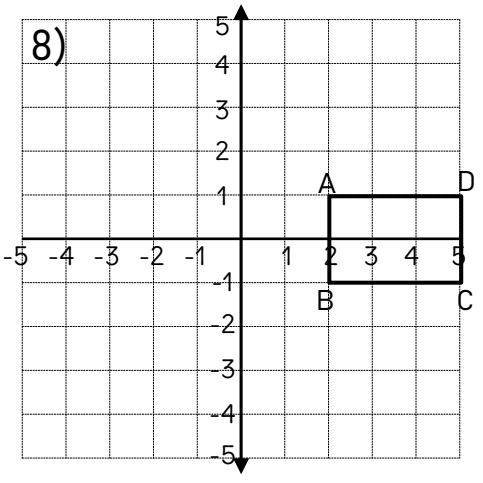
Mapping Rule	(x – 3, y – 6)

7)



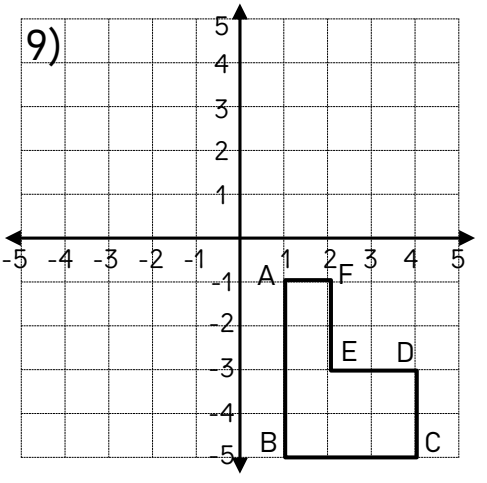
Mapping Rule	(x – 4, y – 5)

8)



Mapping Rule	(x – 5, y + 3)

9)



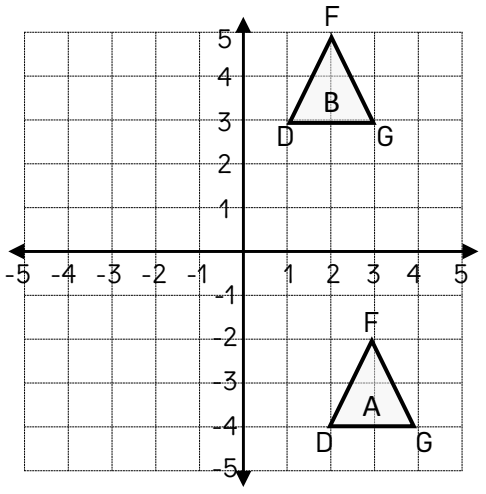
Mapping Rule	(x – 6, y + 5)

Name: _____ 88

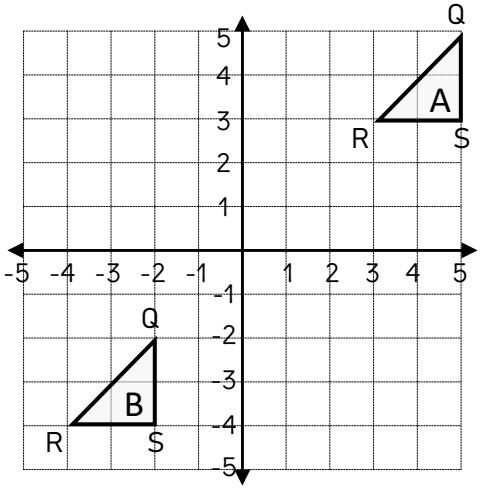
Curriculum Connection
SS.5

Transformations - Translations

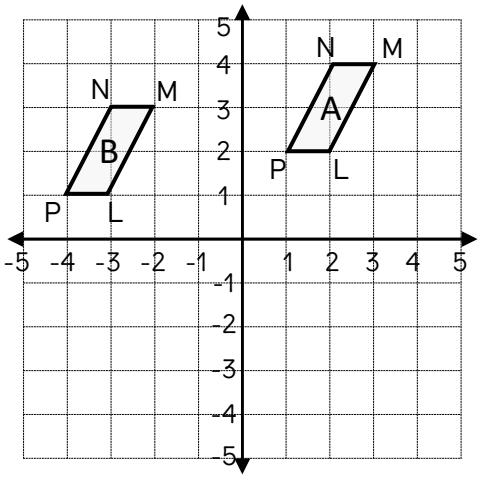
Questions 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



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



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



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

Name: _____ 89

Curriculum Connection
SS.5

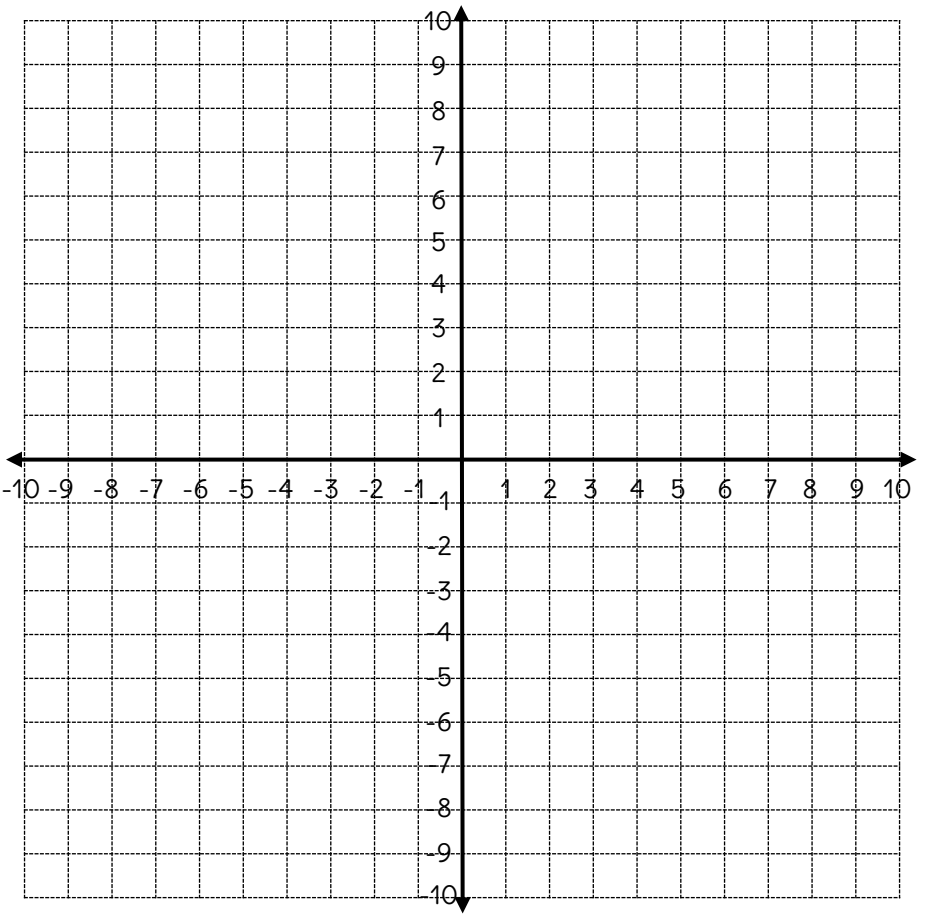
Translations - New Coordinates

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

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

Shape B
F(-9,4), G(-6,5), H(-6,2)
Translate the shape B
(x + 4, y – 6)

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



Part 2 Give the coordinates of each point after the translation

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

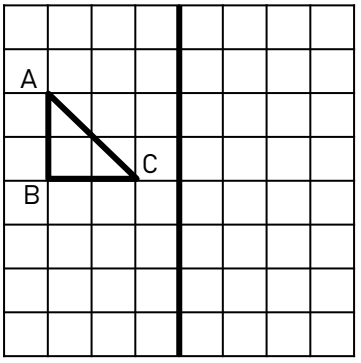
Name: _____ 90

Curriculum Connection
SS.5

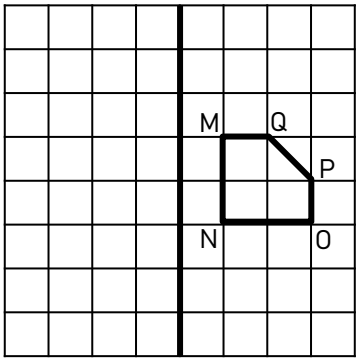
Drawing Reflections

Questions Reflect the shapes across the mirror line

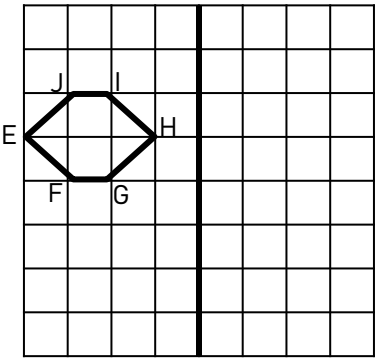
1)



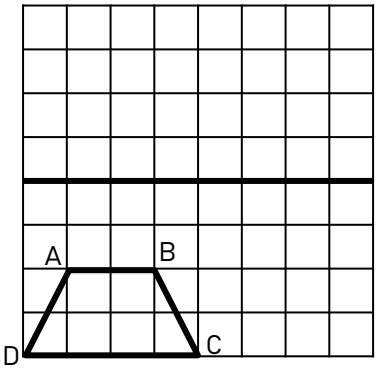
2)



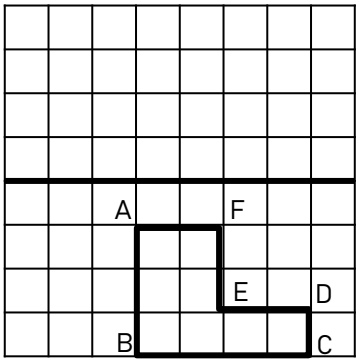
3)



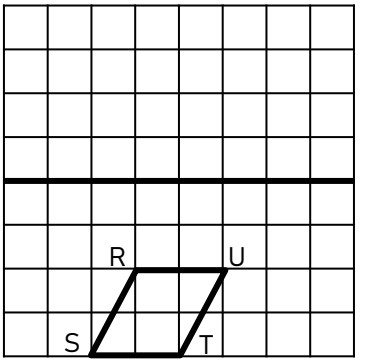
4)



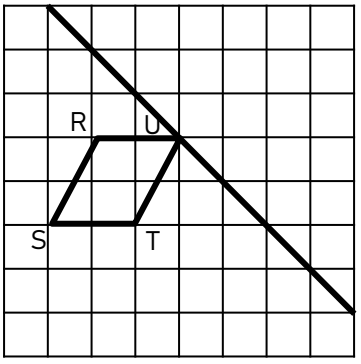
5)



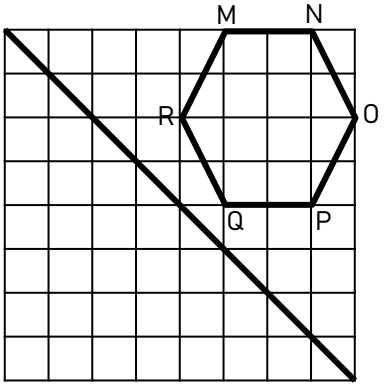
6)



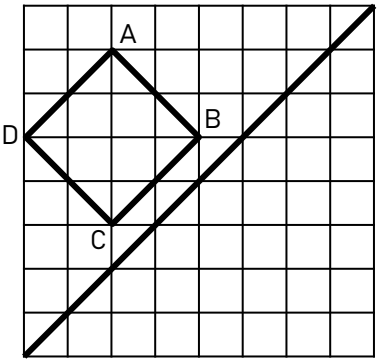
7)



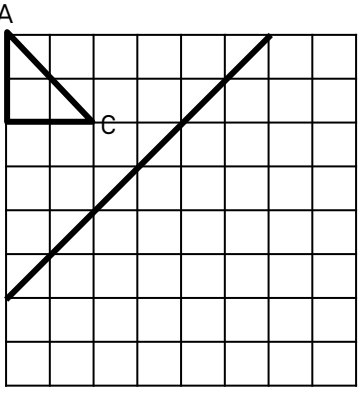
8)



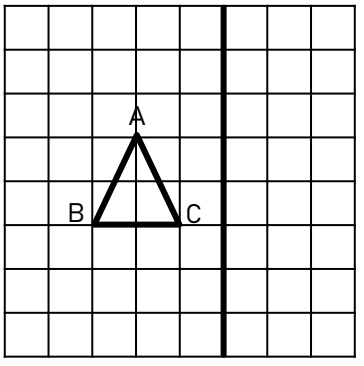
9)



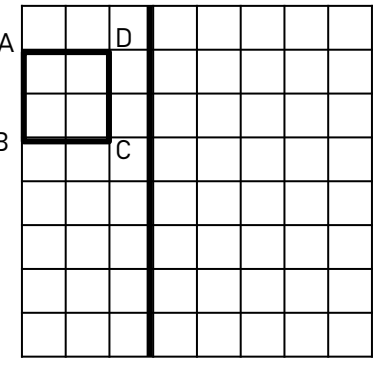
10)



11)



12)



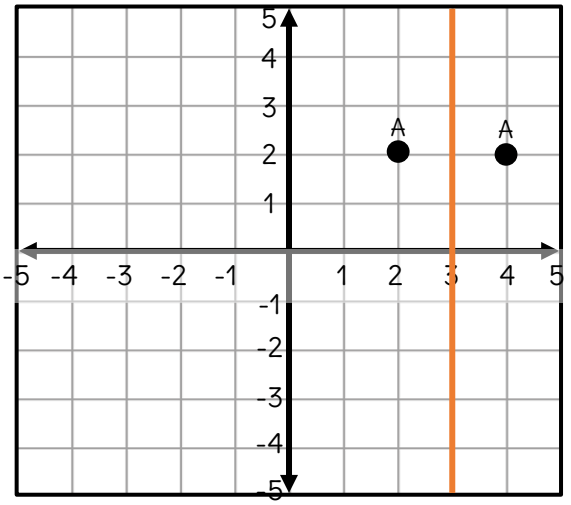
Name: _____ 91

Curriculum Connection
SS.5

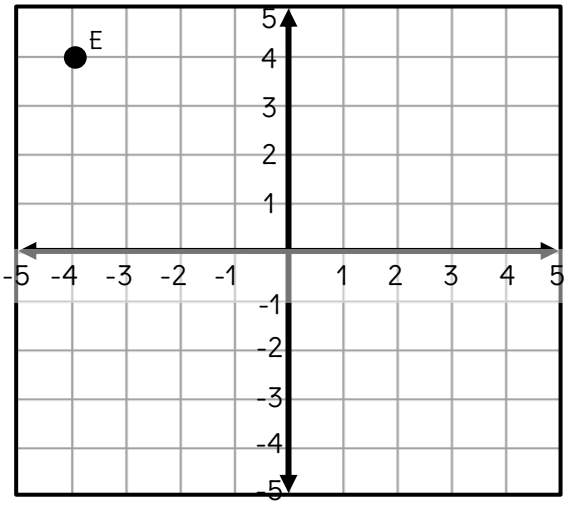
Reflecting a Point Using a Mirror Line

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

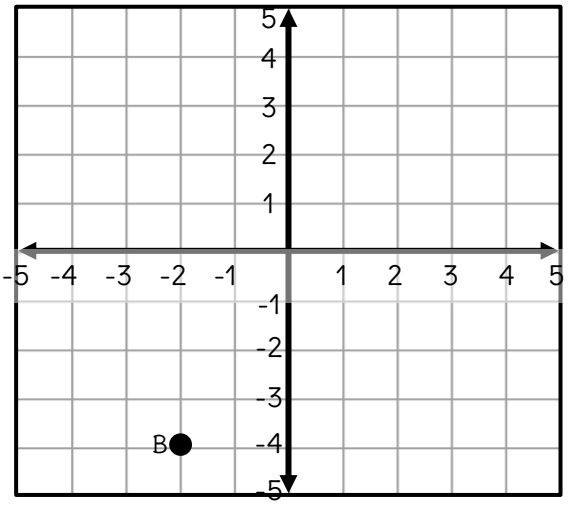
1) Reflection across the line x = 3



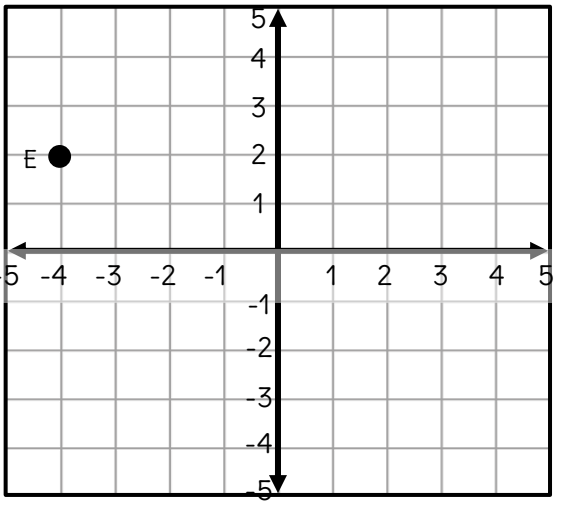
2) Reflection across the line y = 2



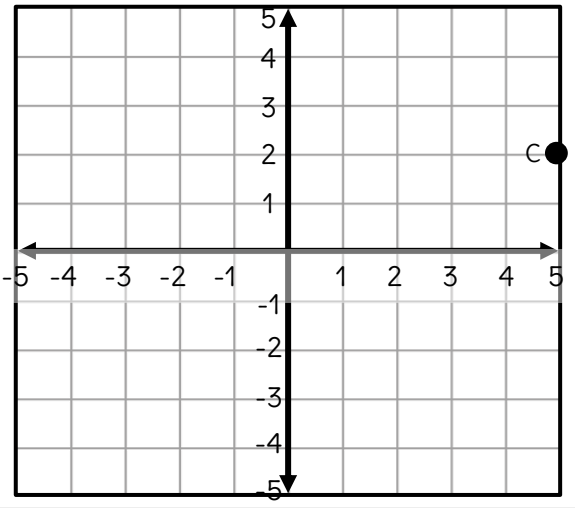
3) Reflection across the line y = -2



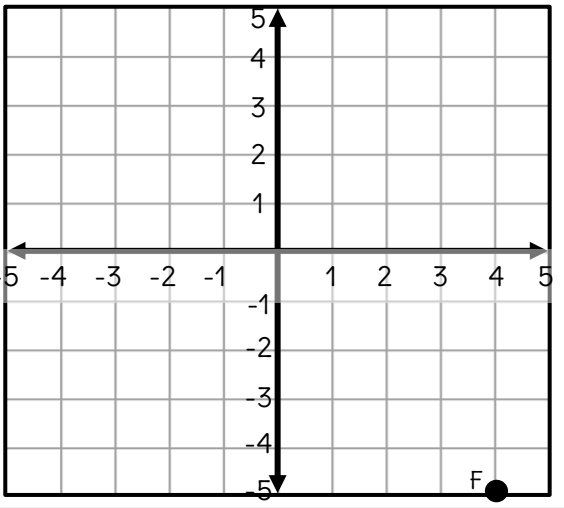
4) Reflection across the line x = -1



5) Reflection across the line x = 2



6) Reflection across the line y = -3



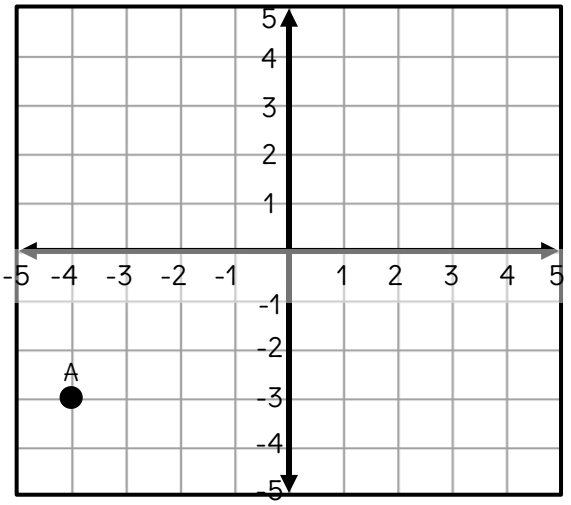
Name: _____ 92

Curriculum Connection
SS.5

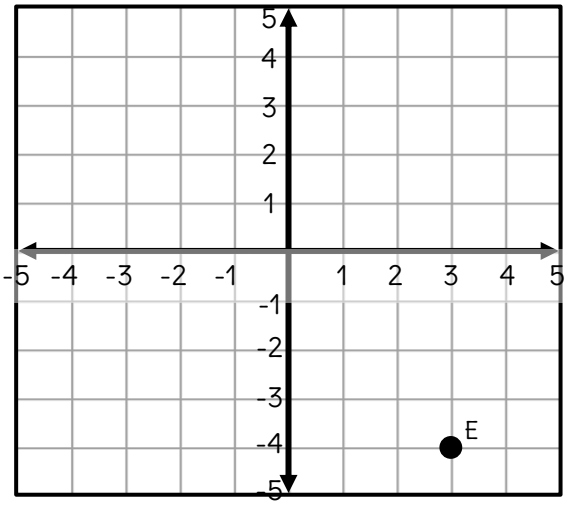
Reflecting a Point Using a Mirror Line

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

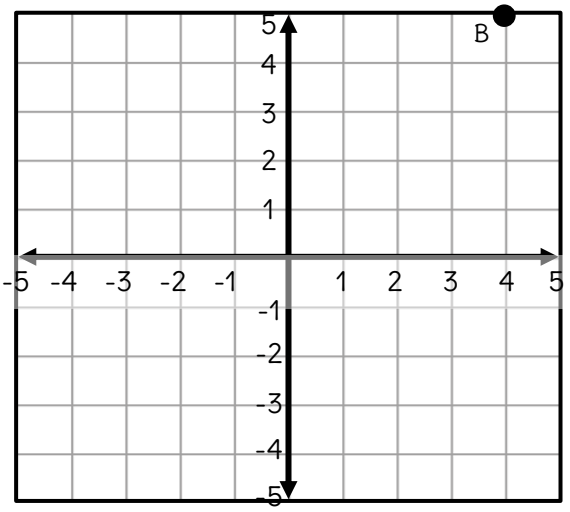
1) Reflection across the y-axis



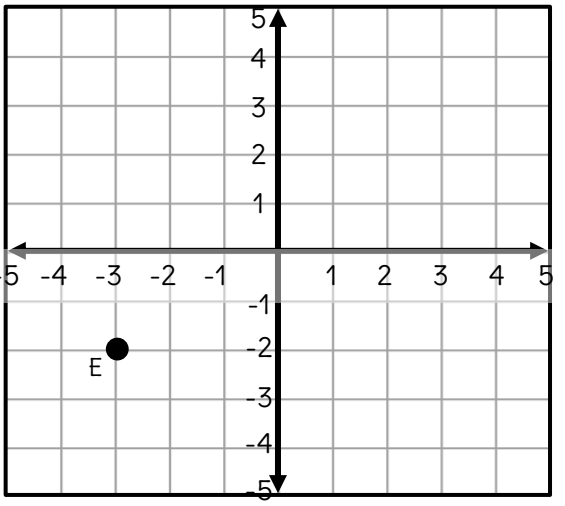
2) Reflection across the line y = -1



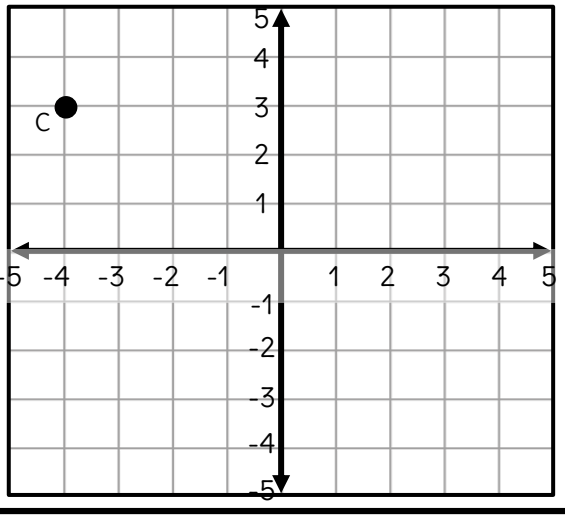
3) Reflection across the line y = 3



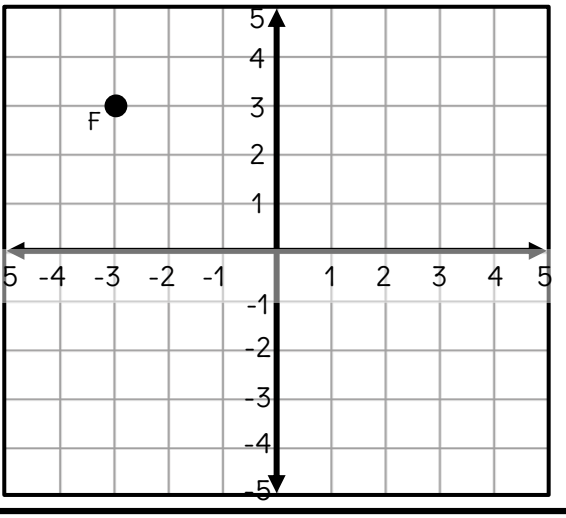
4) Reflection across the line x = -1



5) Reflection across the x-axis



6) Reflection across the line y = 4



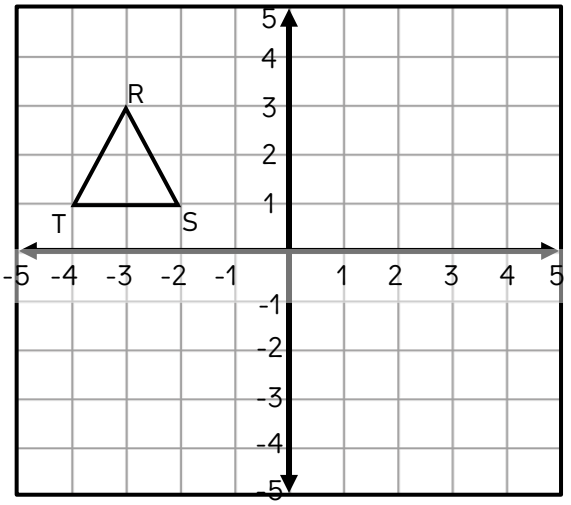
Name: _____ 93

Curriculum Connection
SS.5

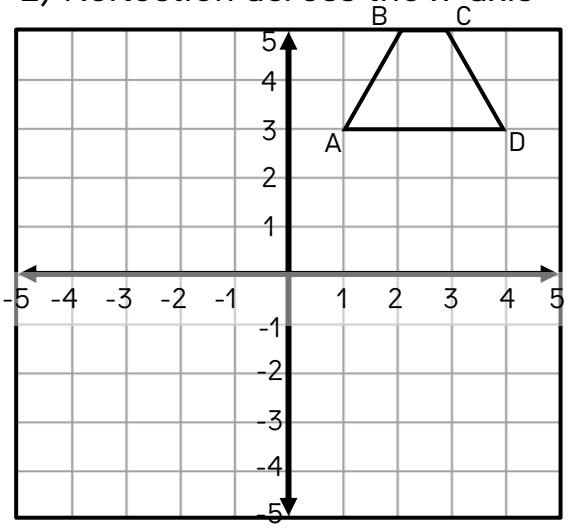
Reflecting Shapes using a Mirror Line

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

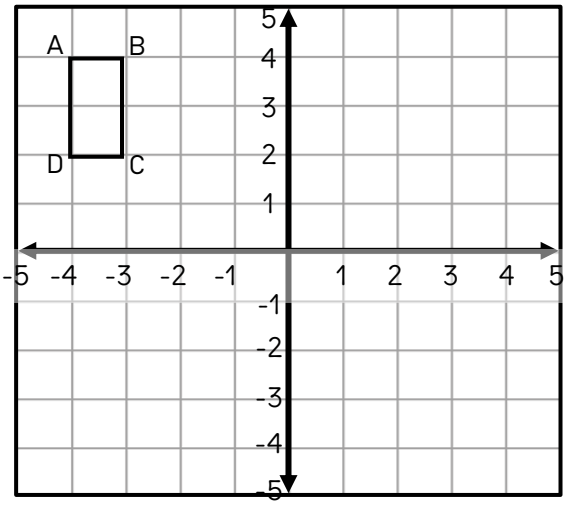
1) Reflection across the y-axis



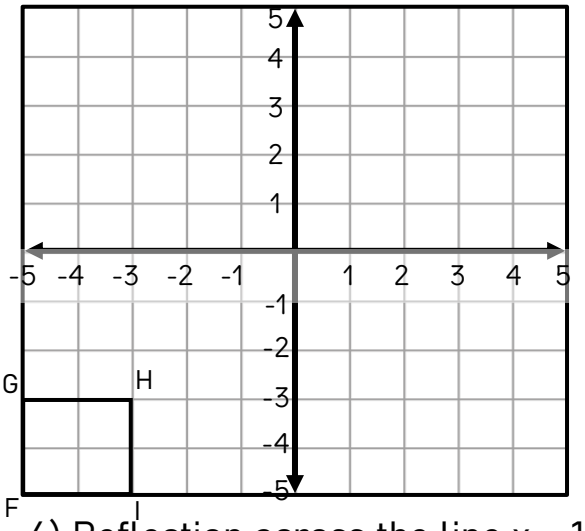
2) Reflection across the x-axis



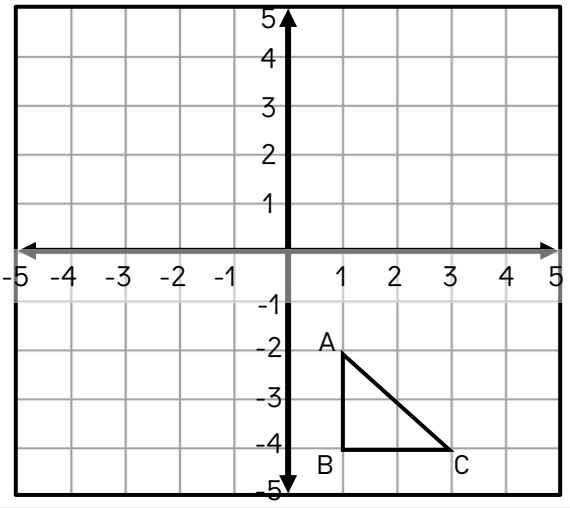
3) Reflection across the line y = 2



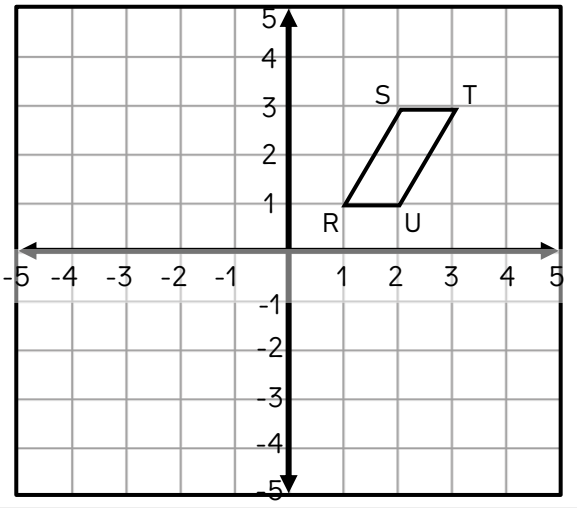
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection across the line x = 1



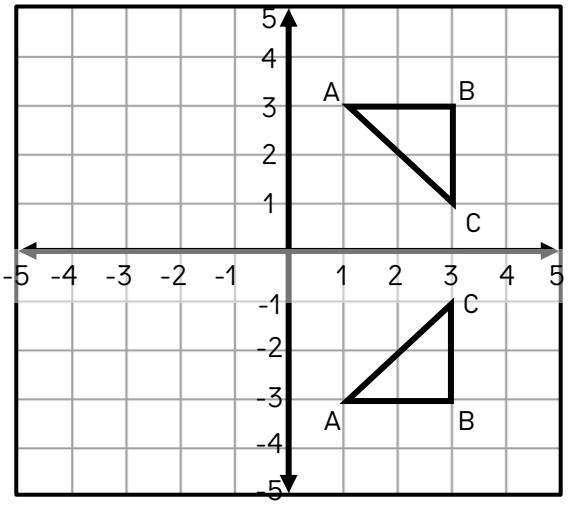
Name: _____ 94

Curriculum Connection
SS.5

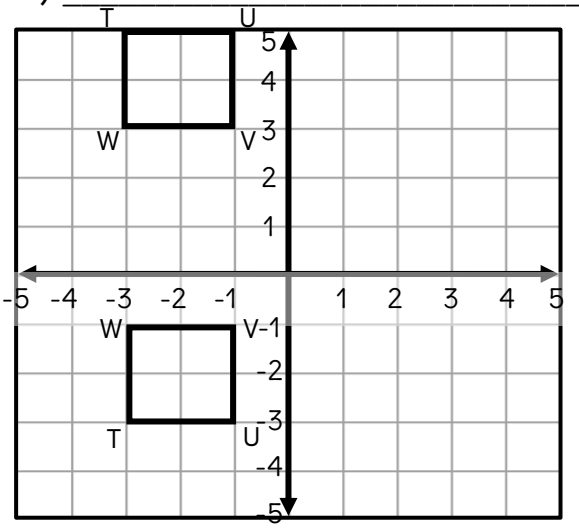
Reflections - Determine the Rule

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

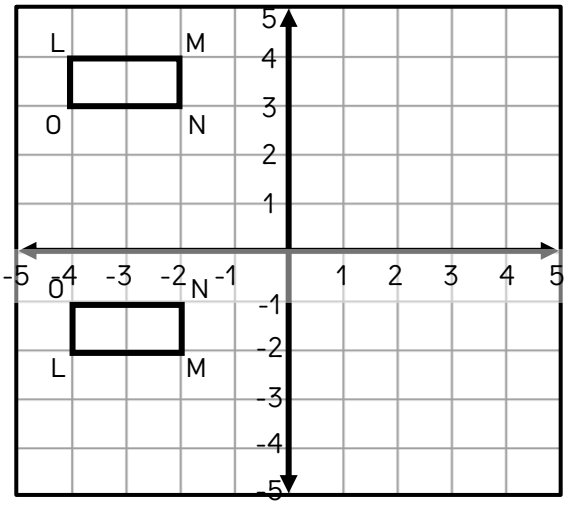
1) _____



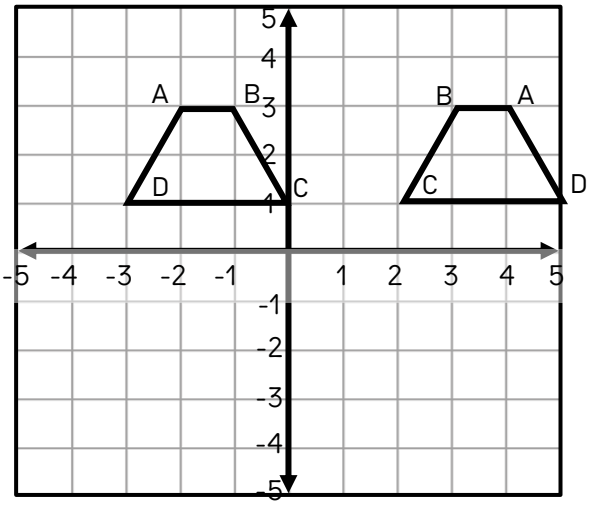
2) _____



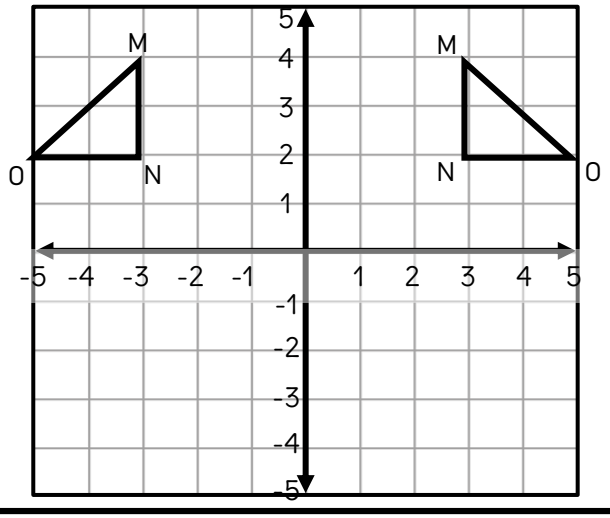
3) _____



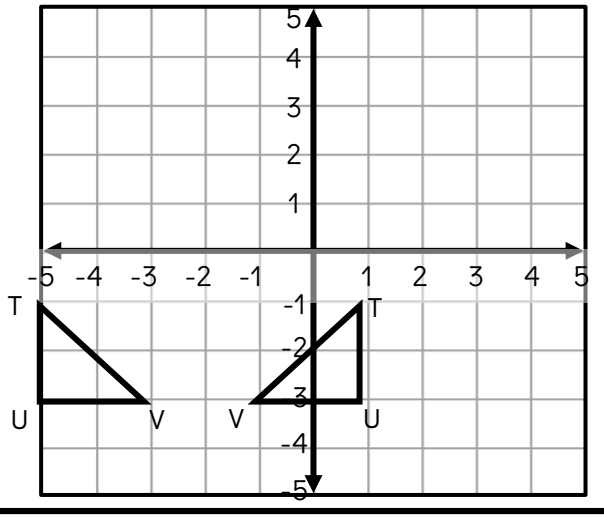
4) _____



5) _____



6) _____



Name: _____ 95

Curriculum Connection
SS.5

Reflections - Mapping Rules

Mapping Rules for Reflections

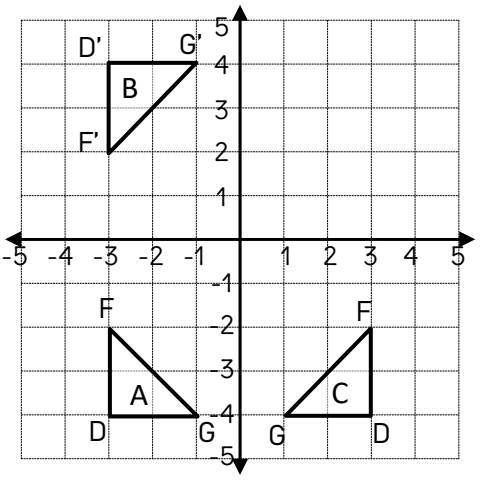
Each point on a shape moves according to the mapping rule.

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

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

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

If Shape A was reflected across the Y axis to Shape C, point F becomes (3, -2).



Questions

Use the mapping rules to write the new coordinates

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

Name: _____ 96

Curriculum Connection
SS.5

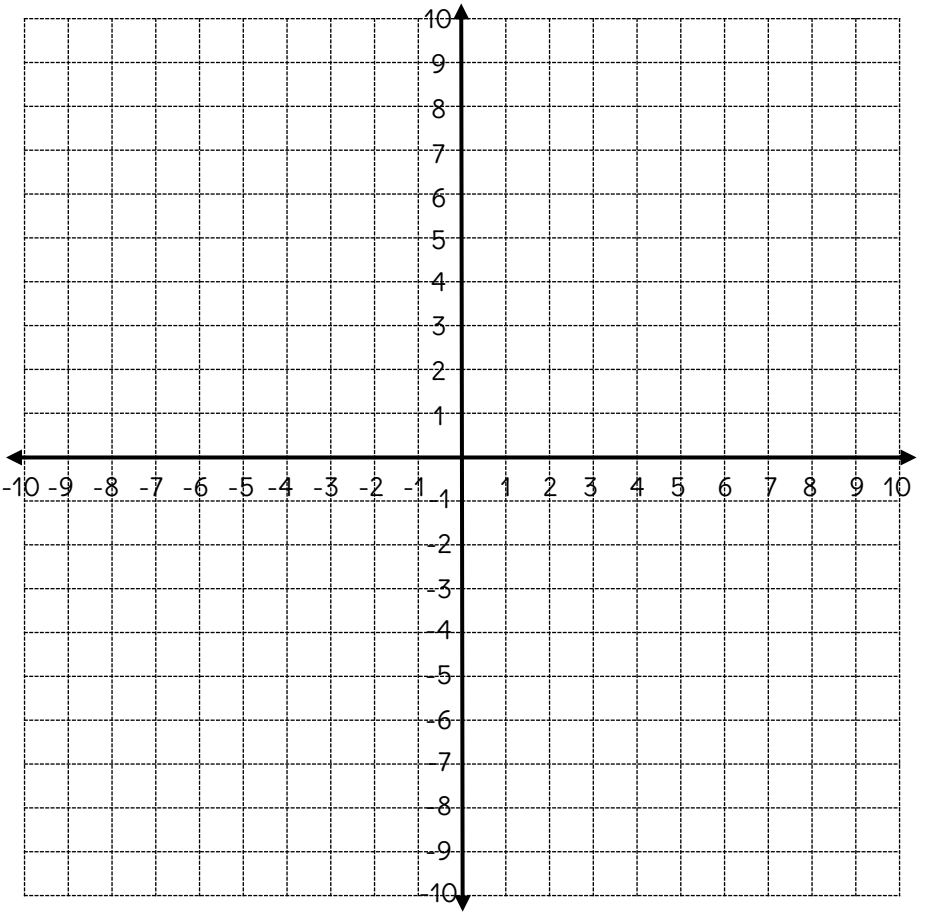
Reflections - Coordinates

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

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

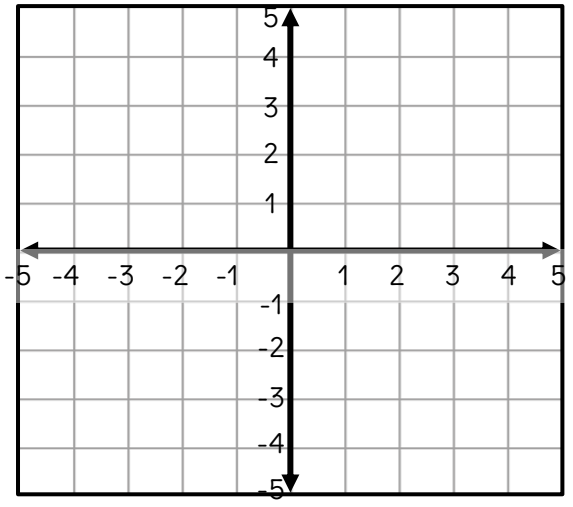
Shape B
F(-8,9), G(-4,5), H(-8,2)
Reflect over the x-axis
New Coordinates
F(,), G(,), H(,)

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

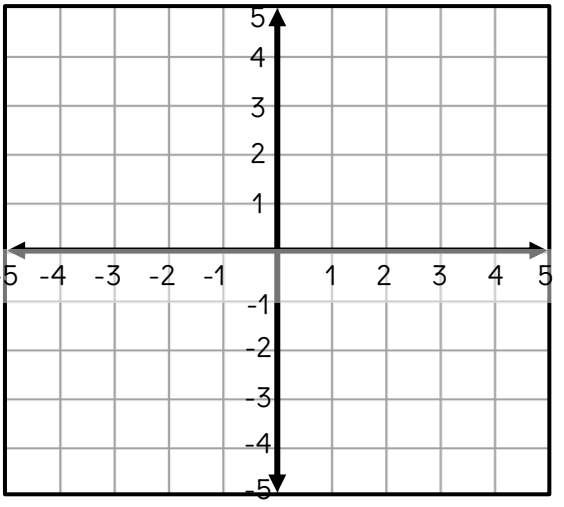


Part 2 Draw your own shape and then perform the reflection provided

1) Reflection across the y-axis



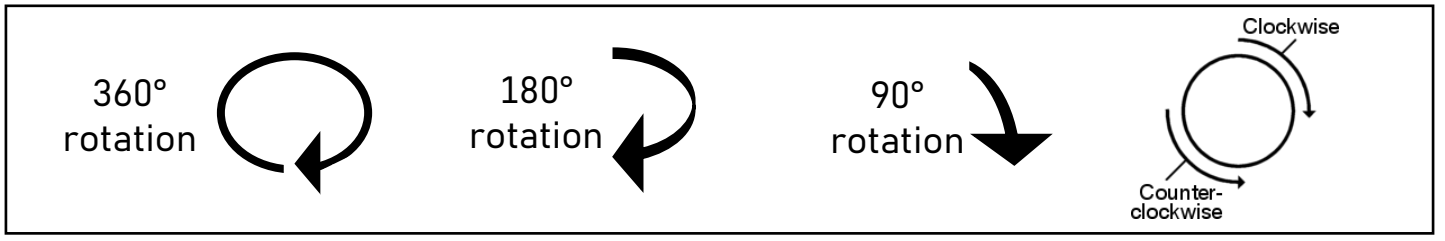
2) Reflection across the line x = -1



Name: _____ 97

Curriculum Connection
SS.5

Clockwise and Counterclockwise Rotations



Questions Draw the smiley face after it has been rotated

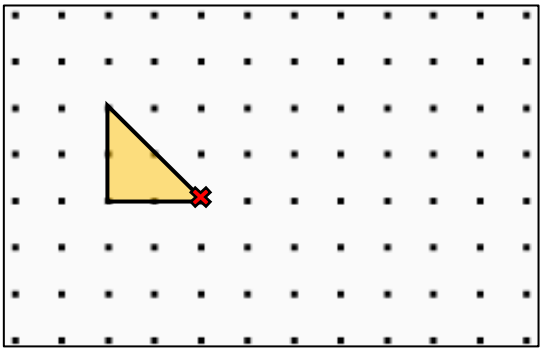
1) 	Clockwise 90° rotation	
2) 	Counterclockwise 90° rotation	
3) 	Clockwise 180° rotation	
4) 	Counterclockwise 180° rotation	
5) 	Clockwise 360° rotation	
6) 	Counterclockwise 360° rotation	

Name: _____ 98

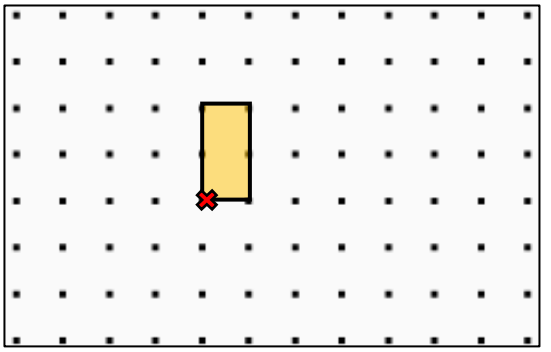
Curriculum Connection
SS.5

Drawing Rotations

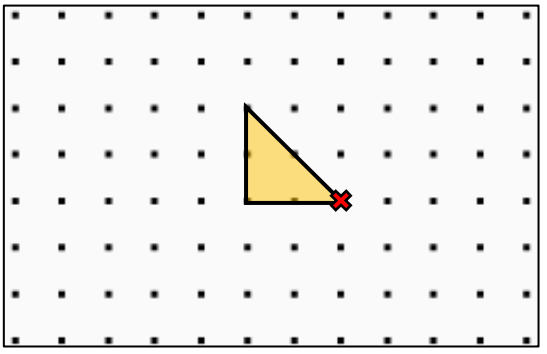
Questions Rotate the shapes around the point marked ✖



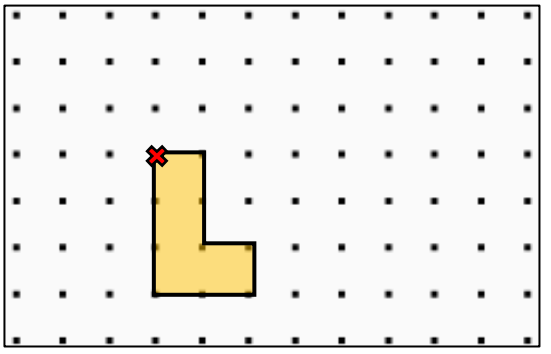
1) 90° clockwise rotation



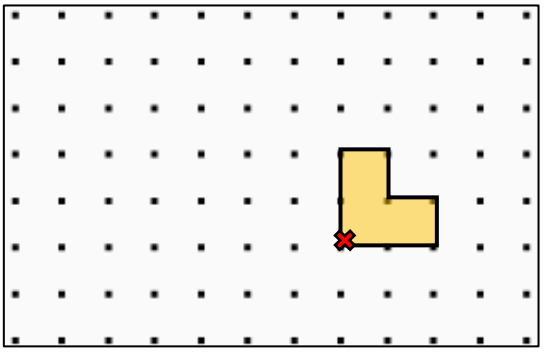
2) 180° clockwise rotation



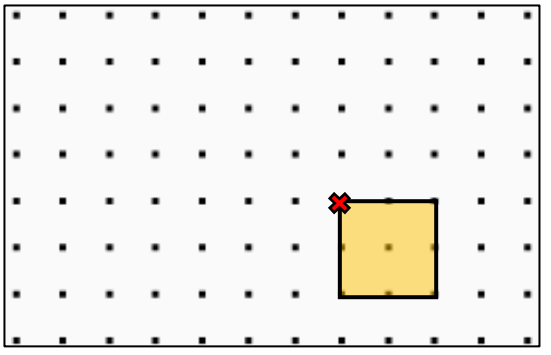
3) 90° counter-clockwise rotation



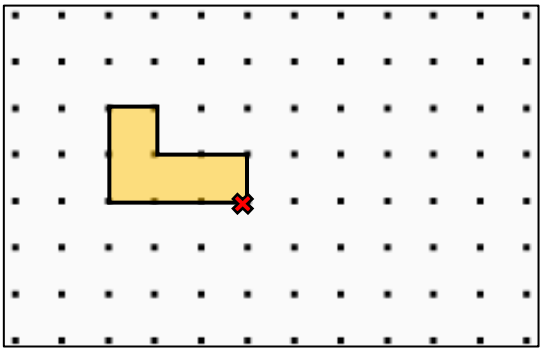
4) 360° clockwise rotation



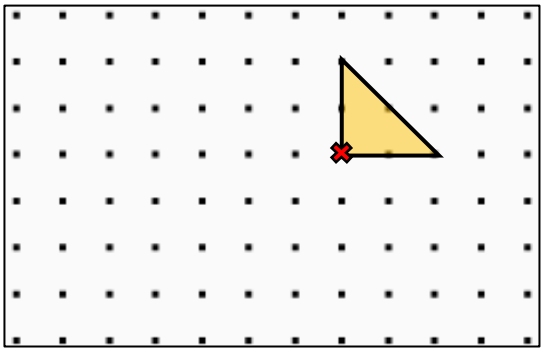
5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



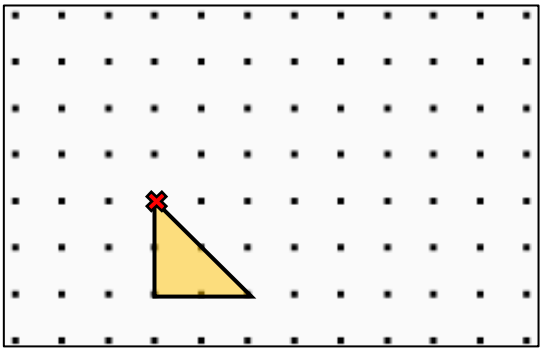
8) 180° counter-clockwise rotation

Name: _____ 99

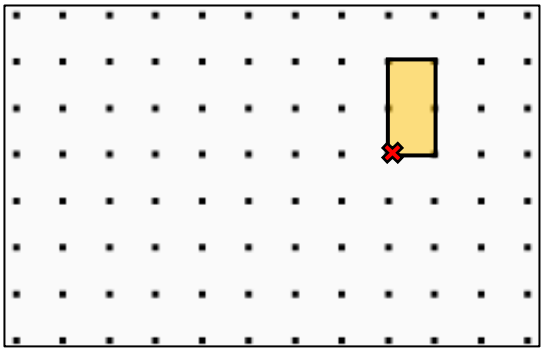
Curriculum Connection
SS.5

Drawing Rotations

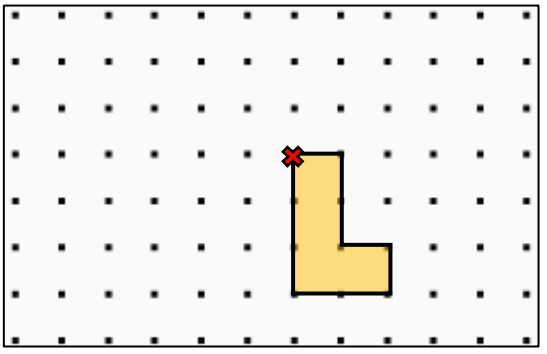
Questions Rotate the shapes around the point marked ✖



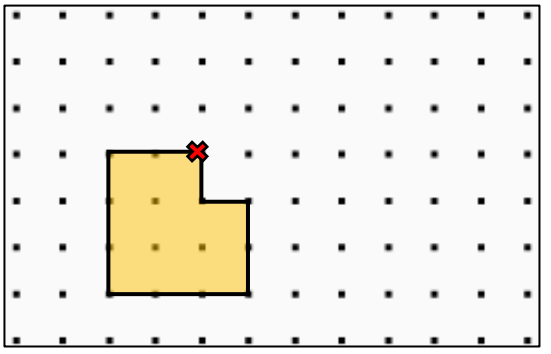
1) 90° counter-clockwise rotation



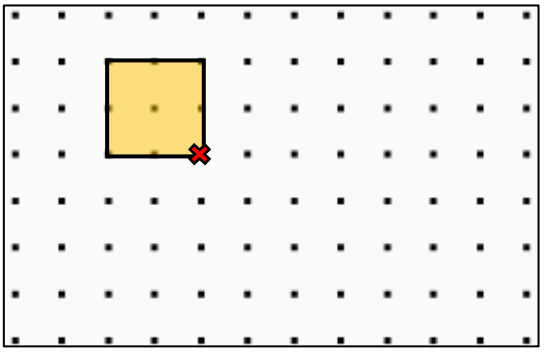
2) 180° counter-clockwise rotation



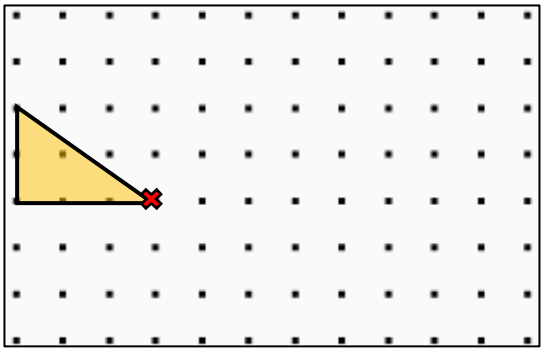
3) 180° clockwise rotation



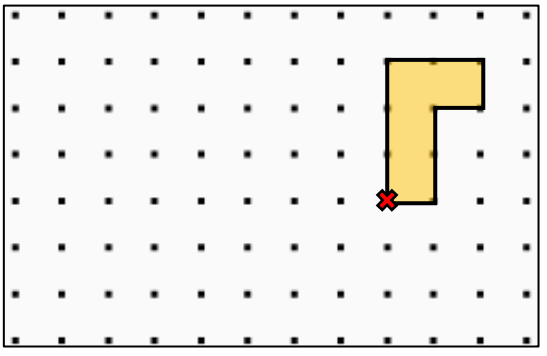
4) 360° clockwise rotation



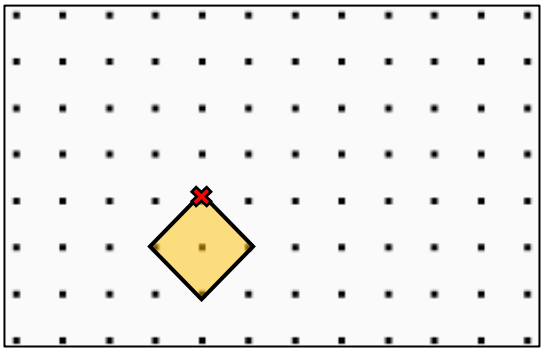
5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



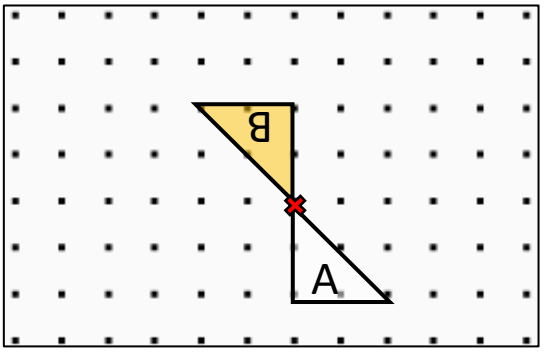
8) 180° counter-clockwise rotation

Name: _____ 100

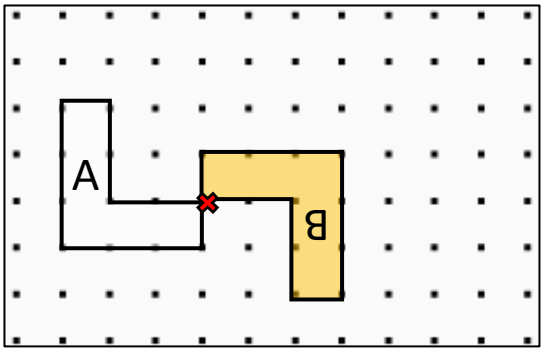
Curriculum Connection
SS.5

Describing Rotations

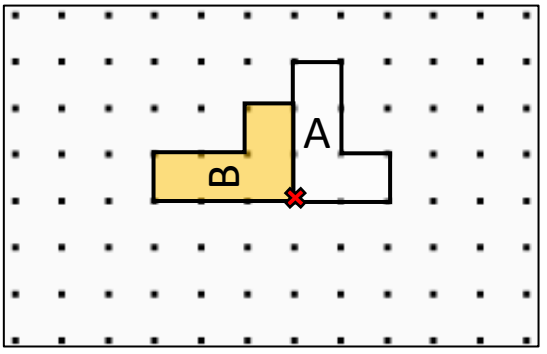
Questions Describe the rotations. Shape A is the original shape



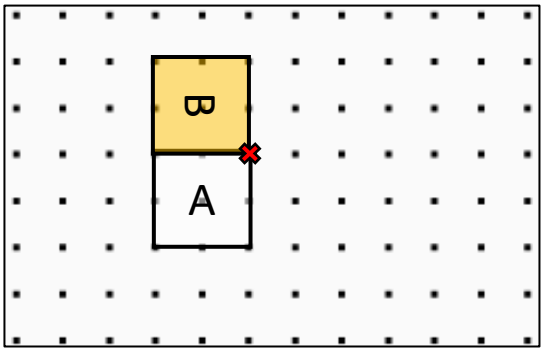
1) _____



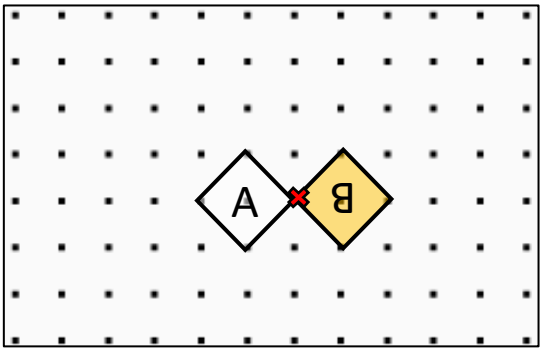
2) _____



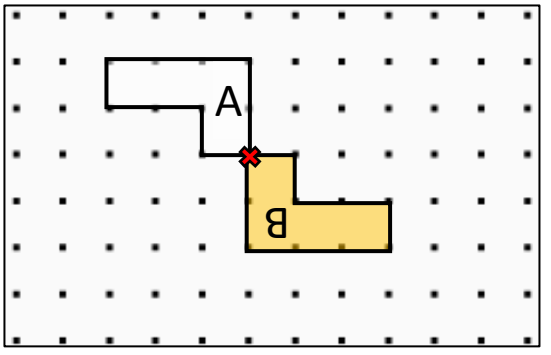
3) _____



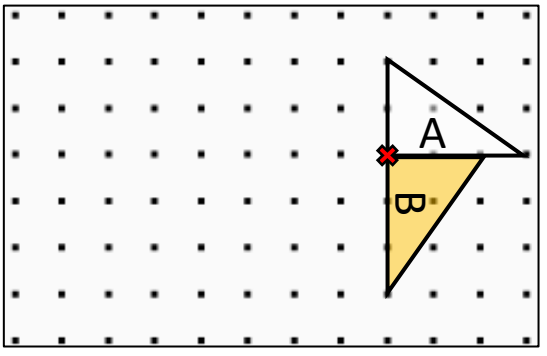
4) _____



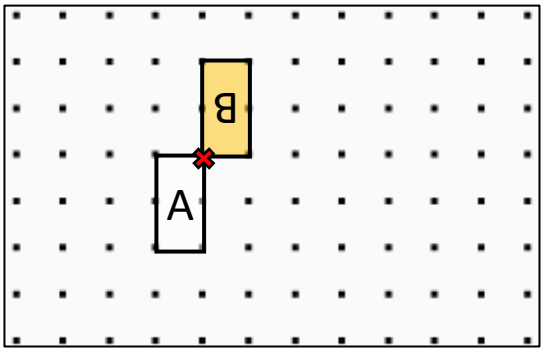
5) _____



6) _____



7) _____



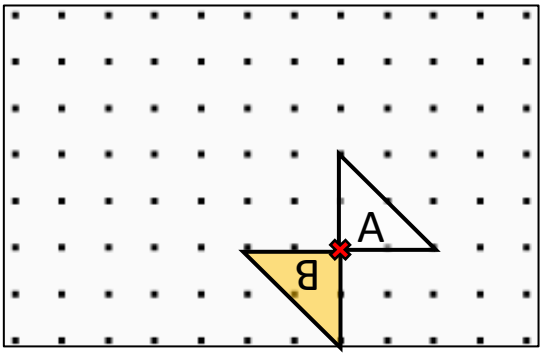
8) _____

Name: _____ 101

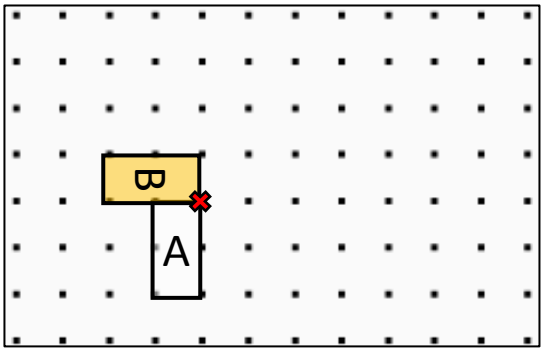
Curriculum Connection
SS.5

Describing Rotations

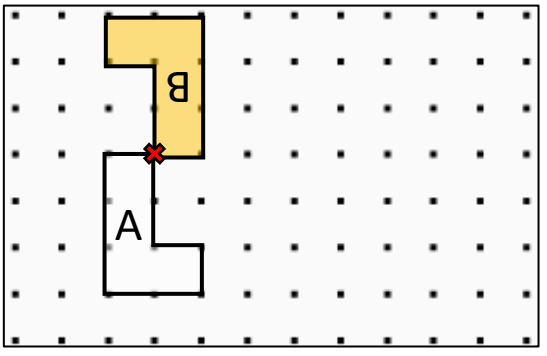
Questions Describe the rotations. Shape A is the original shape



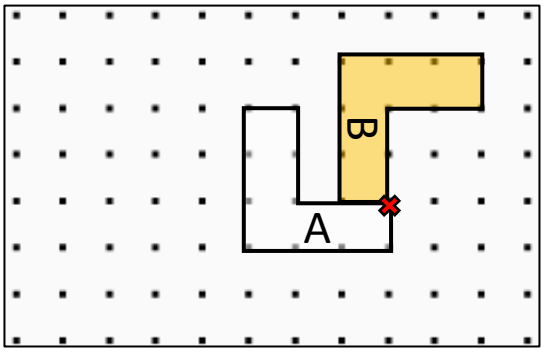
1) _____



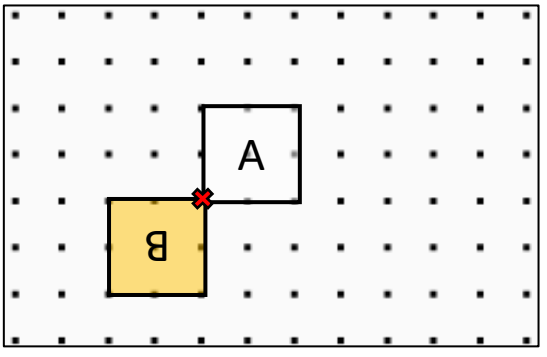
2) _____



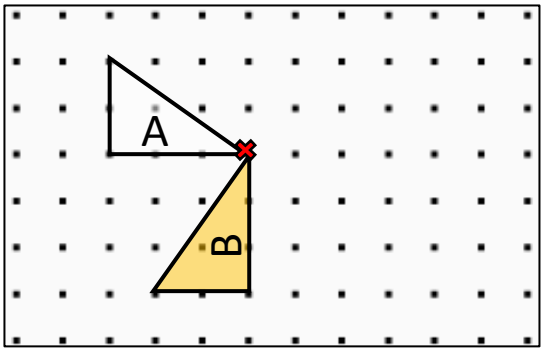
3) _____



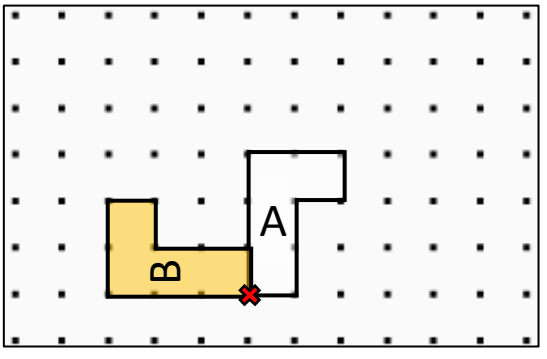
4) _____



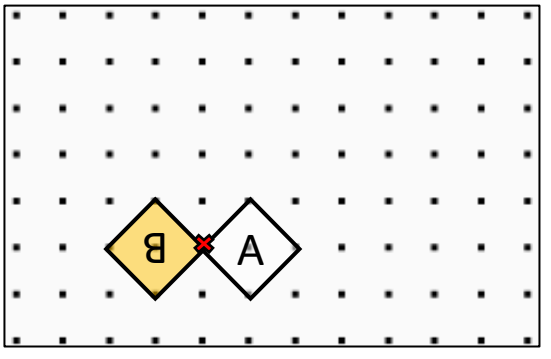
5) _____



6) _____



7) _____



8) _____

Name: _____ 102

Curriculum Connection
SS.5

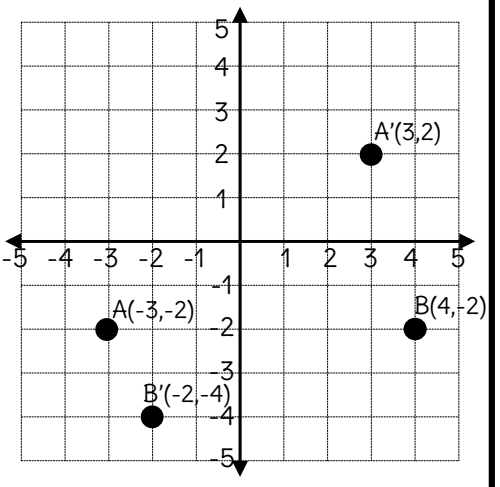
Rotating a Point

Mapping Rules for Rotations

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

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

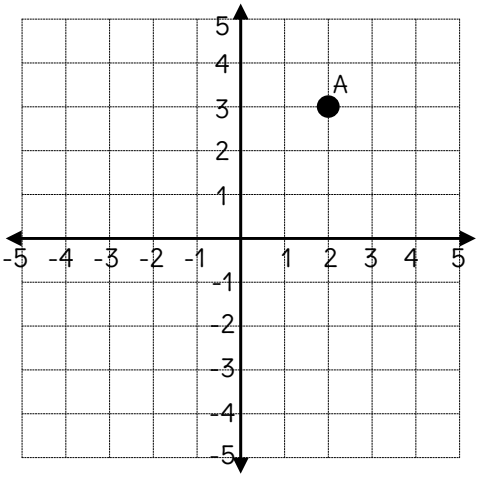
In the example, Point A was rotated 180° counter-clockwise
In the example, Point B was rotated 90° clockwise



Questions

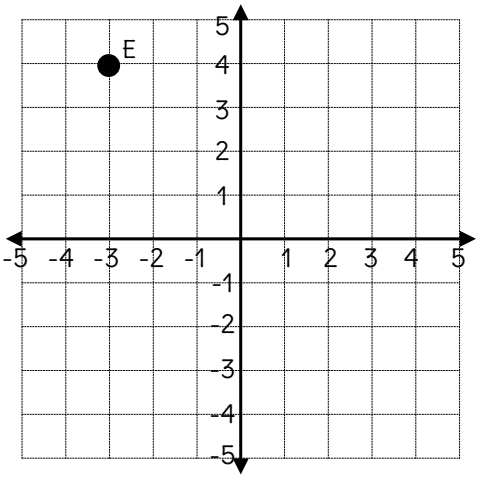
Graph the new position after rotating around the origin

1) 180° rotation



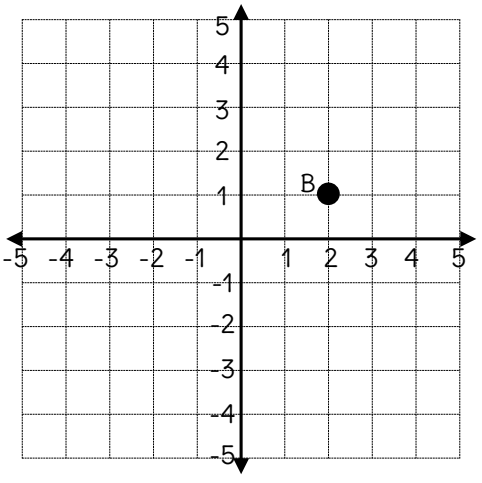
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° clockwise rotation



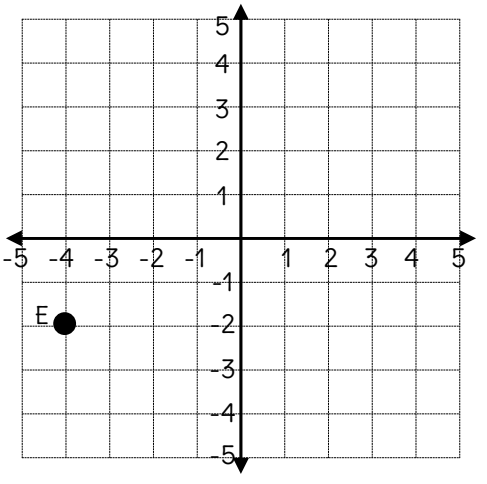
Original Coordinates
E(,)
Rotated Coordinates
E(,)

3) 90° counterclockwise rotation



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

4) 90° clockwise rotation



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

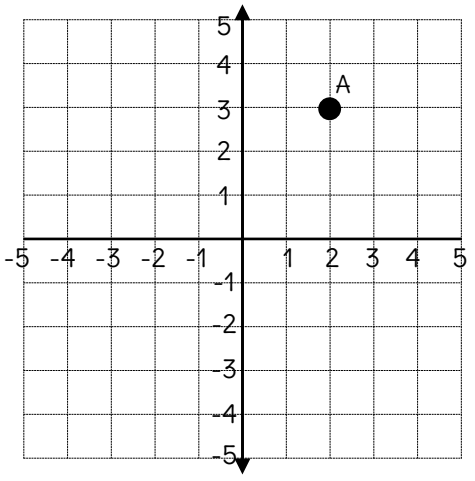
Name: _____ 103

Curriculum Connection
SS.5

Rotating a Point

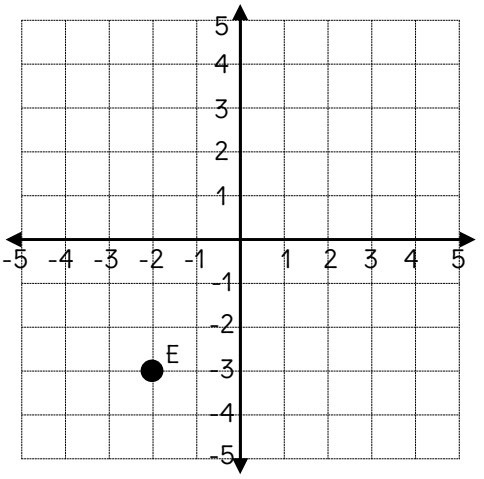
Questions Graph the new position after rotating around the origin

1) 90° clockwise rotation



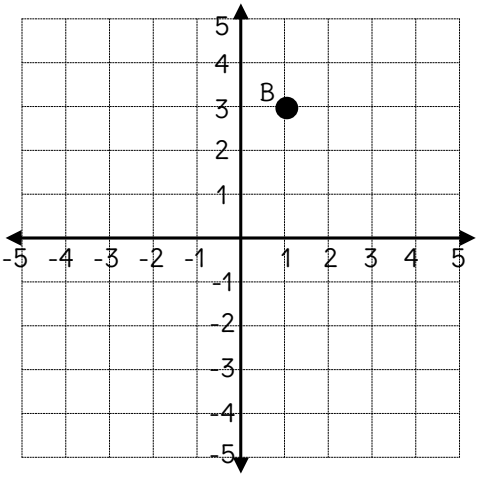
Original Coordinates
A(,)
Rotated Coordinates
A(,)

2) 90° counterclockwise rotation



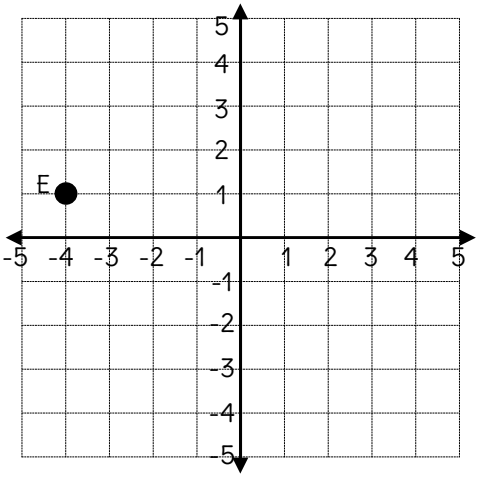
Original Coordinates
E(,)
Rotated Coordinates
E(,)

3) 180° rotation



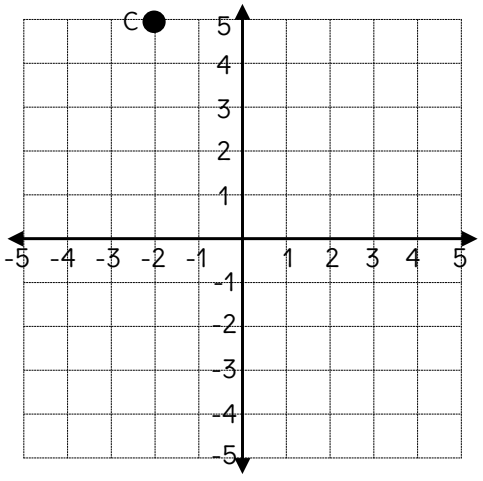
Original Coordinates
B(,)
Rotated Coordinates
B(,)

4) 270° clockwise rotation



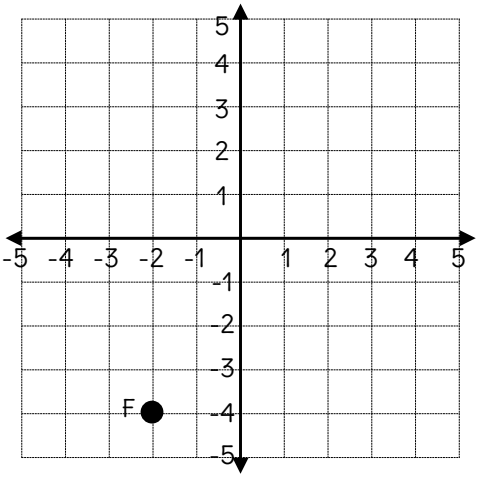
Original Coordinates
E(,)
Rotated Coordinates
E(,)

5) 270° counterclockwise rotation



Original Coordinates
C(,)
Rotated Coordinates
C(,)

6) 180° rotation



Original Coordinates
F(,)
Rotated Coordinates
F(,)

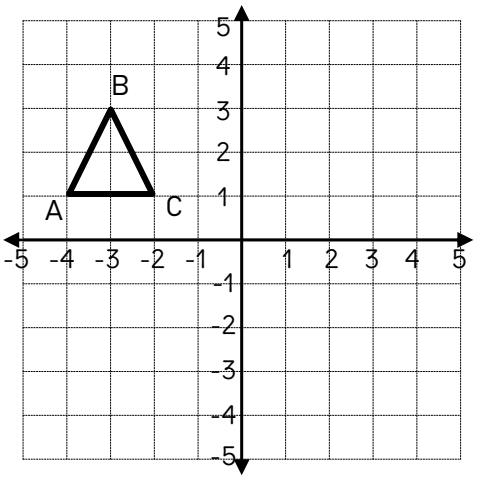
Name: _____ 104

Curriculum Connection
SS.5

Rotating Shapes

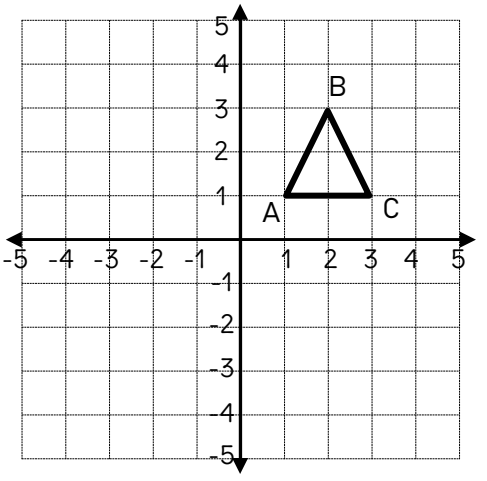
Questions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



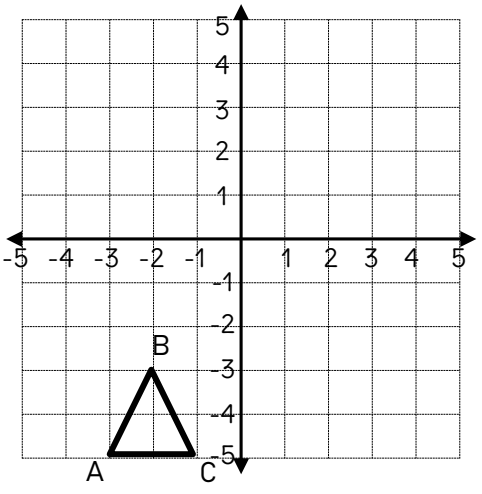
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

2) 90° counterclockwise rotation



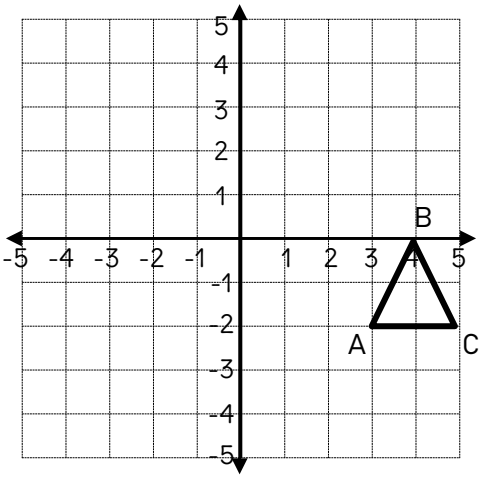
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

3) 180° rotation



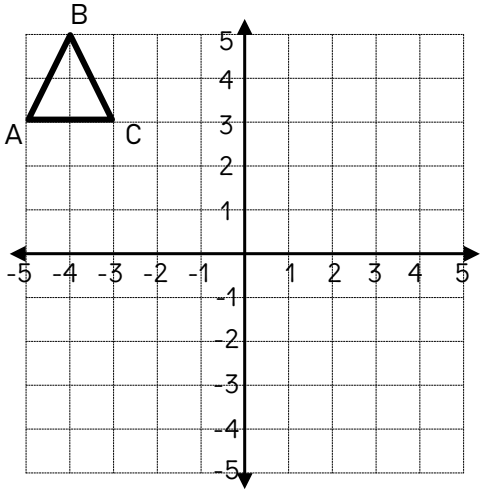
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

4) 270° clockwise rotation



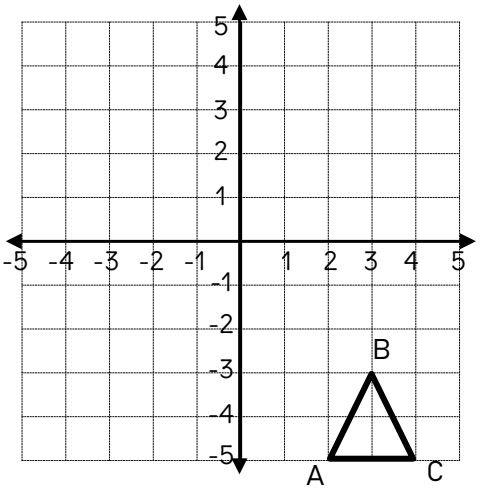
Original Coordinates
A(,)
B(,)
C(,)
Rotated Coordinates
A(,)
B(,)
C(,)

5) 90° clockwise rotation



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

6) 90° counterclockwise rotation



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

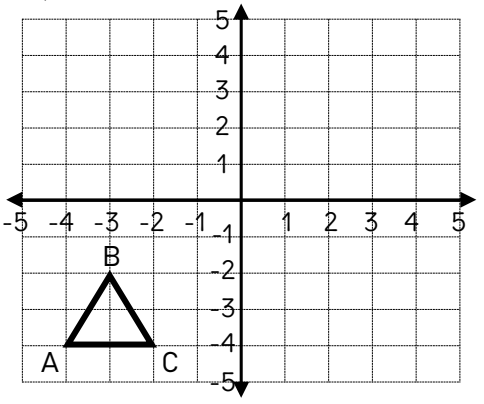
Name: _____ 105

Curriculum Connection
SS.5

Rotating Shapes

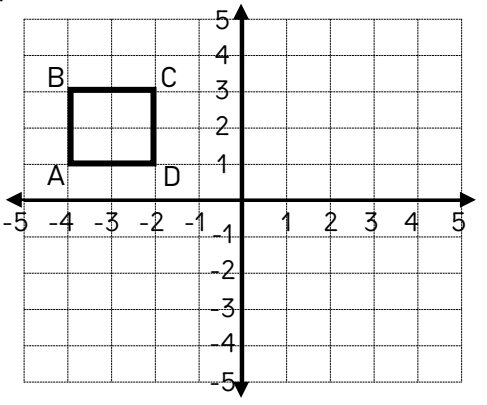
Questions Graph the new position of each shape after the given rotation

1) 180° rotation



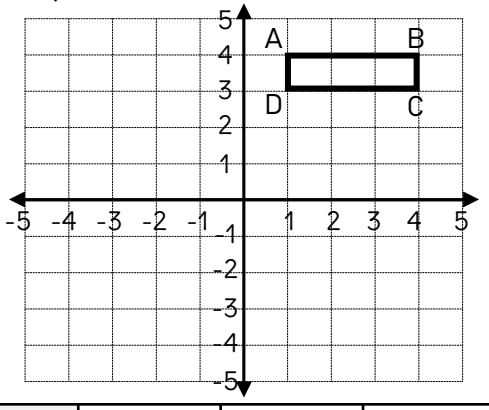
Original	A(,)	B(,)	C(,)
Rotated	A(,)	B(,)	C(,)

2) 90° counterclockwise rotation



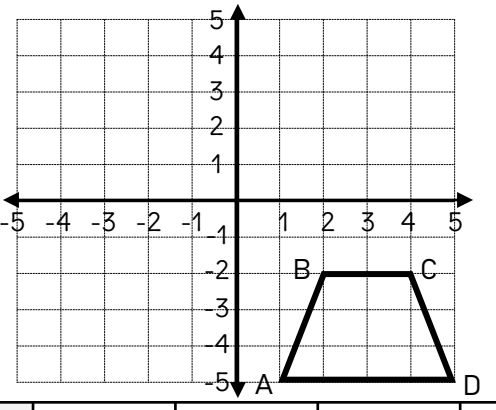
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

3) 90° clockwise rotation



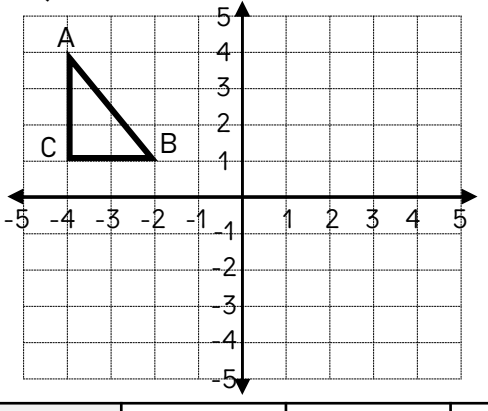
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

4) 90° counterclockwise rotation



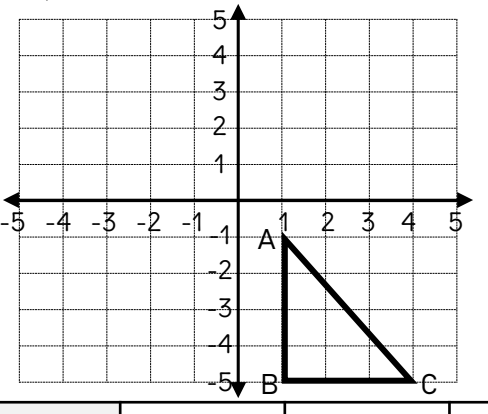
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

5) 270° clockwise rotation



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

6) 90° counterclockwise rotation



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

Name: _____ 106

Curriculum Connection
SS.5

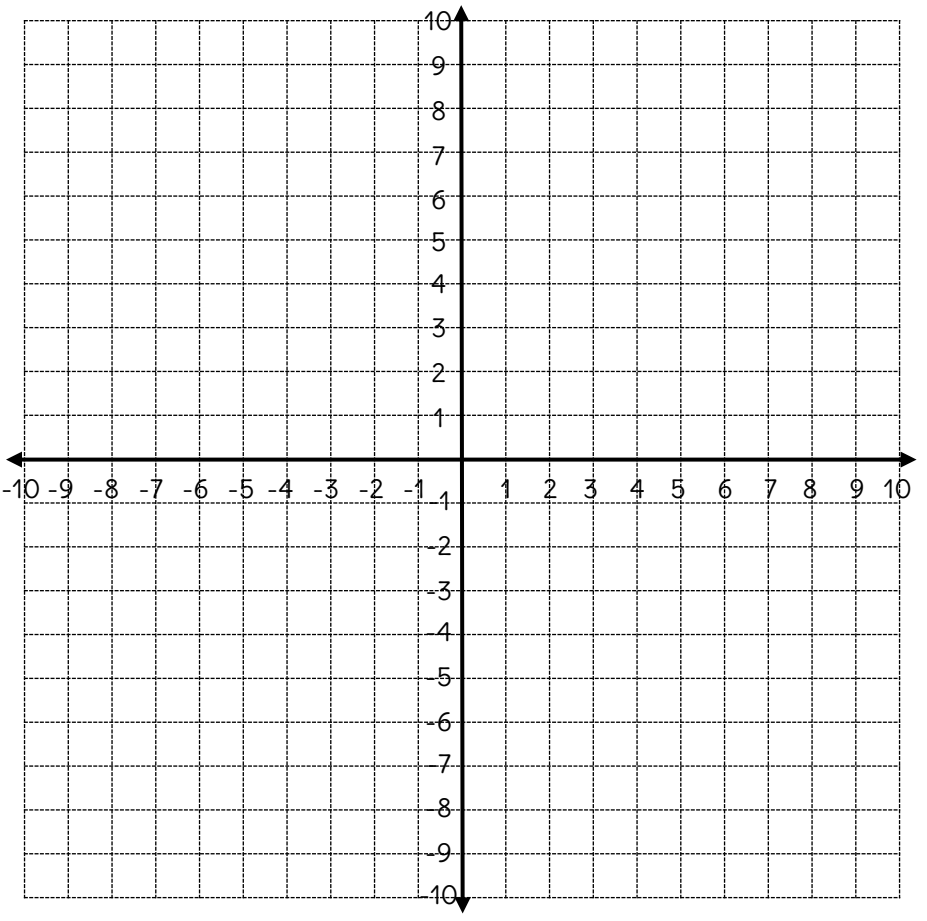
Rotations - Coordinates

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

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

Shape B
F(-8,8), G(-9,5), H(-2,5)
180° rotation
New Coordinates
F(,), G(,), H(,)

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



Part 2 Give the coordinates of each point after the rotations

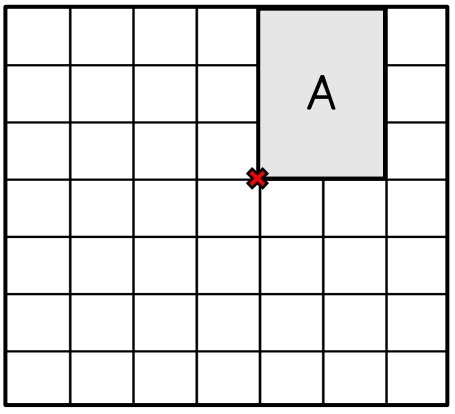
	Original Coordinate	Rotations across the line…	New Coordinates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(3, -6)	180° rotation	
3)	Q(-4, 9)	360° rotation	
4)	P(-7, -11)	270° counterclockwise rotation	
5)	T(-5, 1) Y(-4, -7)	90° clockwise rotation	
6)	S(-7, -5) R(8, 2)	180° rotation	
7)	N(-5,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

Name: _____ 107

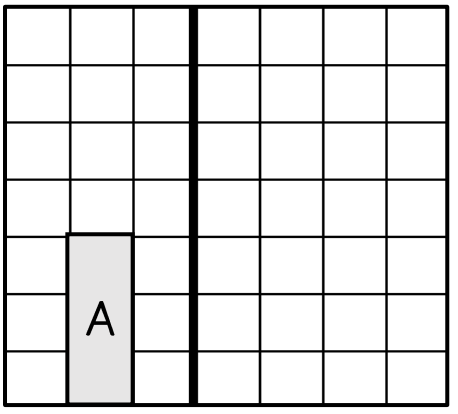
Curriculum Connection
SS.5

Performing Multiple Transformations

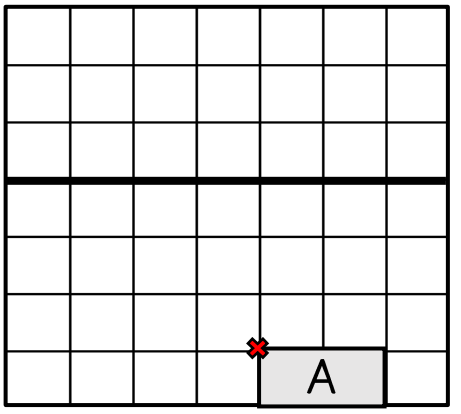
Questions Complete the following combination of transformations



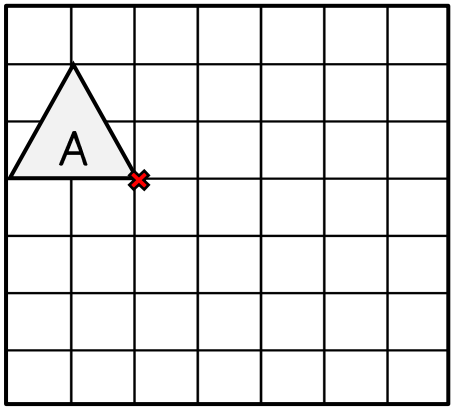
1) 180° rotation, translate down 1



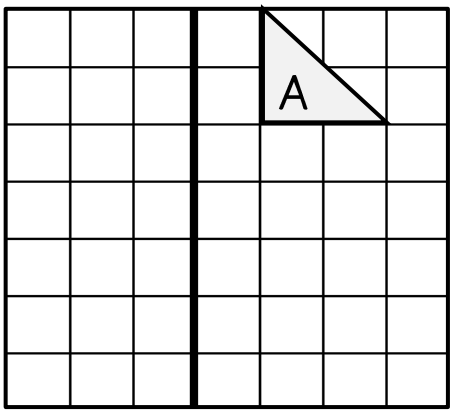
2) Reflect and translate up 3



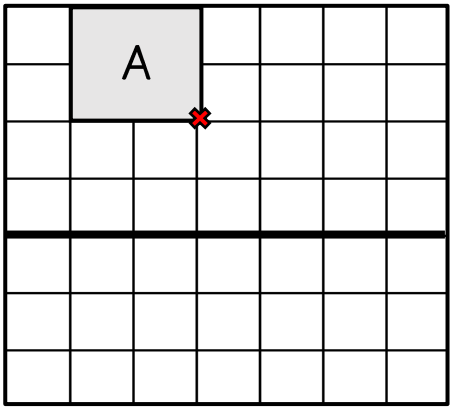
3) rotate 90° counterclockwise and reflect



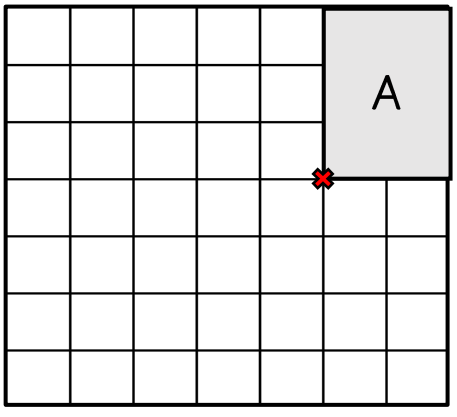
4) 90° clockwise rotation, translate right 3



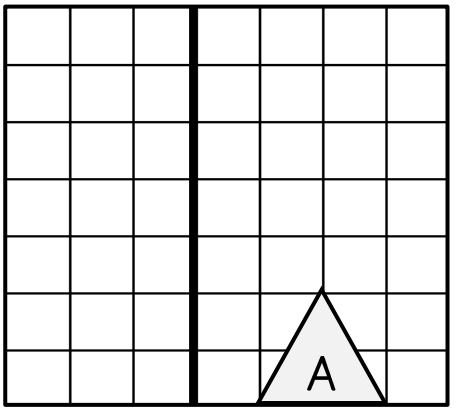
5) Translate down 5 and reflect



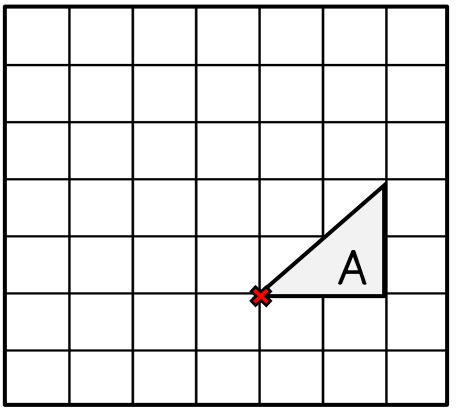
6) rotate 180° counterclockwise and reflect



7) 180° rotation, translate left 2



8) Reflect and translate up 5



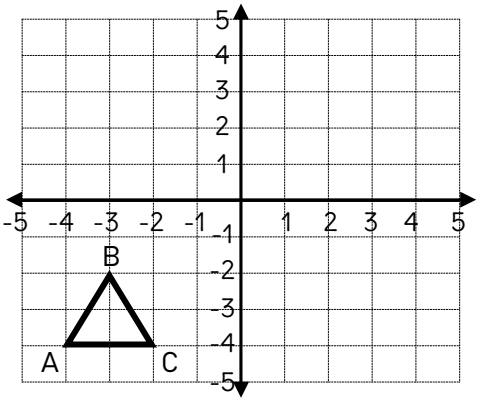
9) Rotate 90° counterclockwise and translate up 4

Name: _____ 108

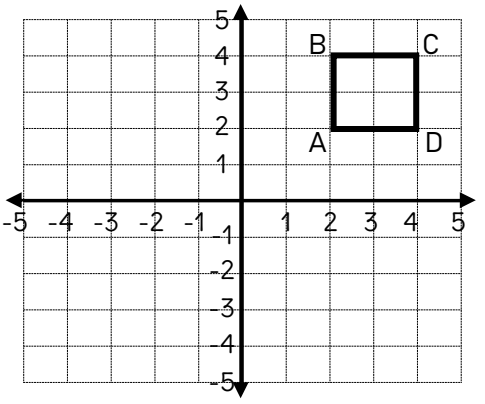
Curriculum Connection
SS.5

Performing Multiple Transformations

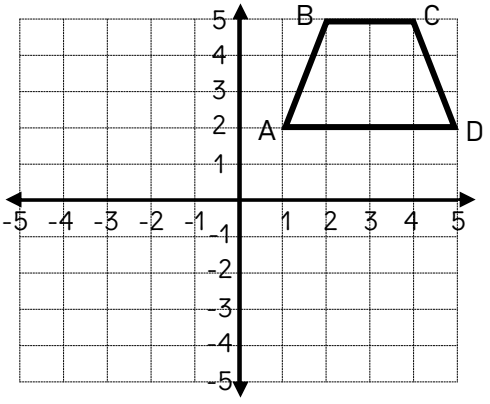
Questions Complete the following combination of transformations



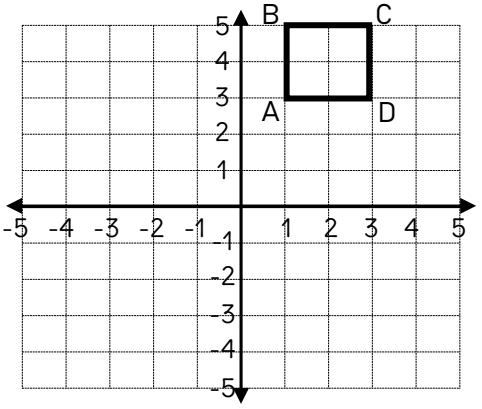
1) 180° rotation, translate down 3



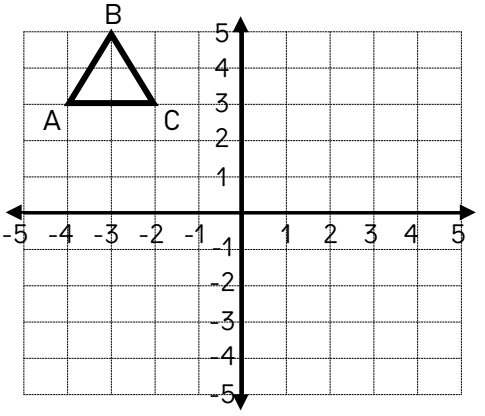
2) Reflect across the x-axis and translate left 4



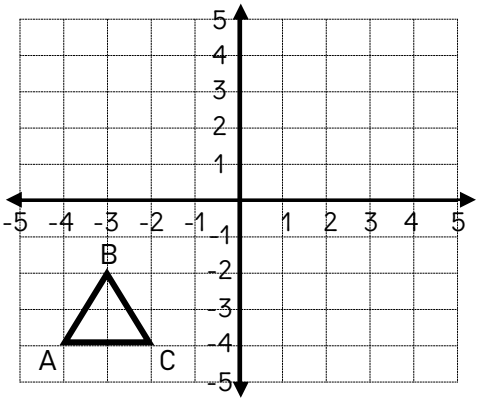
3) rotate 90° clockwise and reflect across the y-axis



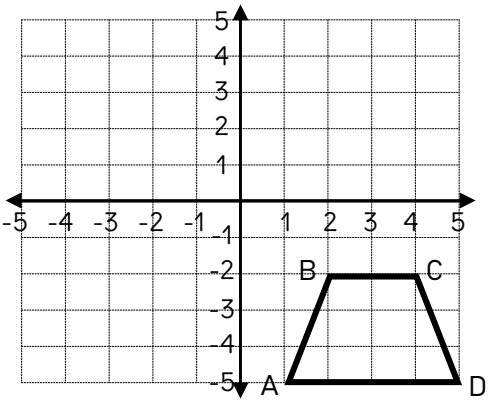
4) 90° counterclockwise rotation, translate right 3



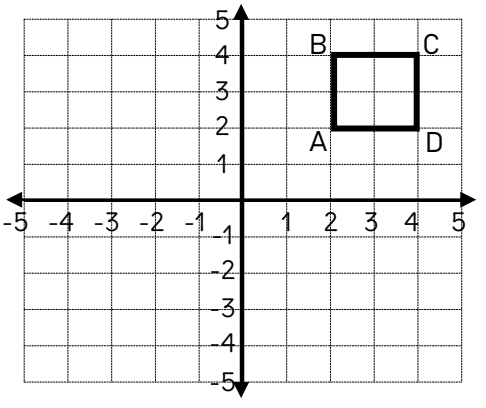
5) Translate down 3 and reflect across the y-axis



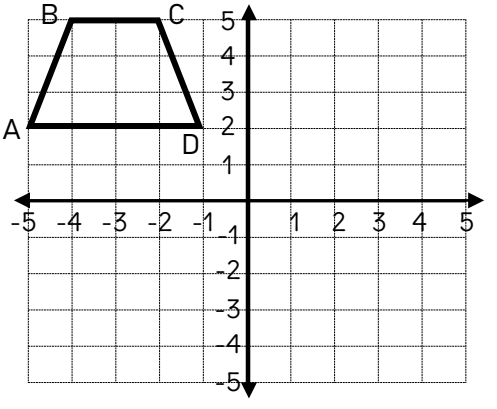
6) Reflect across the y-axis and translate up 4



7) 180° rotation, translate down 5



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

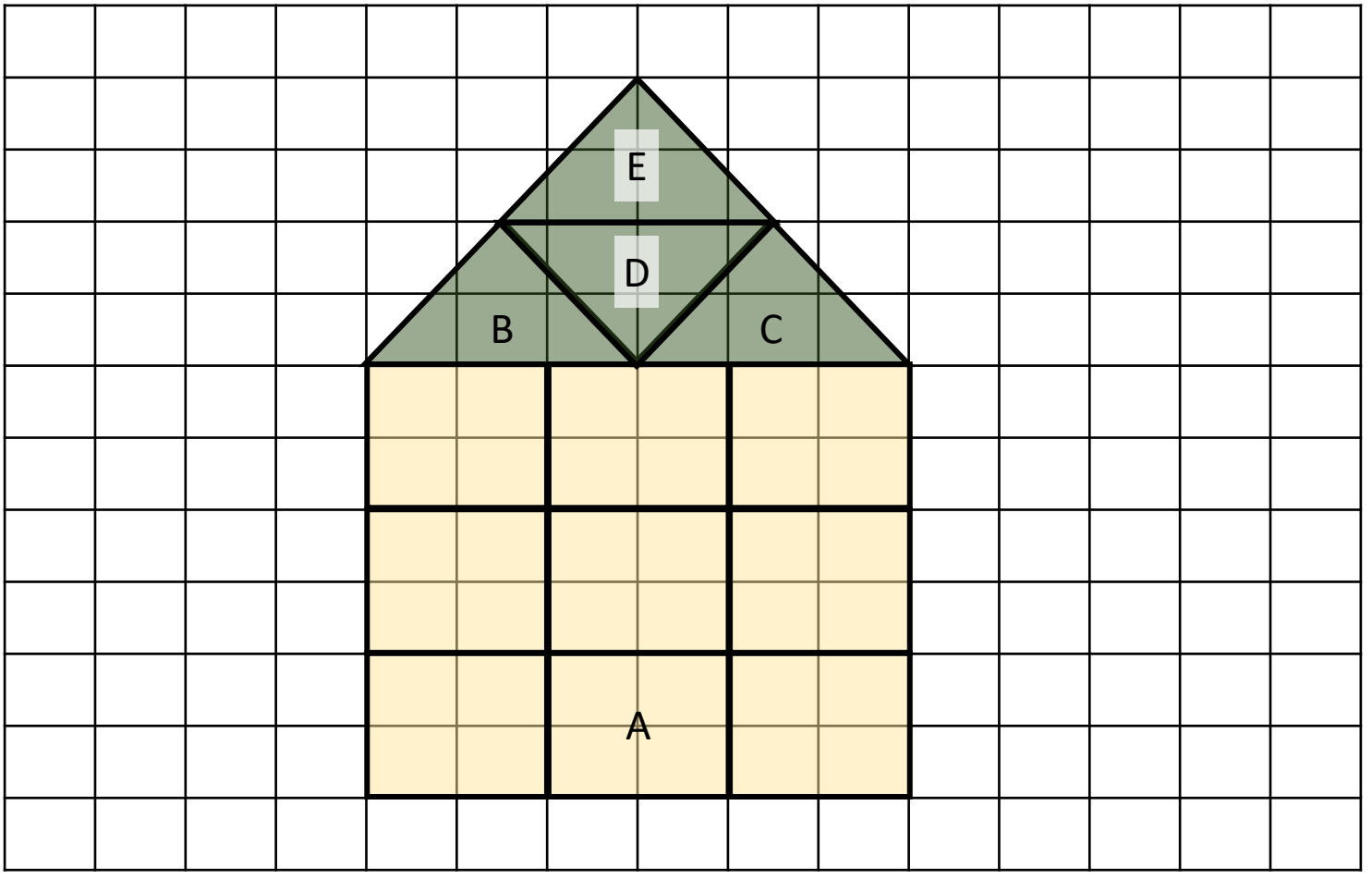


9) Rotate 90° clockwise and reflect across the x-axis

Name: _____ 109

Curriculum Connection
SS.5

Describing Transformations in a Design



Questions

Answer the questions below

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

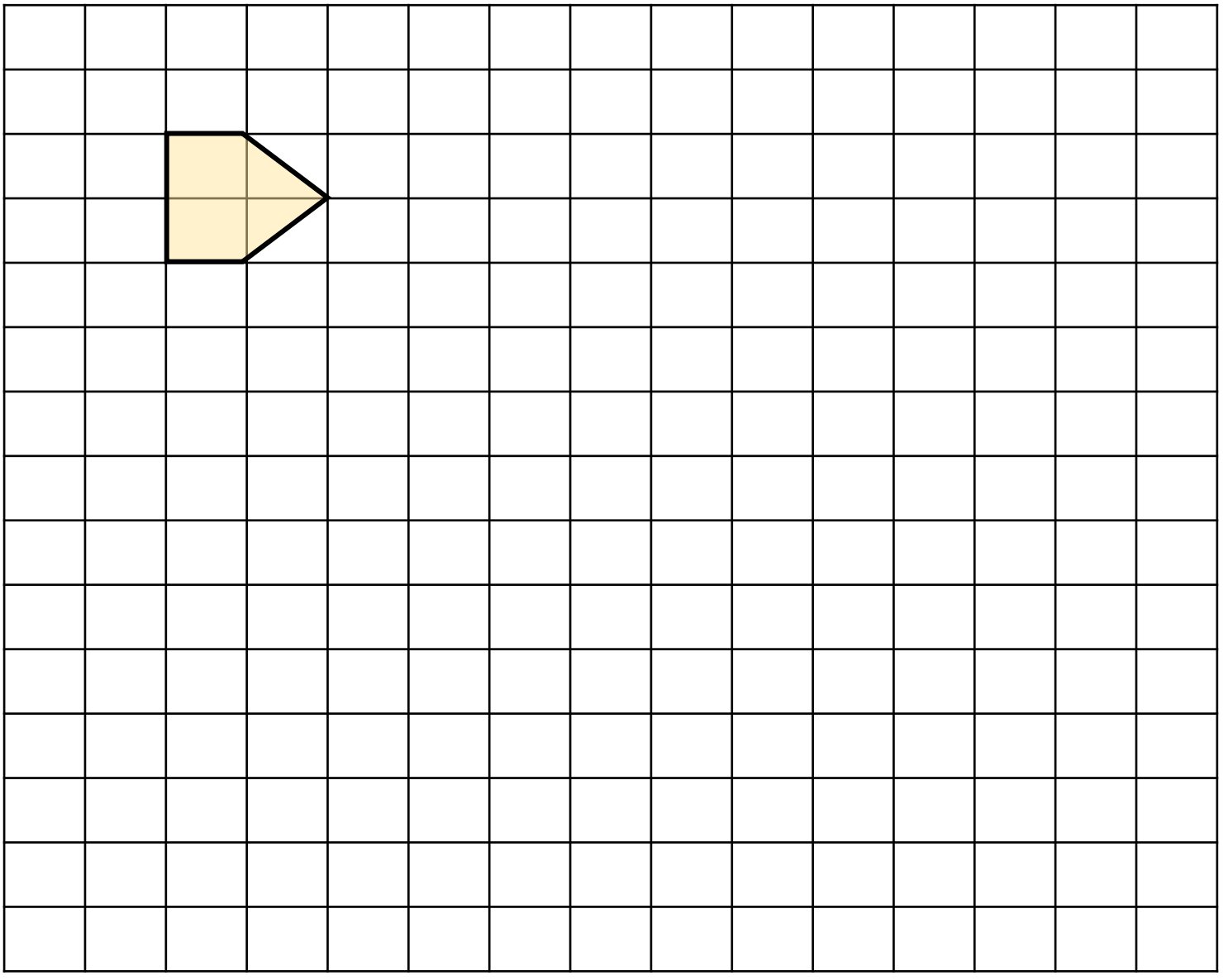
Name: _____ 110

Curriculum Connection
SS.5

Create a Design Using Transformations

Instructions

1) Transform copies of the shape below to create a design
2) Describe the transformations at the bottom of the page



Description Describe which transformations you performed to make your design

_____

_____

_____

_____

Name: _____ 111

Curriculum Connection
SS.5

Create a Design Using Transformations

Instructions

1) Draw a shape on the grid paper below
2) Transform copies of the shape to create a design
3) Describe the transformations at the bottom of the page

Description Describe which transformations you performed to make your design

_____

_____

_____

_____

Name: _____ 112

Unit Test
Geometric Constructions & Transformations

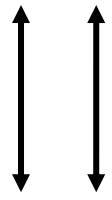
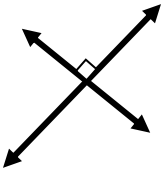
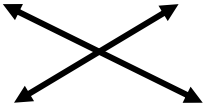
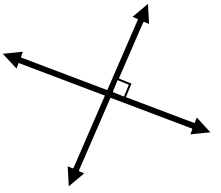
Part 1

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

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

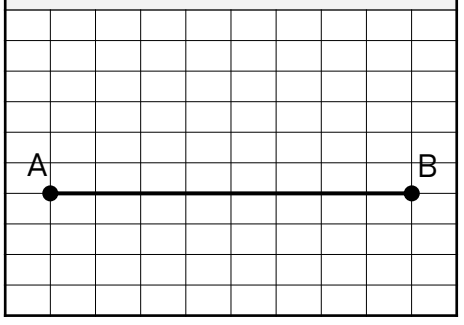
Part 2

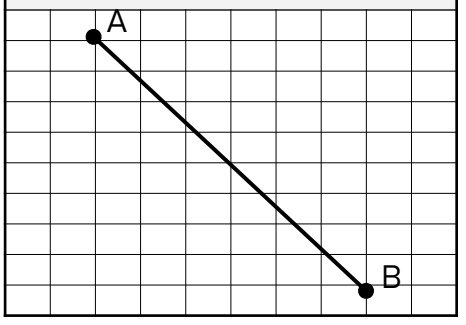
Label the lines parallel, perpendicular, or intersecting

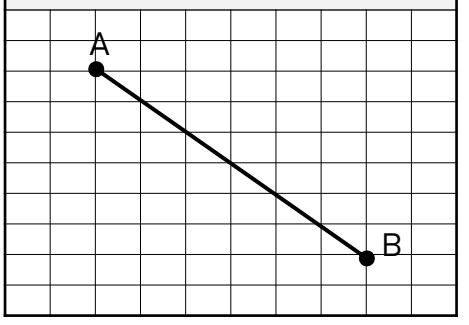
1) 	2) 	3) 	4) 

Part 3

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

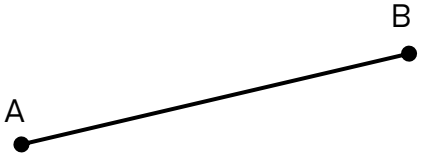
1) 

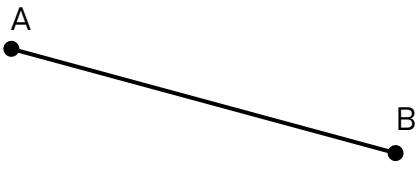
2) 

3) 

Part 4

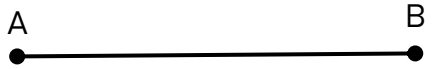
Construct perpendicular lines of the line segments $\overline{AB}$

1) 

2) 

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

1)

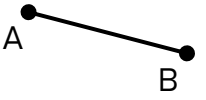


2)

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

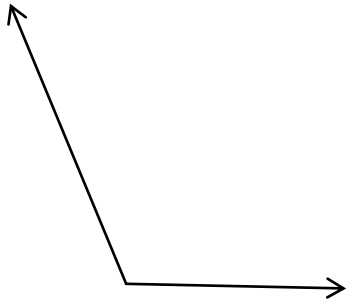
1)

2)

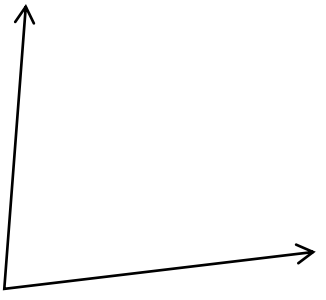


Part 7 Construct an angle bisector of the angle below using a compass

1)



2)



Part 8 Write which quadrant the points would be found in

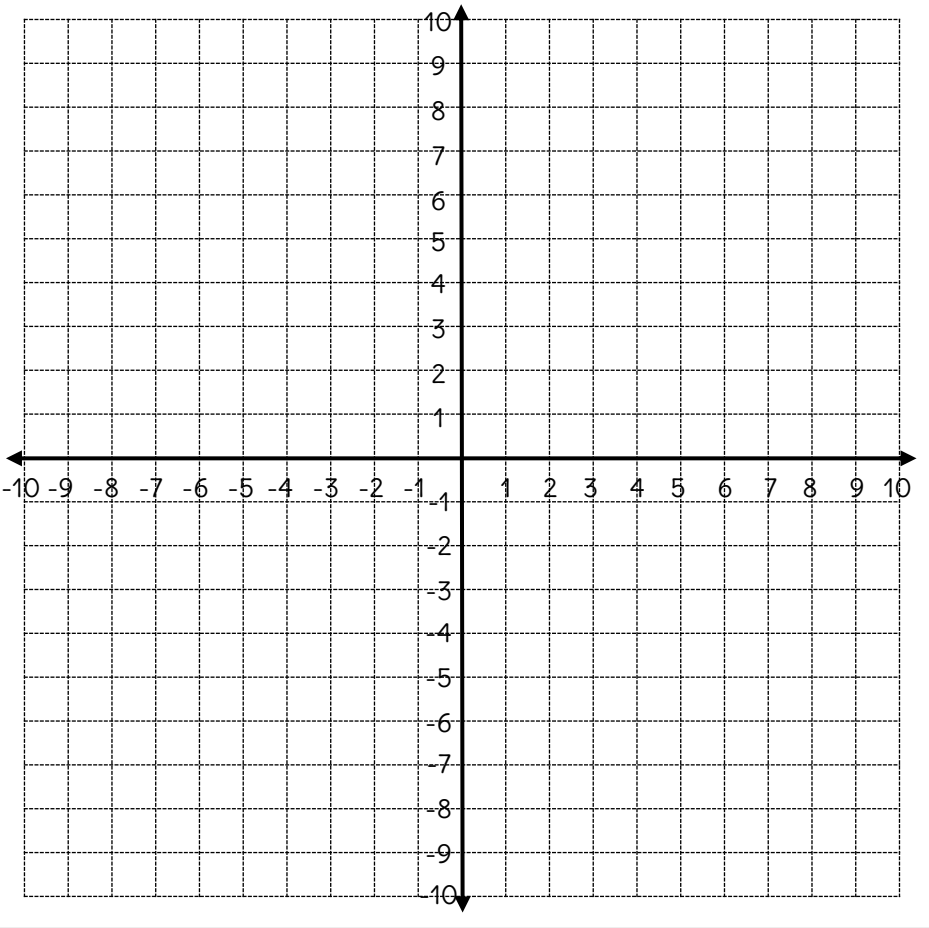
Coordinates (x, y)	**Quadrant (I, II, III, IV)**
(4, -3)	
(-5, -4)	
(2, 5)	
(-2, 3)	

Part 9 Which quadrant number is associated with the descriptions below

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

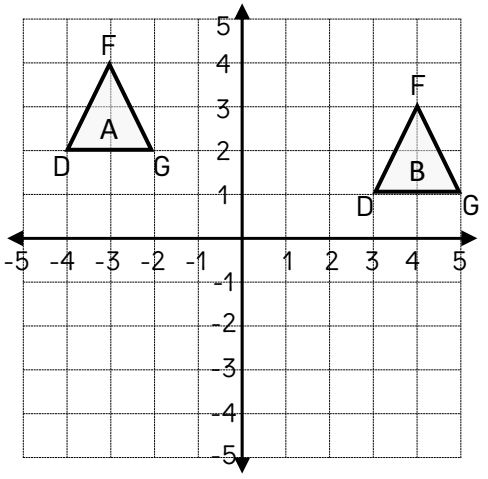
Part 10 Plot the points of the coordinates on the cartesian plane

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



Part 11

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



Coordinates A	Coordinates B

Describe the translation

_____

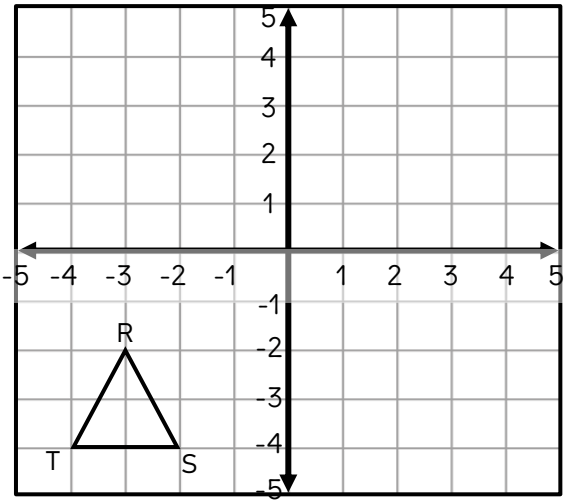
_____

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

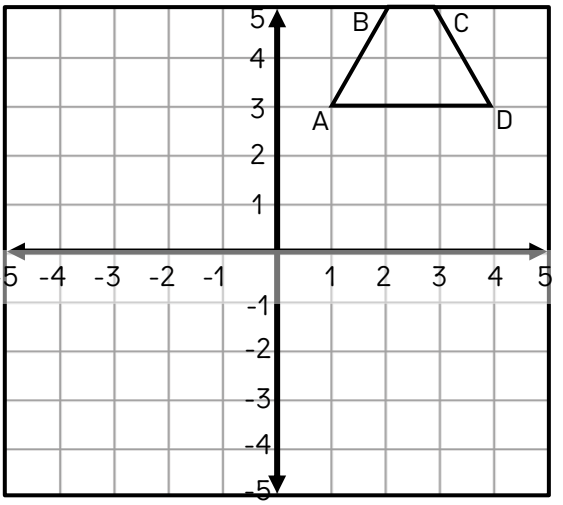
Part 12

Graph the new position of each shape after the given reflection

1) Reflection across the line y = –1



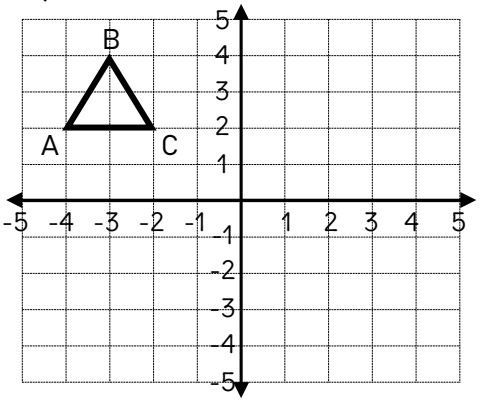
2) Reflection across the line x = 1



Part 13

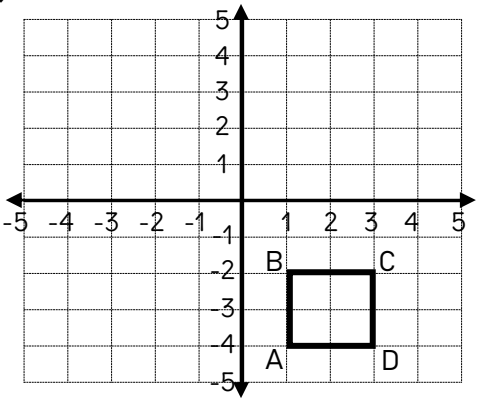
Graph the new position of each shape after the given rotation

1) 180° rotation



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

2) 90° counterclockwise rotation



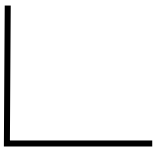
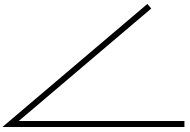
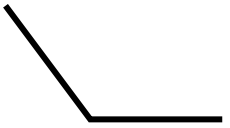
Original	A(,)	B(,)	C(,)	D(,)
Rotated	A(,)	B(,)	C(,)	D(,)

ANSWER PAGES

Name: Answers 3

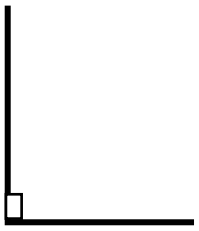
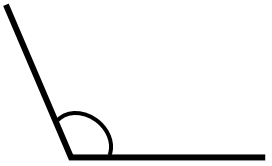
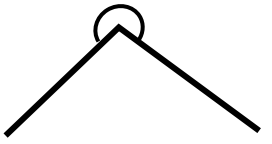
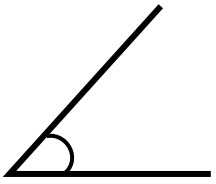
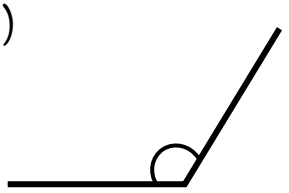
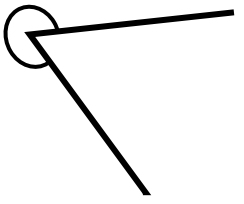
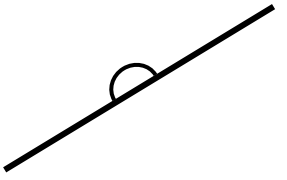
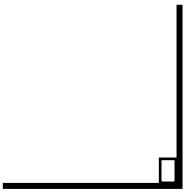
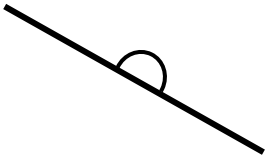
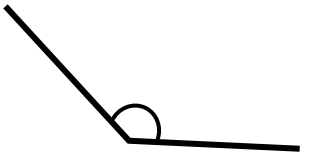
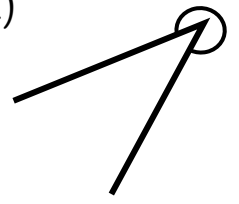
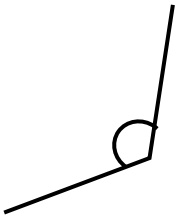
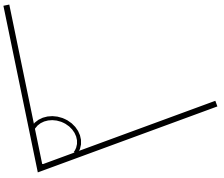
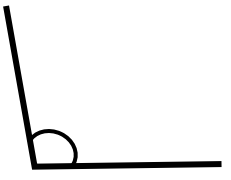
Curriculum Connection
SS.1

Naming Angles - Right, Obtuse, Acute, Straight, and Reflex

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

Questions

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

1) 	2) 	3) 	4) 
right	Obtuse	Reflex	Reflex
5) 	6) 	7) 	8) 
Acute	Obtuse	Reflex	Straight
9) 	10) 	11) 	12) 
right	Straight	Obtuse	Reflex
13) 	14) 	15) 	16) 
Obtuse	Acute	Obtuse	Reflex

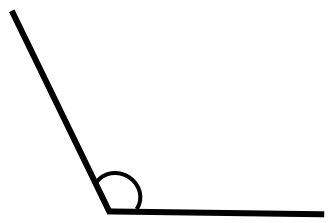
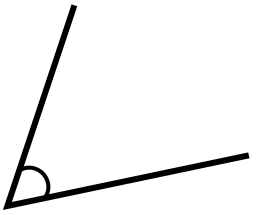
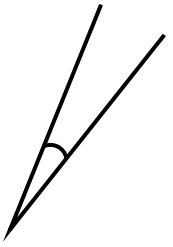
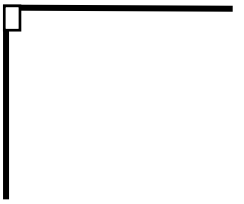
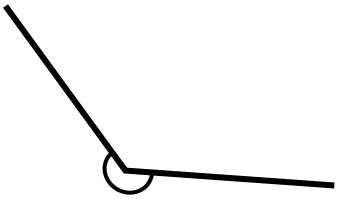
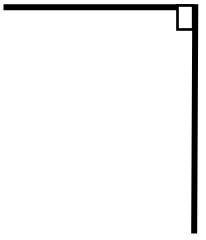
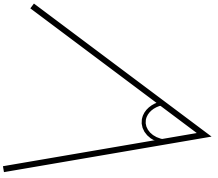
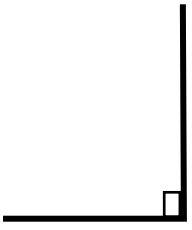
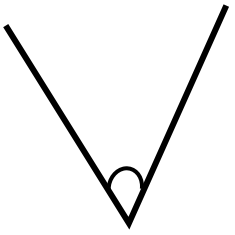
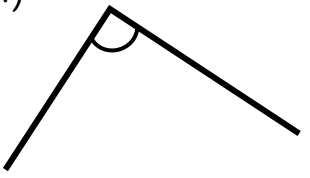
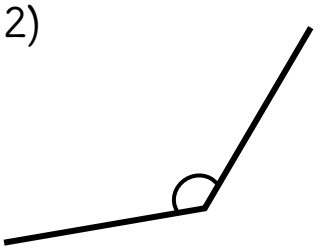
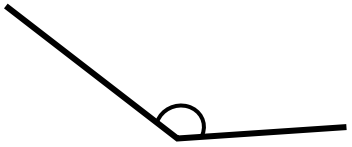
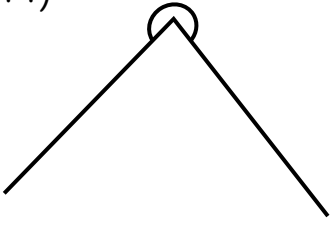
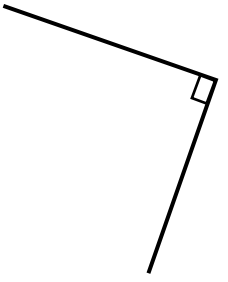
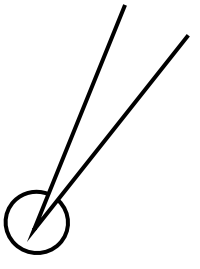
Name: Answers 4

Curriculum Connection
SS.1

Naming Angles - Right, Obtuse, Acute, and Reflex

Questions

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

1) 	2) 	3) 	4) 
right acute **obtuse** reflex	right **acute** obtuse reflex	right **acute** obtuse reflex	**right** acute obtuse reflex
5) 	6) 	7) 	8) 
right acute obtuse **reflex**	**right** acute obtuse reflex	right **acute** obtuse reflex	right acute **obtuse** reflex
9) 	10) 	11) 	12) 
right acute obtuse reflex	right **acute** obtuse reflex	**right** acute obtuse reflex	right acute **obtuse** reflex
13) 	14) 	15) 	16) 
right acute **obtuse** reflex	right acute obtuse **reflex**	**right** acute obtuse reflex	right acute obtuse **reflex**

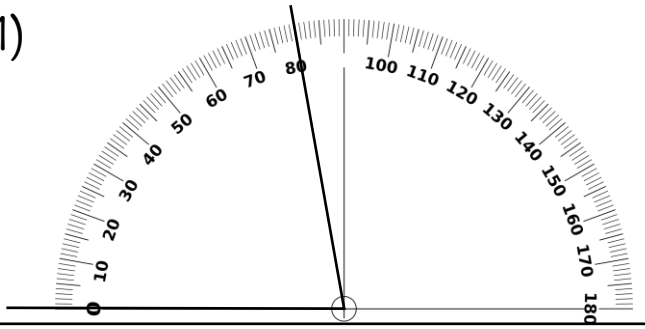
Name: Answers 6

Curriculum Connection
SS.1

Measuring Angles - Printed Protractor

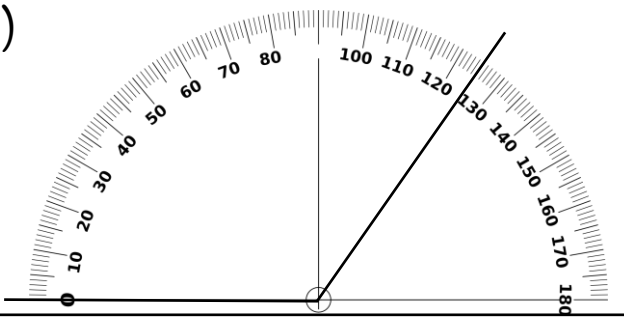
Questions Measure the angles and label them acute, right or obtuse

1)



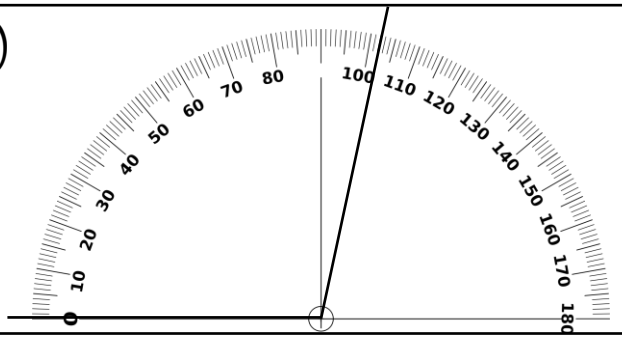
Angle = 80 Type of Angle = Acute

2)



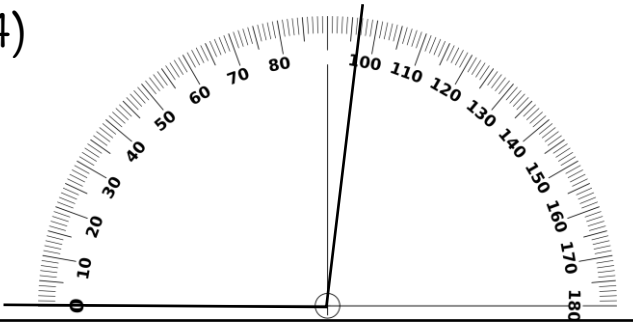
Angle = 125 Type of Angle = Obtuse

3)



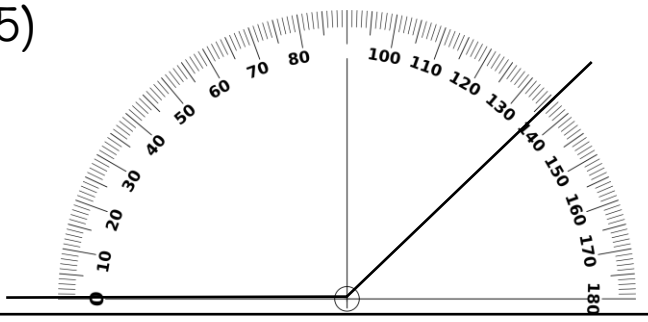
Angle = 112 Type of Angle = Obtuse

4)



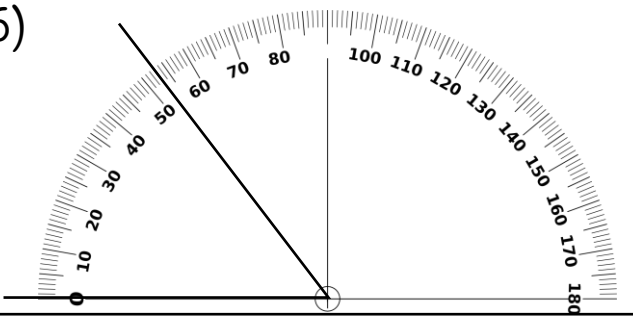
Angle = 97 Type of Angle = Obtuse

5)



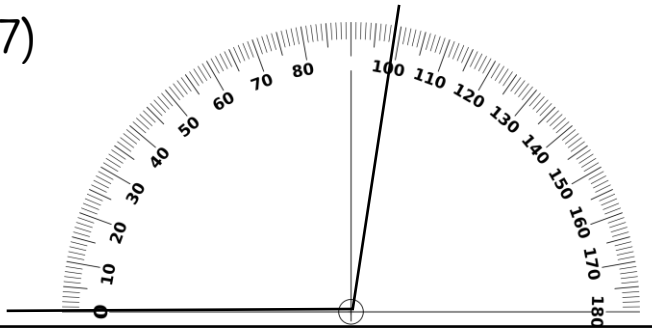
Angle = 136 Type of Angle = Obtuse

6)



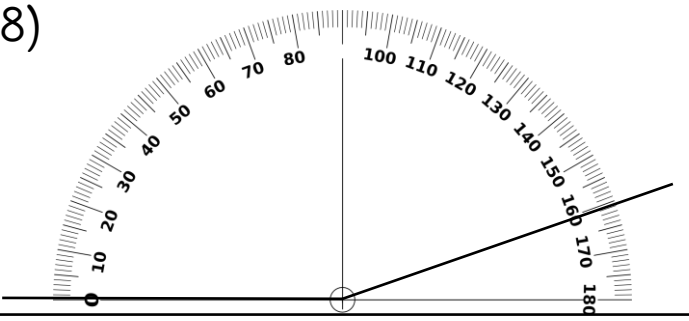
Angle = 53 Type of Angle = Acute

7)



Angle = 99 Type of Angle = Obtuse

8)



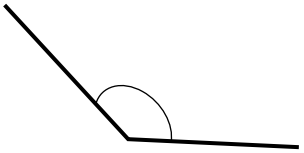
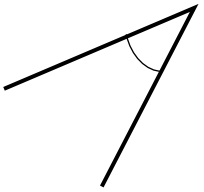
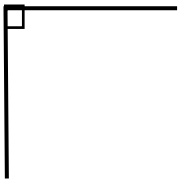
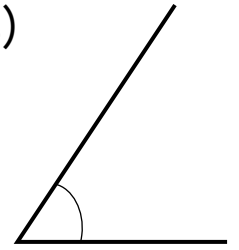
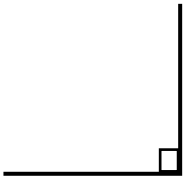
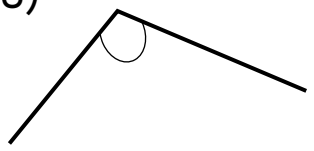
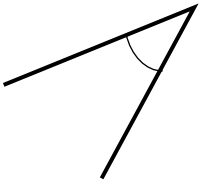
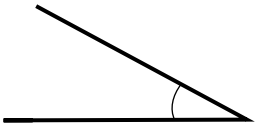
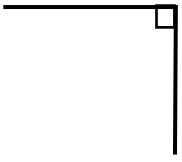
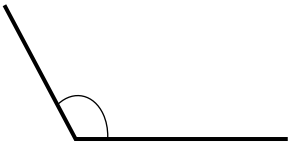
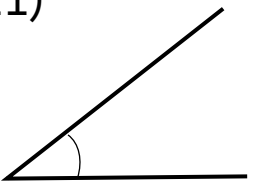
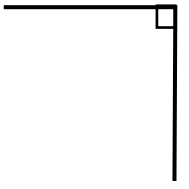
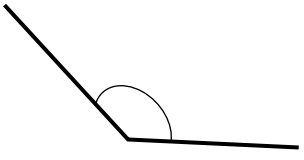
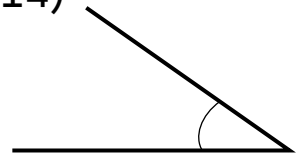
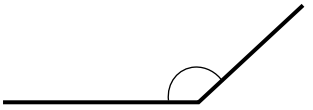
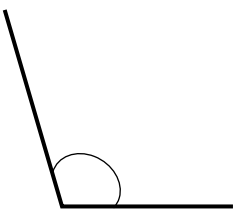
Angle = 161 Type of Angle = Obtuse

Name: Answers 7

Curriculum Connection
SS.1

Measuring Angles Up To 180°

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

1) 	2) 	3) 	4) 
135 - Obtuse	40 – Acute	90 – Right	56 – Acute
5) 	6) 	7) 	8) 
90 – Right	105 – Obtuse	40 – Acute	8 - Acute
9) 	10) 	11) 	12) 
90 – Right	119 – Obtuse	38 - Acute	90 - Right
13) 	14) 	15) 	16) 
136 - Obtuse	35 – Acute	139 – Obtuse	105 - Obtuse

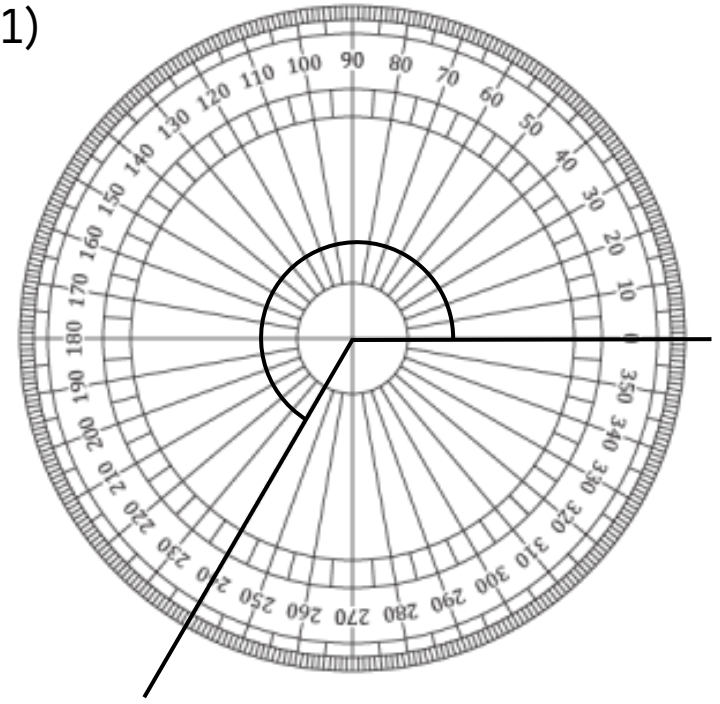
Name: Answers 8

Curriculum Connection
SS.1

Using Printed Protractor - Angles Up To 360°

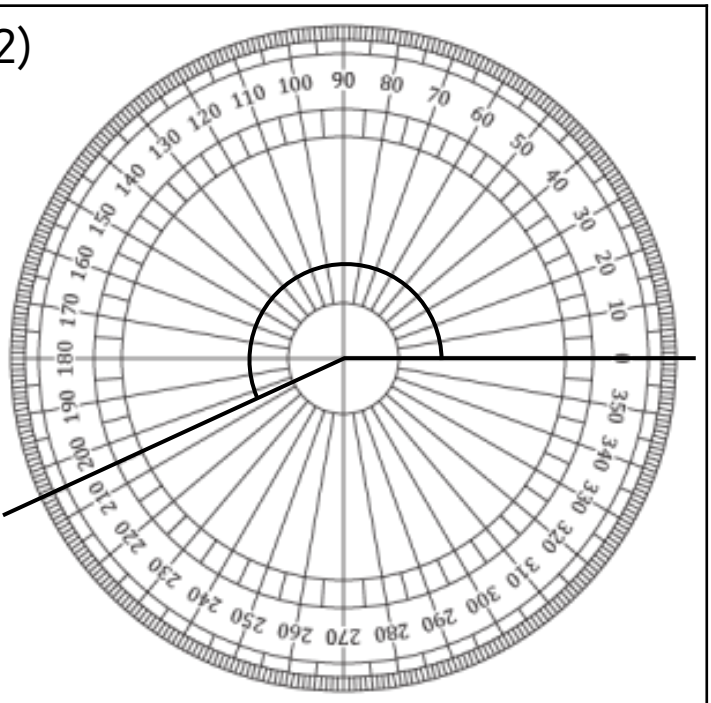
Questions Measure the angles below using the circular protractor

1)



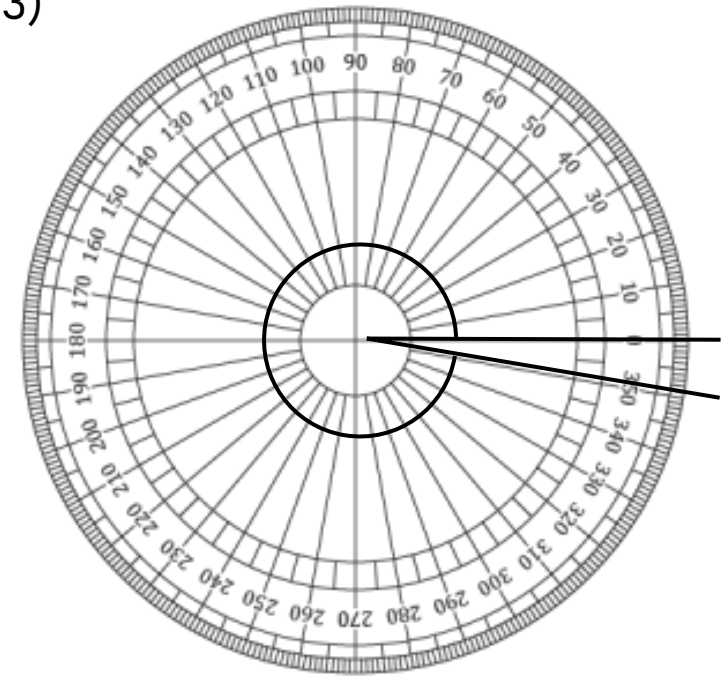
Angle = 240 Type of Angle = Reflex

2)



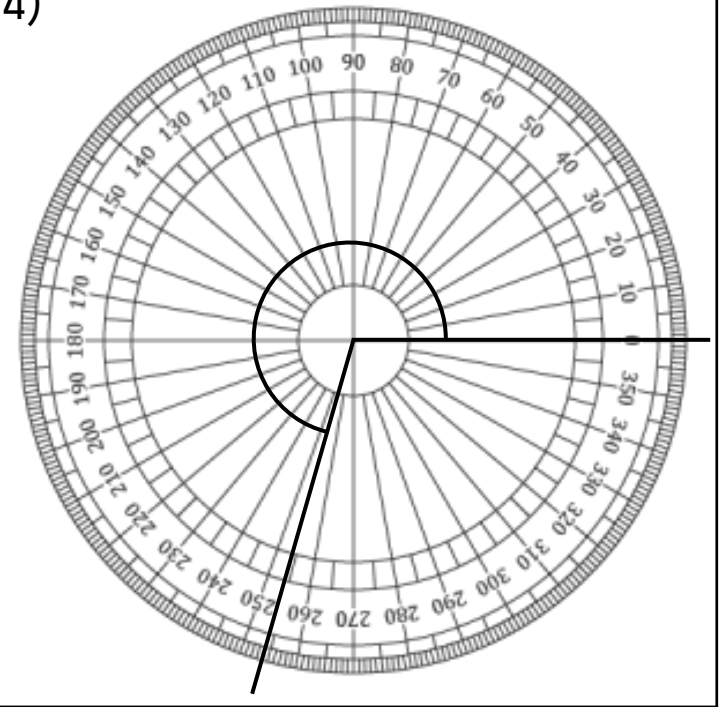
Angle = 205 Type of Angle = Reflex

3)



Angle = 351 Type of Angle = Reflex

4)



Angle = 254 Type of Angle = Reflex

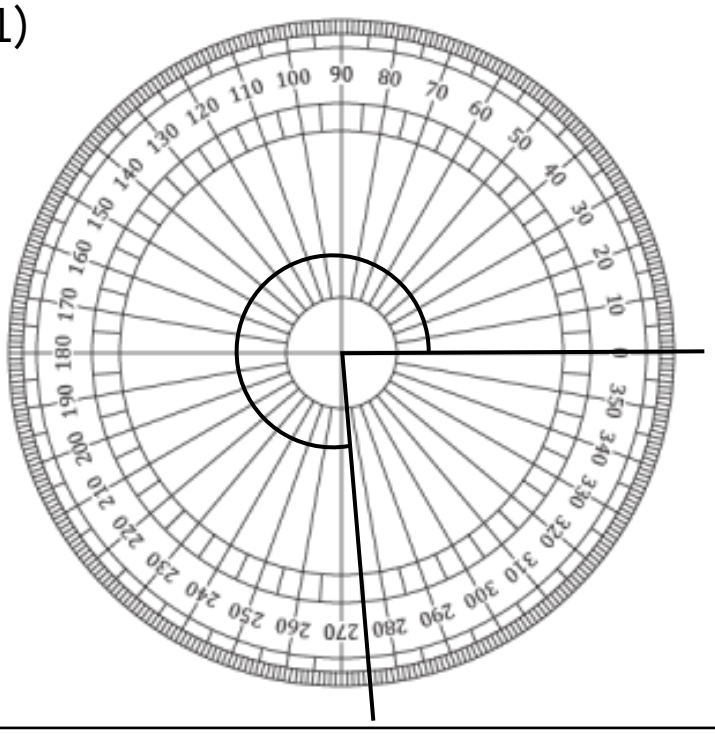
Name: Answers 9

Curriculum Connection
SS.1

Using Printed Protractor - Angles Up To 360°

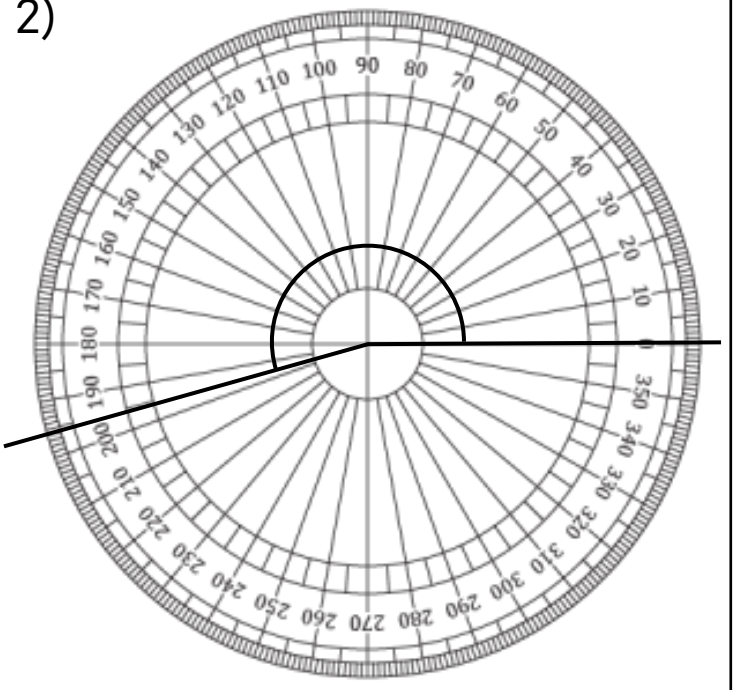
Questions Measure the angles below using the circular protractor

1)



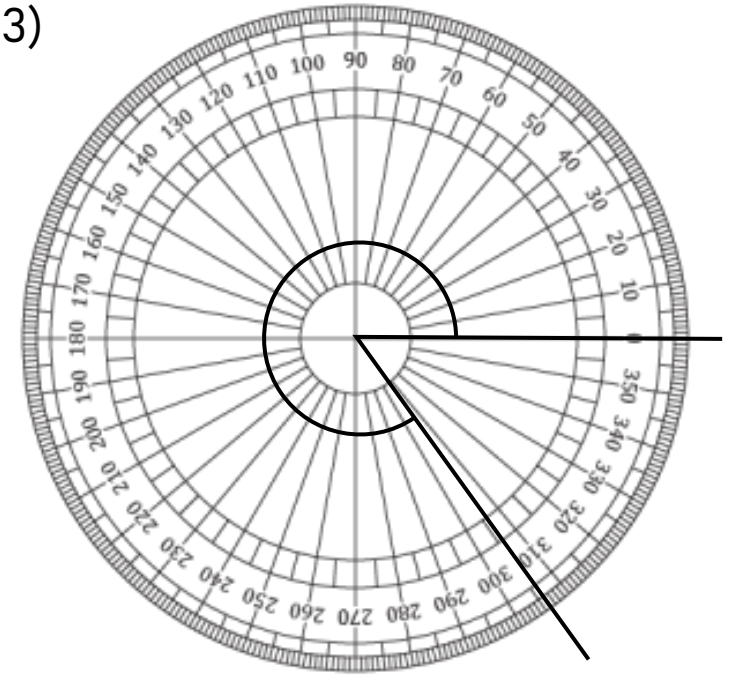
Angle = 275 Type of Angle = Reflex

2)



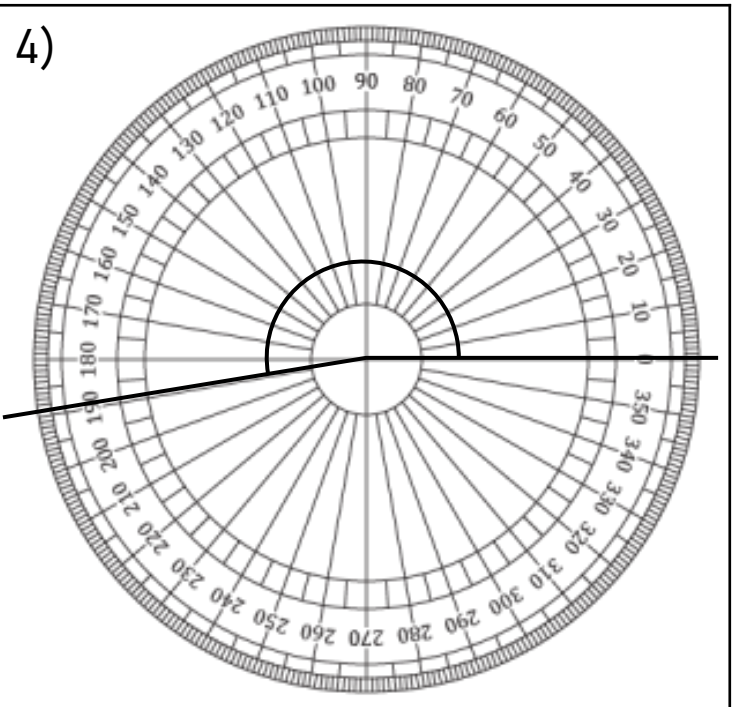
Angle = 196 Type of Angle = Reflex

3)



Angle = 306 Type of Angle = Reflex

4)



Angle = 189 Type of Angle = Reflex

Name: Answers 10

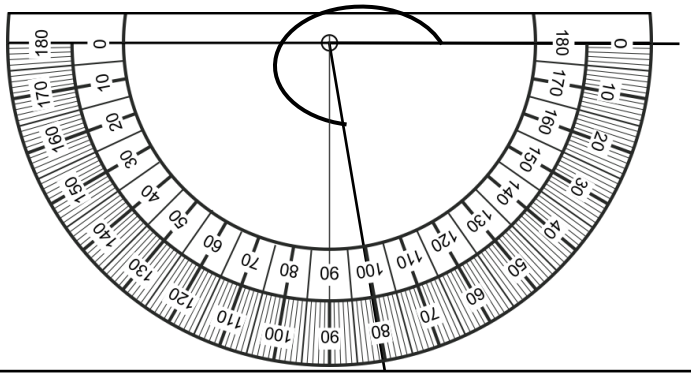
Curriculum Connection
SS.1

Measuring Angles Up To 360°

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

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

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



Solution

Strategy 1

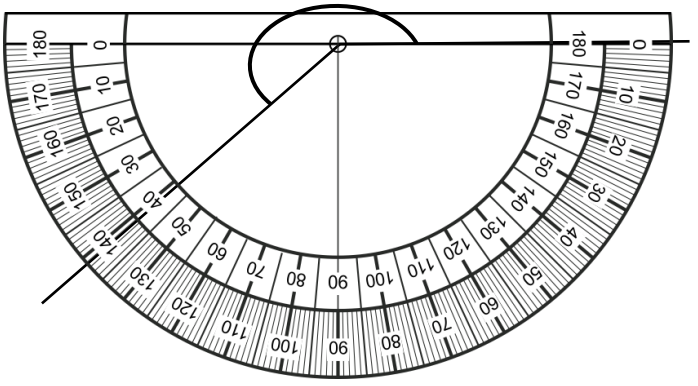
180 + 100 = 280

Strategy 2

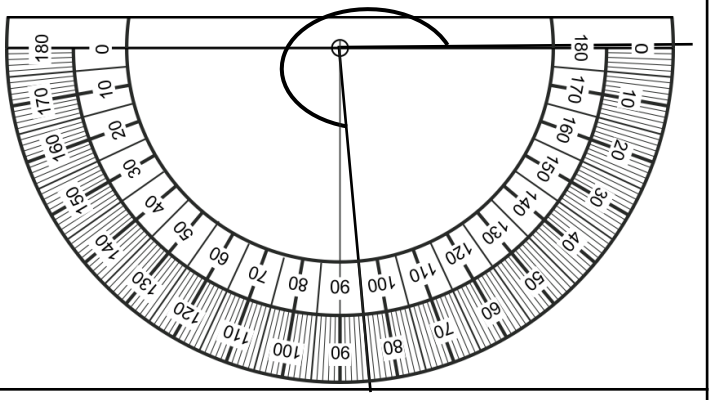
360 – 80 = 280

Questions

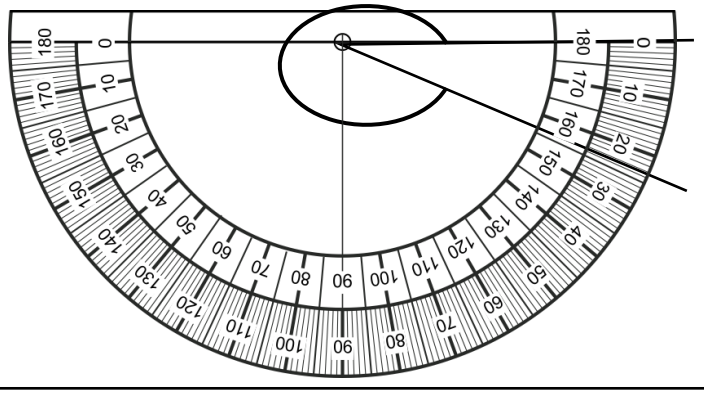
Measure the reflex angles below



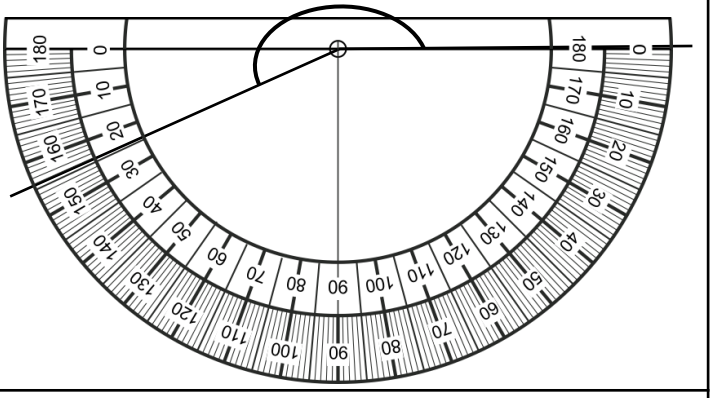
1) Angle Size = 221



2) Angle Size = 275



3) Angle Size = 337



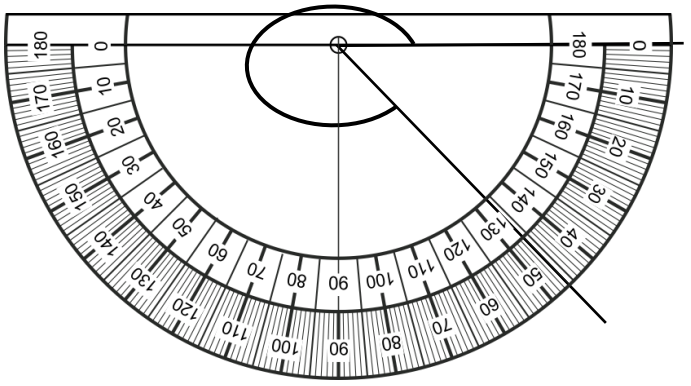
4) Angle Size = 204

Name: Answers

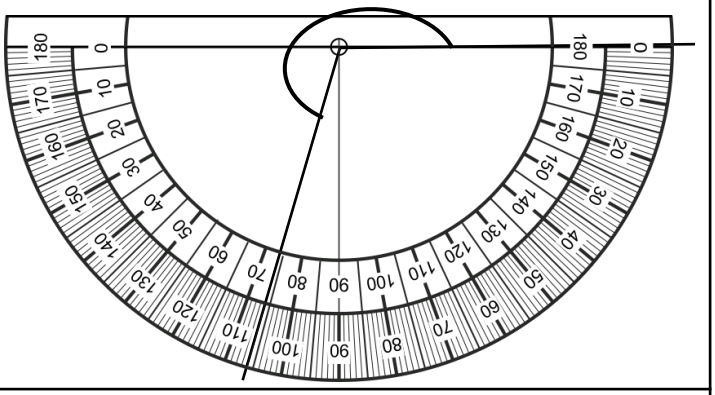
Curriculum Connection
SS.1

Measuring Angles Up To 360°

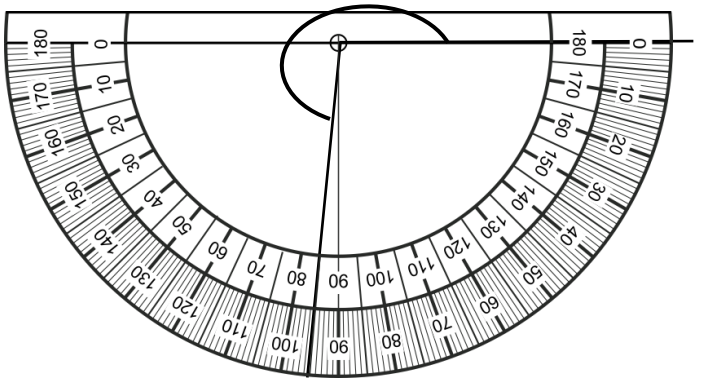
Questions Measure the reflex angles below



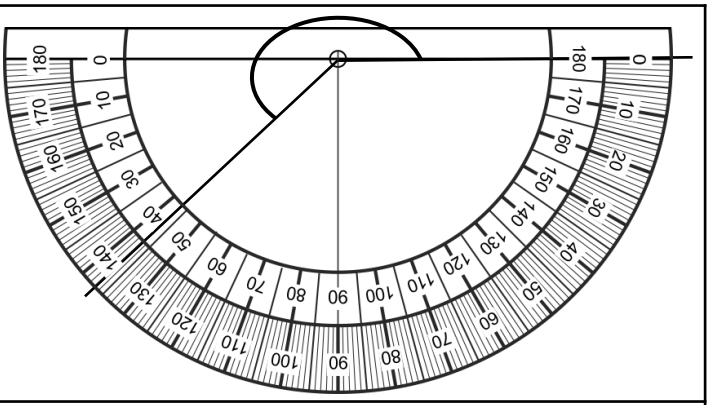
1) Angle Size = 315



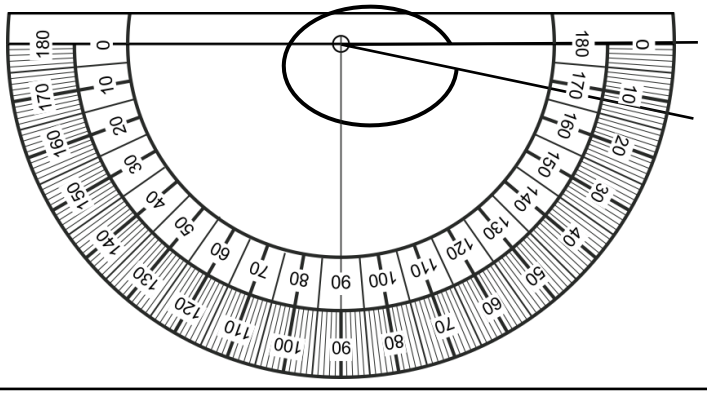
2) Angle Size = 253



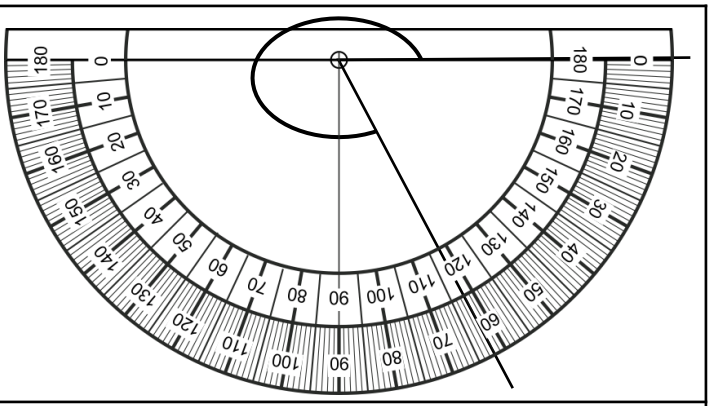
3) Angle Size = 264



4) Angle Size = 223



5) Angle Size = 348



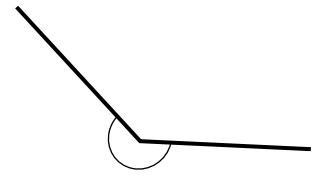
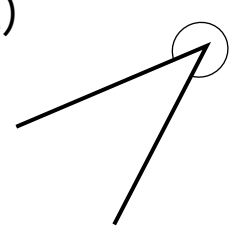
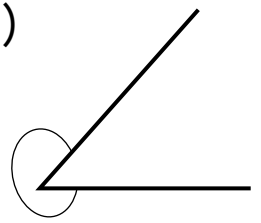
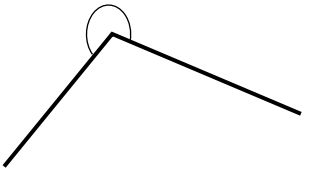
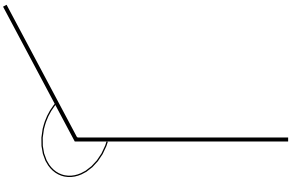
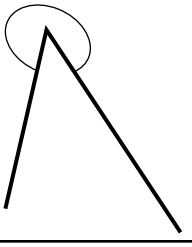
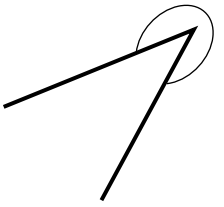
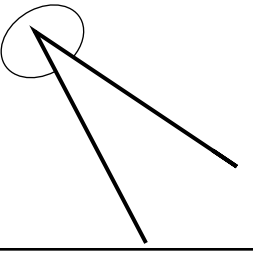
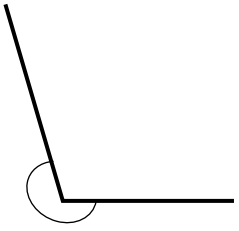
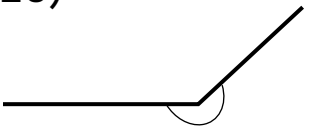
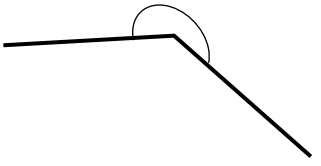
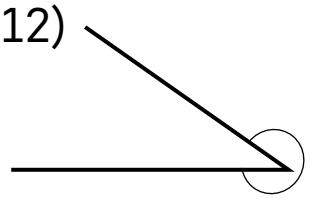
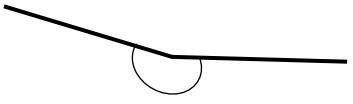
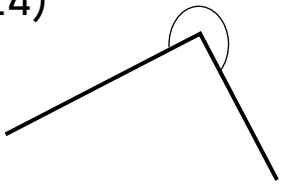
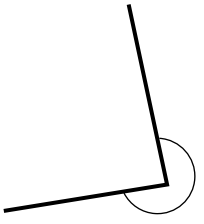
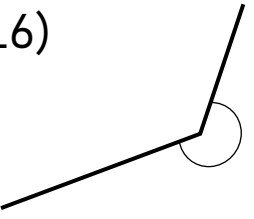
6) Angle Size = 298

Name: Answers 12

Curriculum Connection
SS.1

Measuring Angles Up To 360°

Questions Measure the angles below

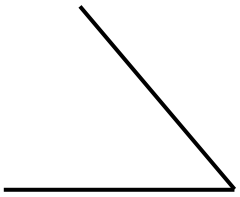
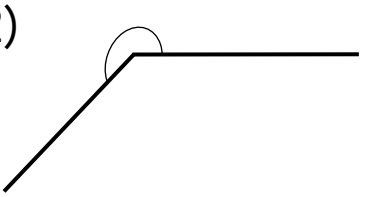
1) 	2) 	3) 	4) 
225	320	311	253
5) 	6) 	7) 	8) 
241	313	320	331
9) 	10) 	11) 	12) 
253	223	224	325
13) 	14) 	15) 	16) 
196	270	273	231

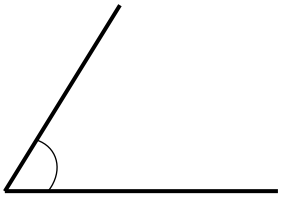
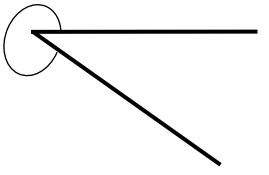
Name: Answers 13

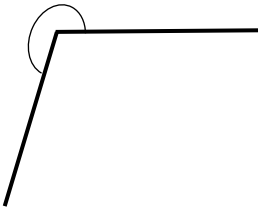
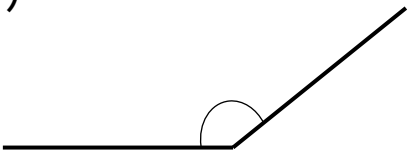
Curriculum Connection
SS.1

Constructing Angles - Estimating - Multiple Choice

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

1) 	2) 	3) 
a) ∠= 95°	a) ∠= 95°	a) ∠= 171°
b) ∠= 50°	b) ∠= 100°	b) ∠= 9°
c) ∠= 110°	c) ∠= 225°	c) ∠= 50°
d) ∠= 160°	d) ∠= 290°	d) ∠= 85°

4) 	5) 	6) 
a) ∠= 168°	a) ∠= 60°	a) ∠= 90°
b) ∠= 50°	b) ∠= 120°	b) ∠= 180°
c) ∠= 120°	c) ∠= 10°	c) ∠= 270°
d) ∠= 10°	d) ∠= 160°	d) ∠= 325°

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

Name: Answers

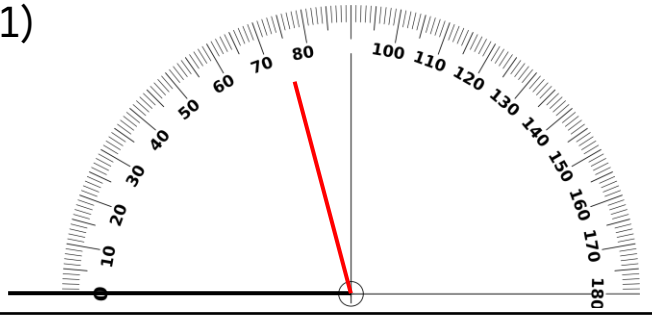
14

Curriculum Connection
SS.1

Contruction Angles Up To 180°

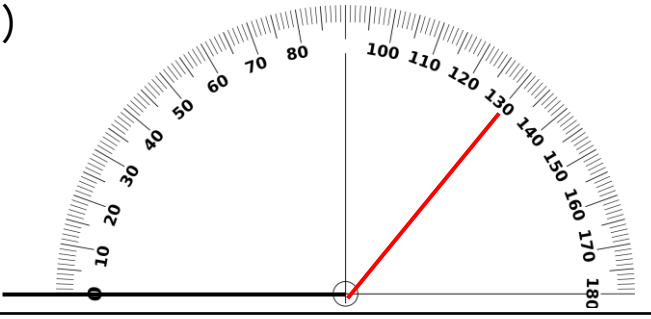
Questions Construct the angles and label them acute, right or obtuse

1)



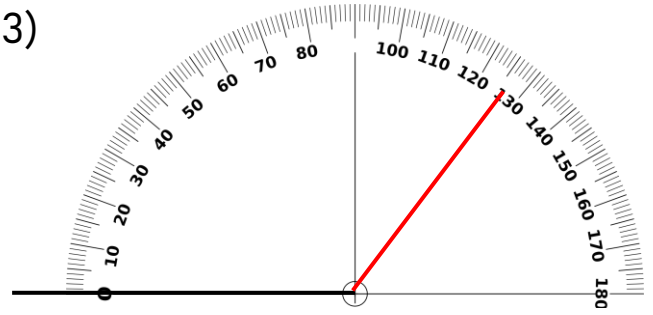
∠= 75° Type of Angle = acute

2)



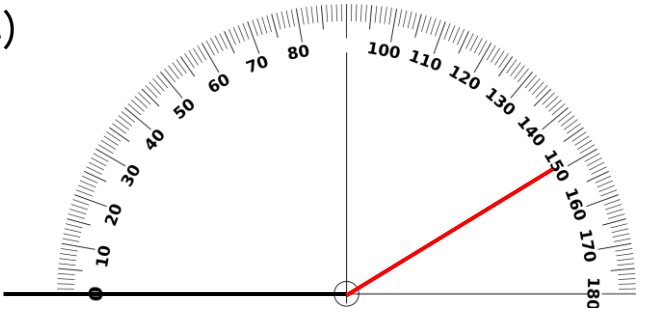
∠= 130° Type of Angle = obtuse

3)



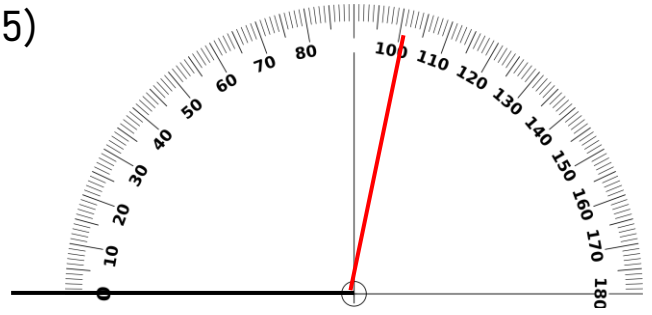
∠= 126° Type of Angle = obtuse

4)



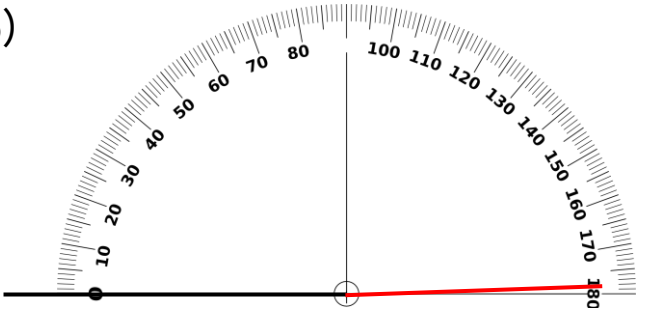
∠= 148° Type of Angle = obtuse

5)



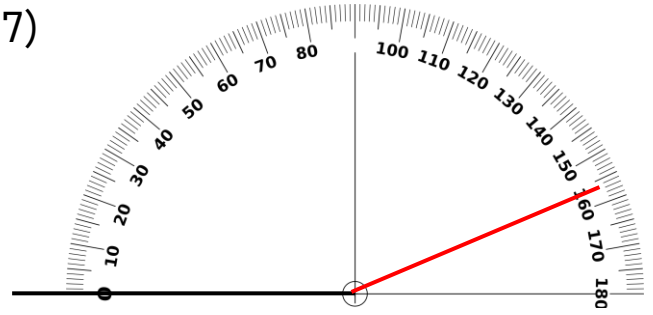
∠= 101° Type of Angle = obtuse

6)



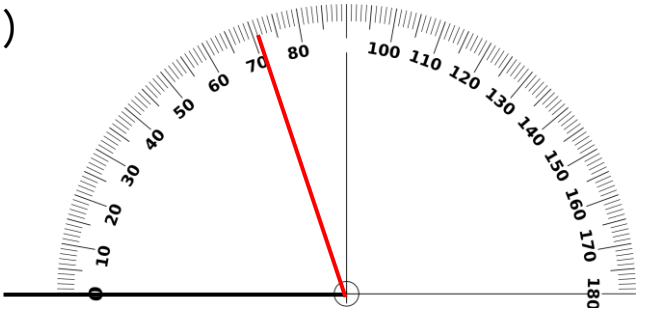
∠= 178° Type of Angle = obtuse

7)



∠= 156° Type of Angle = obtuse

8)



∠= 71° Type of Angle = acute

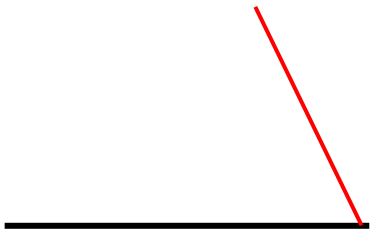
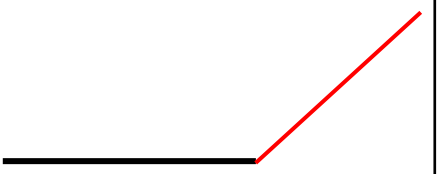
Name: Answers 15

Curriculum Connection
SS.1

Contruction Angles Up To 180°

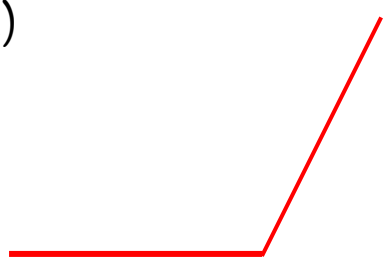
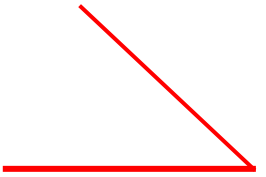
Part 1

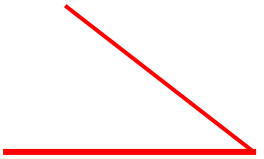
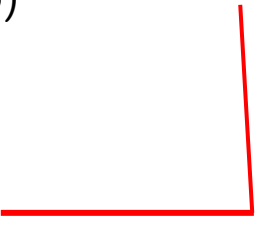
Use a protractor to draw the angles below using the line provided

1)	2)	3)
		
∠= 65°	∠= 93°	∠= 137°

Part 2

Use a protractor to draw the angles below

1)	2)	3)
		
∠= 172°	∠= 117°	∠= 42°

4)	5)	6)
		
∠= 164°	∠= 38°	∠= 87°

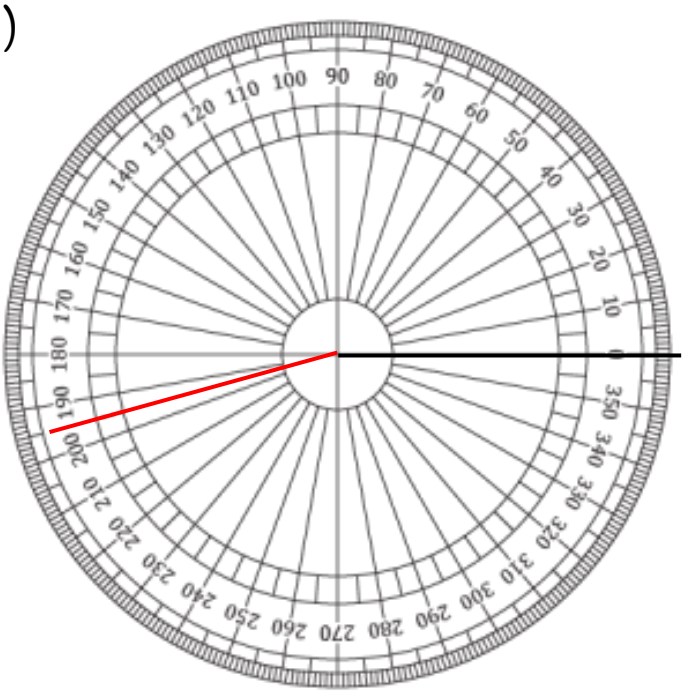
Name: Answers 16

Curriculum Connection
SS.1

Contruction Angles Up To 360°

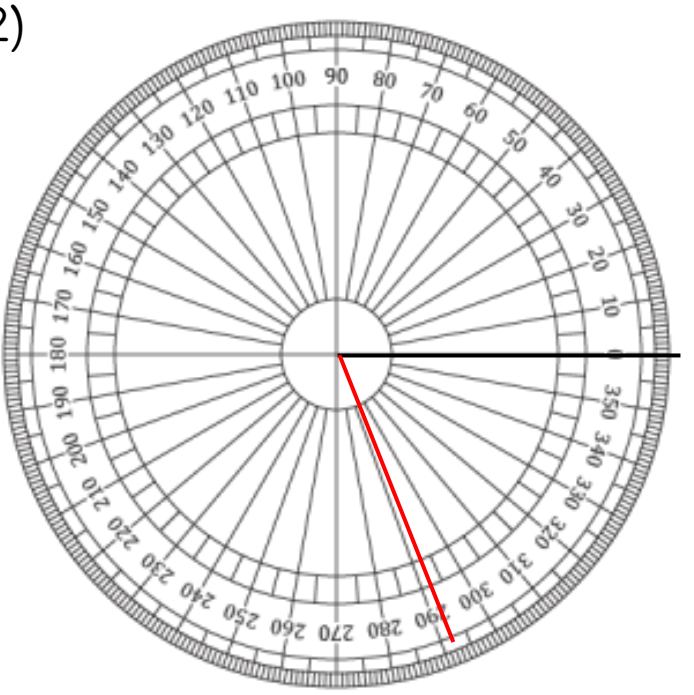
Questions | Construct the angles below

1)



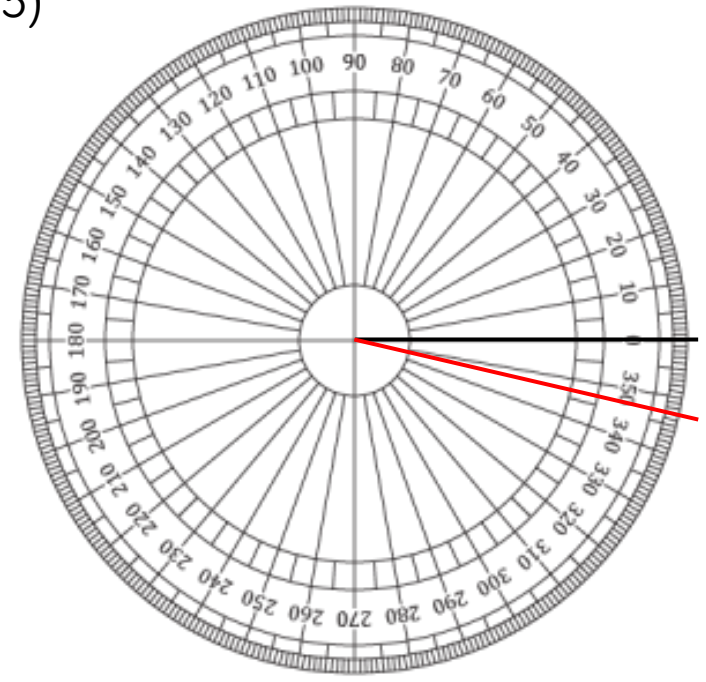
Angle = 195°

2)



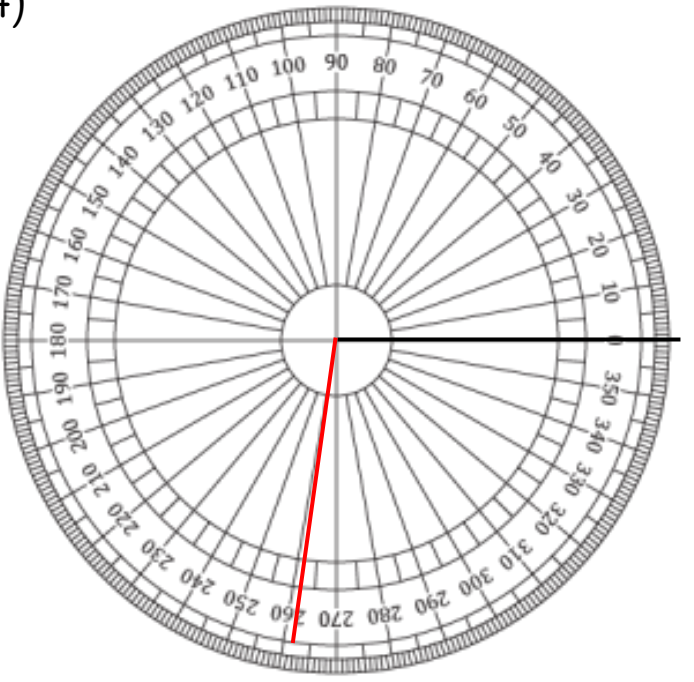
Angle = 292°

3)



Angle = 347°

4)



Angle = 262°

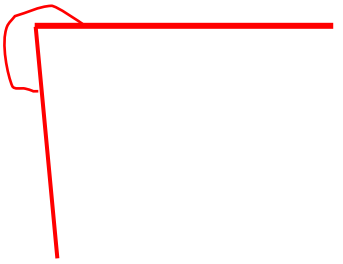
Name: Answers 17

Curriculum Connection
SS.1

Contruction Angles Up To 360°

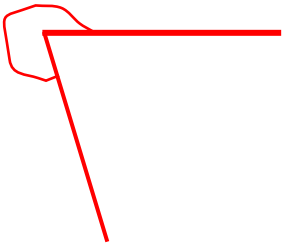
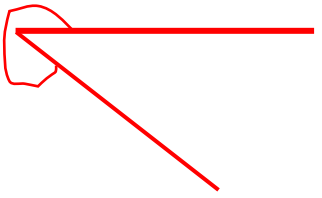
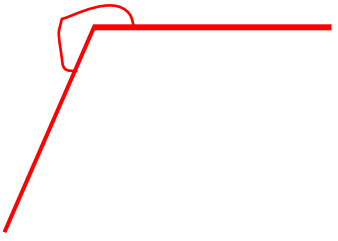
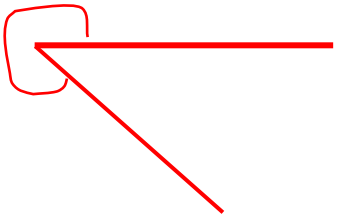
Part 1

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

1) 	2) 	3) 
∠= 200°	∠= 275°	∠= 350°

Part 2

Use a protractor to draw the angles below

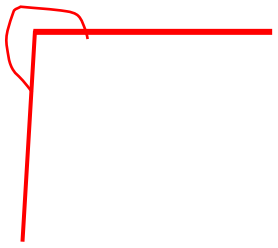
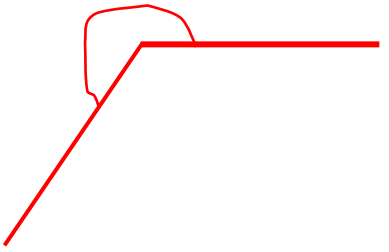
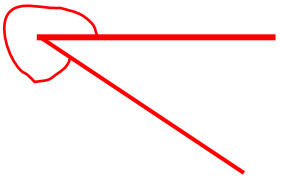
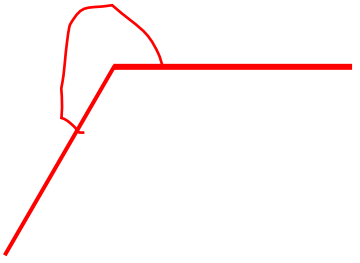
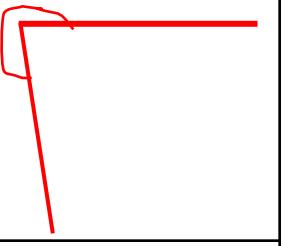
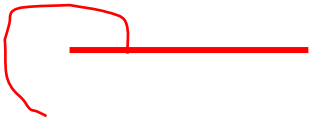
1) 	2) 	3) 
∠= 287°	∠= 322°	∠= 196°
4) 	5) 	6) 
∠= 248°	∠= 318°	∠= 264°

Name: Answers 18

Curriculum Connection
SS.1

Contruction Angles Up To 360°

Practice Use a protractor to draw the angles below

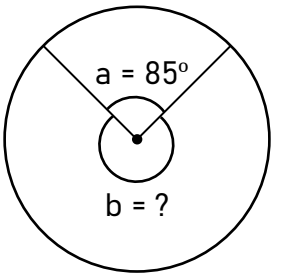
1) 	2) 	3) 
∠= 267°	∠= 236°	∠= 184°
4) 	5) 	6) 
∠= 326°	∠= 241°	∠= 279°
7) 	8) 	9) 
∠= 351°	∠= 249°	∠= 355°

Name: Answers 19

Curriculum Connection
SS.1

Introduction to Central Angles

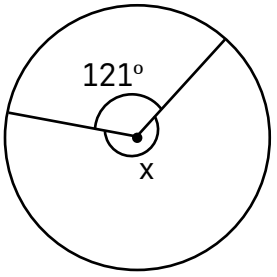
A **central angle** is an angle with a vertex at the centre of a circle. Both angles a and b in the example are central angles. The sum of all central angles need to equal 360°. Therefore, if angle a = 85°, then angle b would equal 275° (360 – 85).



Practice

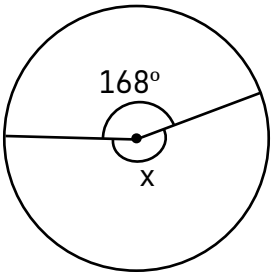
Determine the value of angle *x*

1)



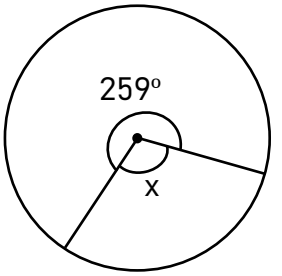
∠x = 239°

2)



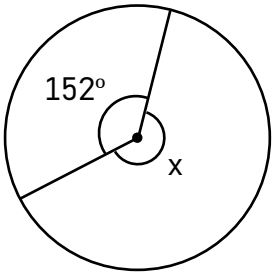
∠x = 192°

3)



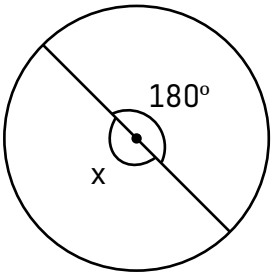
∠x = 101°

4)



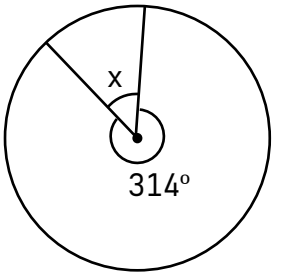
∠x = 208°

5)



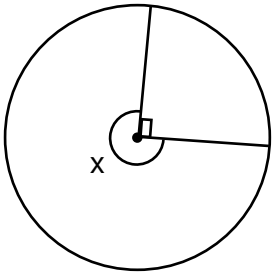
∠x = 180°

6)



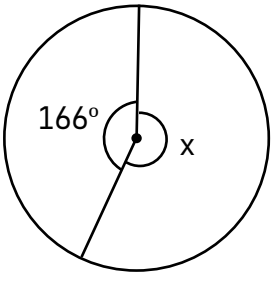
∠x = 46°

7)



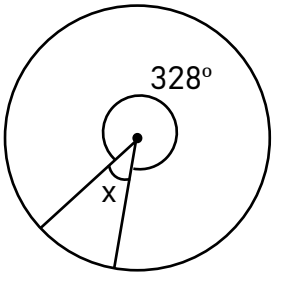
∠x = 270°

8)



∠x = 194°

9)



∠x = 32°

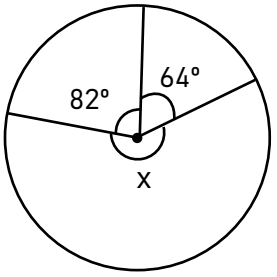
Name: Answers 20

Curriculum Connection
SS.1

Finding the Missing Angle - Central Angles

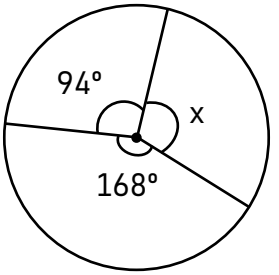
Practice Determine the value of angle *x*

1)



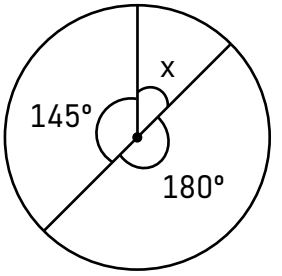
∠x = 214°

2)



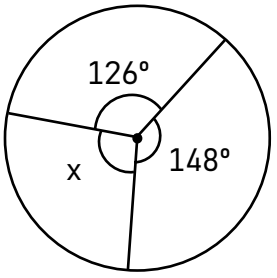
∠x = 98°

3)



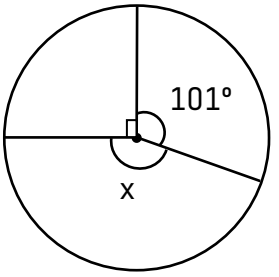
∠x = 35°

4)



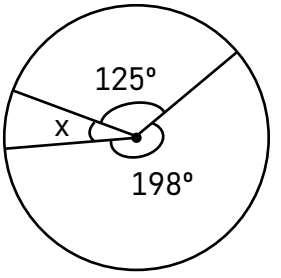
∠x = 86°

5)



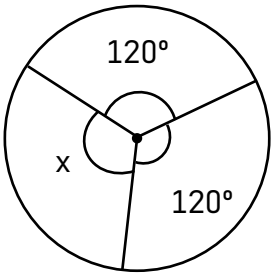
∠x = 169°

6)



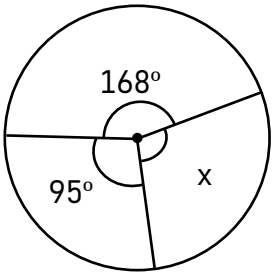
∠x = 37°

7)



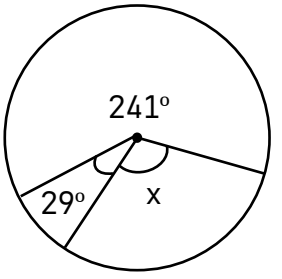
∠x = 120°

8)



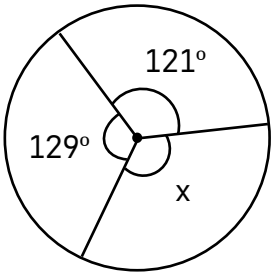
∠x = 97°

9)



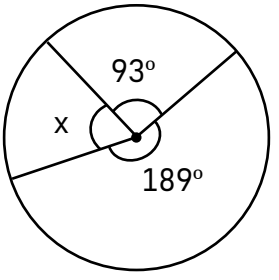
∠x = 90°

10)



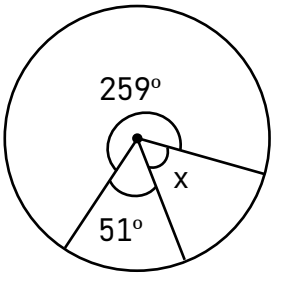
∠x = 110°

11)



∠x = 78°

12)



∠x = 50°

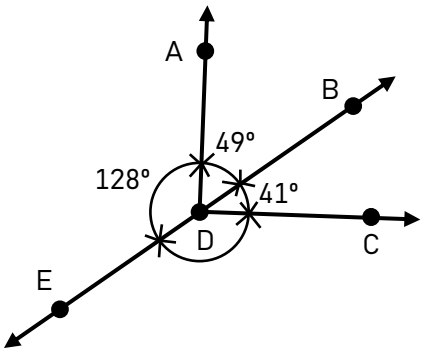
Name: Answers 21

Curriculum Connection
SS.1

Finding the Missing Angle - Central Angles

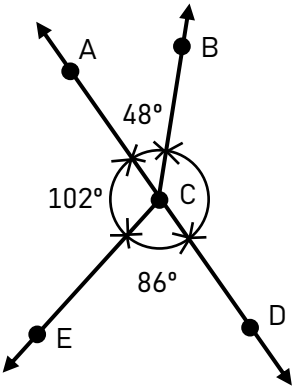
Practice Find the missing angles below

1)



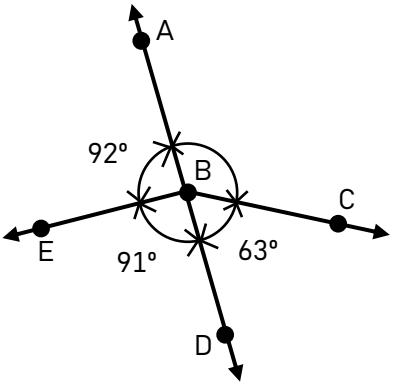
∠CDE = 142°

2)



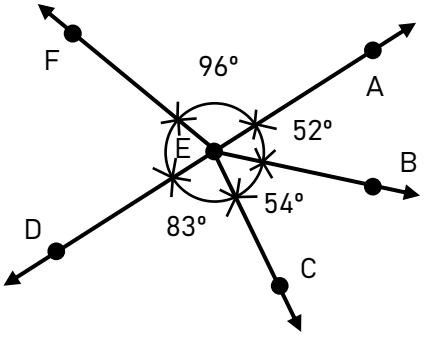
∠BCD = 124°

3)



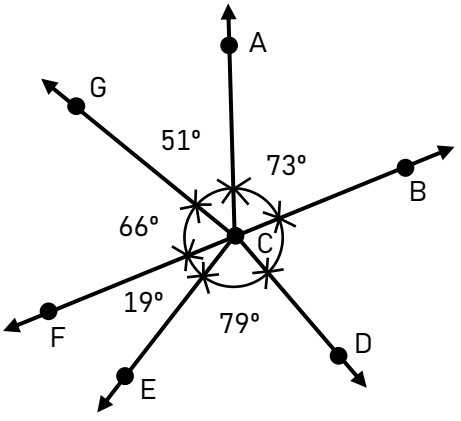
∠ABC = 114°

4)



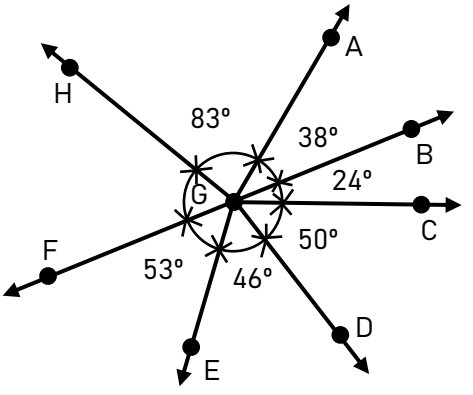
∠FED = 75°

5)



∠BCD = 72°

6)



∠FGH = 66°

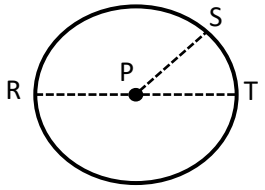
Name: Answers 22

Curriculum Connection
E2.3

Intro - Radius and Diameter

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

1)

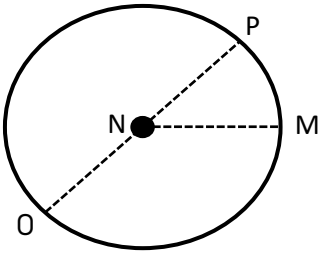


Centre = P

Radius = PS, PT, PR

Diameter = RT

2)

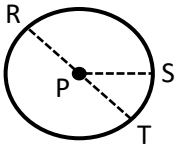


Centre = N

Radius = NP, NO, NM

Diameter = PO

3)

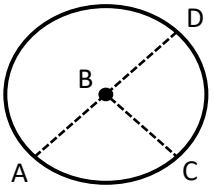


Centre = P

Radius = PR, PS, PT

Diameter = TR

4)

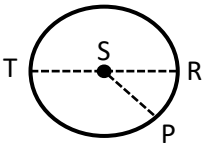


Centre = B

Radius = BD, BC, BA

Diameter = AD

5)

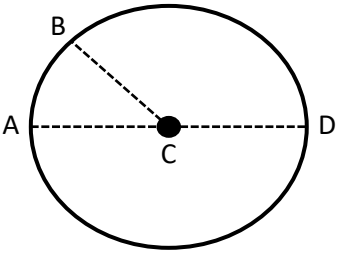


Centre = S

Radius = SR, SP, ST

Diameter = TR

6)

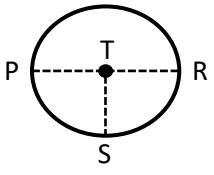


Centre = C

Radius = CD, CA, CB

Diameter = AD

7)

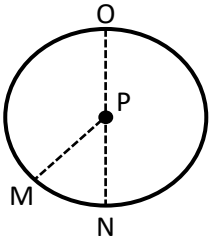


Centre = T

Radius = TR, TS, TP

Diameter = PR

8)

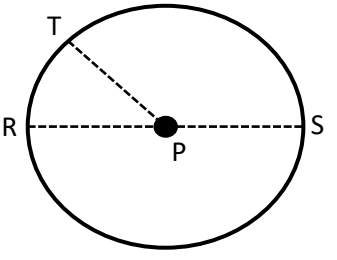


Centre = P

Radius = PO, PN, PM

Diameter = NO

9)



Centre = P

Radius = PS, PR, PT

Diameter = RS

Name: Answers 23

Curriculum Connection
E2.3

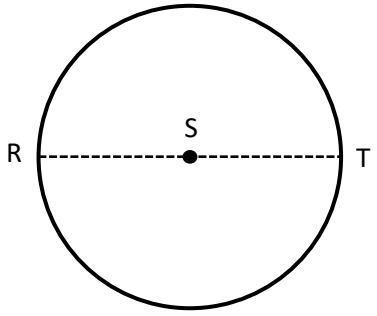
Relationship Between Radius and Diameter

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

Part 1

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

1)

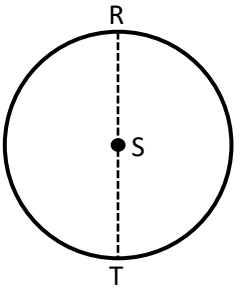


a) SR = 2cm (radius)

b) ST = 2cm (radius)

c) RT = 4cm (diameter)

2)

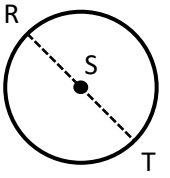


a) SR = 1.5cm (radius)

b) ST = 1.5cm (radius)

c) RT = 3cm (diameter

3)

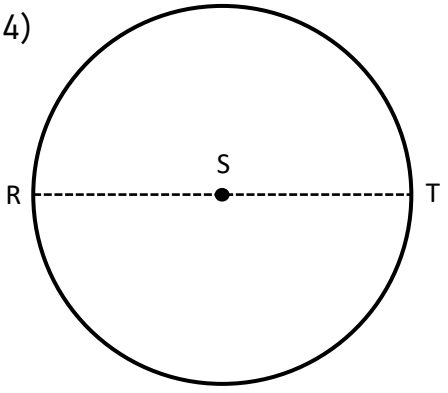


a) SR = 1cm (radius)

b) ST = 1cm (radius)

c) RT = 2cm (diameter

4)

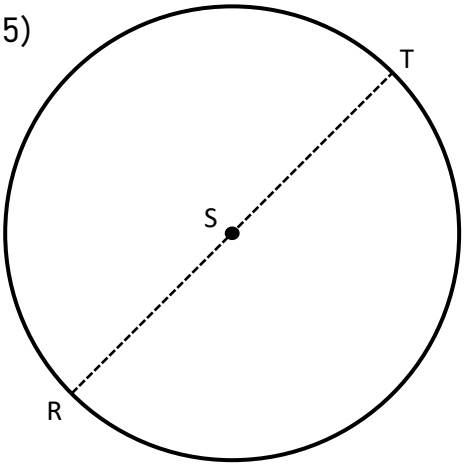


a) SR = 2.5cm (radius)

b) ST = 2.5cm (radius)

c) RT = 5cm (diameter

5)

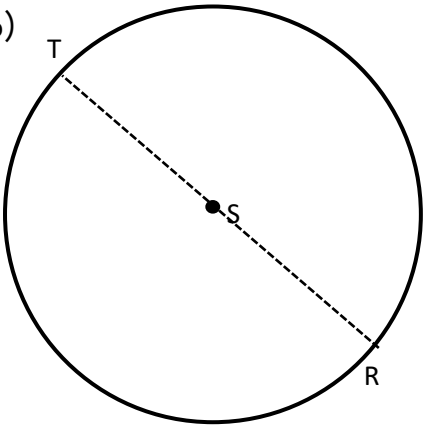


a) SR = 3cm (radius)

b) ST = 3cm (radius)

c) RT = 6cm (diameter

6)



a) SR = 2.75cm (radius)

b) ST = 2.75cm (radius)

c) RT = 5.5cm (diameter

Part 2

Answer the questions below

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

Name: Answers 24

Curriculum Connection
E2.3

Calculating Radius and Diameter

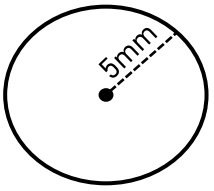
Calculating Radius Formula

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

Calculating Diameter Formula

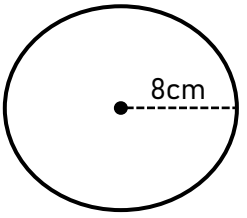
$d = 2r$ or $d = r \times 2$

Questions Find the radius and diameter of each circle below

1) 

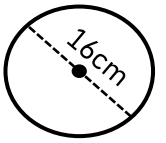
Radius = 5mm

Diameter = 10mm

2) 

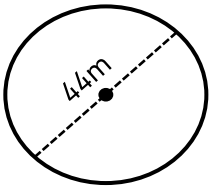
Radius = 8cm

Diameter = 16cm

3) 

Radius = 8cm

Diameter = 16cm

4) 

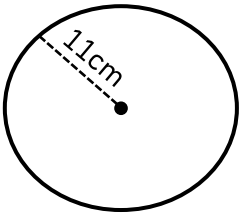
Radius = 22m

Diameter = 44m

5) 

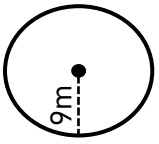
Radius = 7cm

Diameter = 14cm

6) 

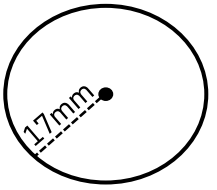
Radius = 11cm

Diameter = 22cm

7) 

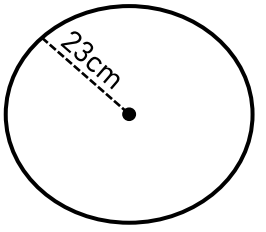
Radius = 9m

Diameter = 18m

8) 

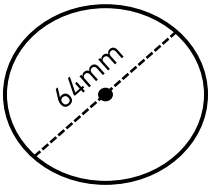
Radius = 17mm

Diameter = 34mm

9) 

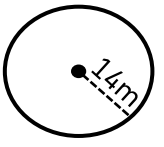
Radius = 23cm

Diameter = 46cm

10) 

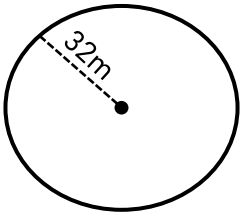
Radius = 32mm

Diameter = 64mm

11) 

Radius = 14m

Diameter = 28m

12) 

Radius = 32m

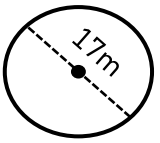
Diameter = 64m

Name: Answers 25

Curriculum Connection
E2.3

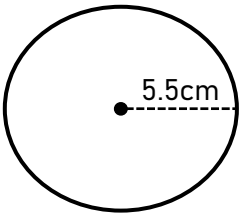
Calculating Radius and Diameter

Part 1 Find the radius and diameter of each circle below

1) 

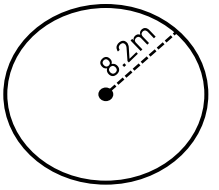
Radius = 8.5m

Diameter = 17m

2) 

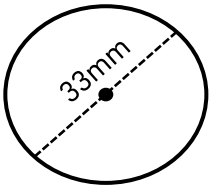
Radius = 5.5cm

Diameter = 11cm

3) 

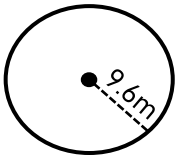
Radius = 8.2m

Diameter = 16.4m

4) 

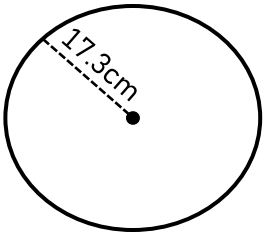
Radius = 16.5mm

Diameter = 33mm

5) 

Radius = 9.6m

Diameter = 19.2m

6) 

Radius = 17.3cm

Diameter = 34.6cm

Part 2 Fill in the blanks below

	Radius	Diameter
1)	7cm	14cm
2)	14mm	28mm
3)	17.5m	35m
4)	19cm	38cm
5)	26.5mm	53mm

	Radius	Diameter
6)	5.5km	11km
7)	13.5m	27m
8)	38.5cm	77cm
9)	42.5mm	85mm
10)	62.2cm	124.4cm

Part 3 Answer the word problems below

1)	A pizza has slice is 12cm long. What is the width of the entire pizza?	24cm
2)	A circular pool is 13m long across the middle of the pool. How far is the middle of the pool from the side?	6.5m

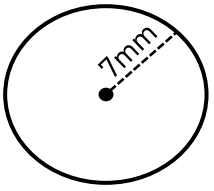
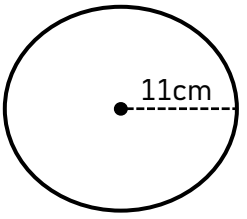
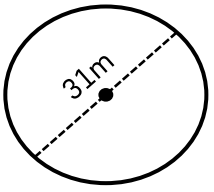
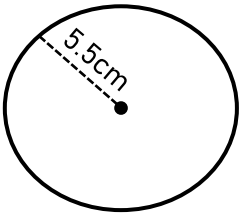
Name: Answers 26

Curriculum Connection
E2.3

Estimating Circumference

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

Part 1 — Estimate the circumference of the circles below

1)  Radius = 7mm Diameter = 14mm Circumference = 42mm	2)  Radius = 11cm Diameter = 22cm Circumference = 66cm	3)  Radius = 11cm Diameter = 22cm Circumference = 66cm
4)  Radius = 15.5m Diameter = 31m Circumference = 93m	5)  Radius = 7.2m Diameter = 14.4m Circumference = 43.2m	6)  Radius = 5.5cm Diameter = 11cm Circumference = 33cm

Part 2 — Answer the word problems below

1)	Chase is drawing a circular logo. He needs the logo to be approximately 18cm in circumference. What will the radius of the logo be?	3cm
2)	Leon is building a deck around his pool. He needs an estimate of the circumference of his pool, so he knows how much wood to buy. The radius of the pool is 3.3m. What is an estimate of the circumference?	9.9m

Name: Answers 27

Curriculum Connection
E2.3

Calculating Circumference

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

Calculating Circumference (Diameter)

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

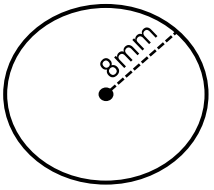
Calculating Circumference (Radius)

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

Practice

Calculate the circumference of the circles below

1)

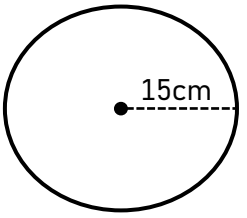


Radius = 8mm

Diameter = 16mm

Circumference = 50.24mm

2)

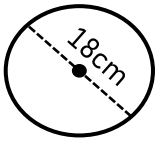


Radius = 15cm

Diameter = 30cm

Circumference = 94.2cm

3)

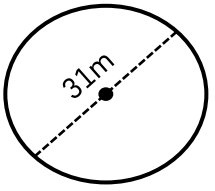


Radius = 18cm

Diameter = 36cm

Circumference = 113.04cm

4)



Radius = 15.5m

Diameter = 31m

Circumference = 97.34m

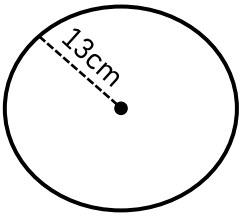
5)

Radius = 7m

Diameter = 14m

Circumference = 43.96m

6)

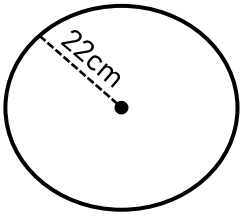


Radius = 13cm

Diameter = 26cm

Circumference = 81.64cm

7)

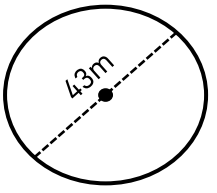


Radius = 22cm

Diameter = 44cm

Circumference = 138.16cm

8)

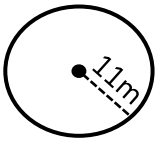


Radius = 21.5m

Diameter = 43m

Circumference = 135.02m

9)



Radius = 11m

Diameter = 22m

Circumference = 69.08m

Name: Answers 28

Curriculum Connection
E2.3

Calculating Circumference

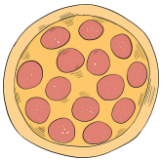
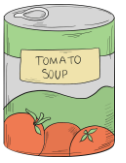
Calculating Circumference (Diameter)
$c = \pi d$ or $c = \pi \times d$

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)	6cm	12cm	37.7cm
2)	17m	34m	106.8m
3)	11m	22m	69.1m
4)	23cm	46cm	144.5cm
5)	16mm	32mm	100.5mm
6)	16.5m	33m	103.7m
7)	2.5km	5km	15.7km
8)	6.8m	13.6m	42.7m
9)	7.9m	15.8m	49.6m
10)	24.3mm	48.6mm	152.7mm

Part 2 — Answer the word problems below

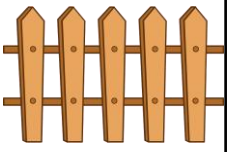
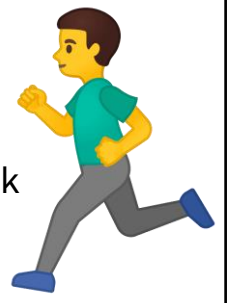
1)	Harrison is deciding which pizza to buy. He has two options. Option A: Pizza with the radius of 18cm Option B: Pizza with a circumference of 106cm Which pizza is larger? 	Option A Circumference = 113cm
2)	You need to wrap a label around a can. If the diameter of the can is 9.5cm, what length does the label need to be? 	29.9cm – rounded up
3)	Alexa needs to wrap a cake she made with a ribbon. The cake has a radius of 12.5cm. How long does the ribbon need to be? 	78.6cm rounded up

Name: Answers 29

Curriculum Connection
E2.3

Circumference Word Problems

Questions Answer the word problems below

1)	An asteroid hit the moon and created a massive round crater. Scientists measured the diameter of the crater as 31.2km. What is the circumference of the crater?  98km
2)	George is building a fence around his circular yard. His house is in the centre of the yard. The distance from his house to the edge of the yard is 15.5 metres. a) What is the perimeter of his yard? 97.4cm  b) If 1 metre of fencing costs $8.60, how much will his fence cost him? $837.64
3)	Mark can run 100m in 14 seconds. He is at a new circular track and is trying to figure out how long it will take him to run 4 laps. The track has a diameter of 16m. a) What distance is the track? 50m  b) Approximately how long will it take him to run around the track four times? 28 seconds
4)	The radius of your bicycle wheel is 40cm. a) How far will your bike move in one turn of your wheel? 251.3cm  a) Neill thinks it will take around 3 rotations of the wheel to move 1m. Dane thinks it will take around 4. Who is correct? Dane is correct, it will take around 4 rotations.

Name: Answers 30

Curriculum Connection
E2.3

Circumference, Radius, and Diameter

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

Calculating Diameter (Circumference)

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

Calculating Radius (Circumference)

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

Practice

Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Diameter	Radius
1)	28 mm	8.9 mm	4.5 mm
2)	15 cm	4.8cm	2.4cm
3)	36 m	11.5m	5.75m
4)	47 cm	15cm	7.5cm
5)	55 m	17.5m	8.75m
6)	32 mm	10.2mm	5.1mm
7)	59 km	18.8km	9.4km
8)	64 m	20.4m	10.2m
9)	71 cm	22.6cm	11.3cm
10)	68 mm	21.6mm	10.8mm

Part 2

Answer the word problems below

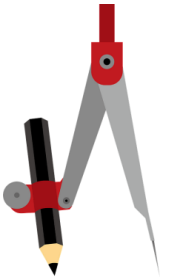
	Questions	Answer
1)	The circumference of a bicycle wheel is 44cm. What is the diameter?	14cm
2)	A donut has a circumference of 12cm. What is the radius?	1.9cm
3)	A 20cm wire is bent into a circle. What is the diameter of the circle?	6.4cm
4)	A pizza has a circumference of 1m. What is the radius of the pizza in centimeters?	16cm

Name: Answers 31

Curriculum Connection
E2.4

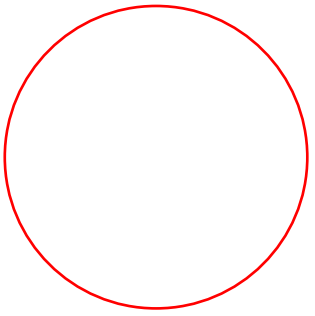
Drawing Circles Using Radius and Diameter

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



Draw Use a compass and a ruler to draw circles below

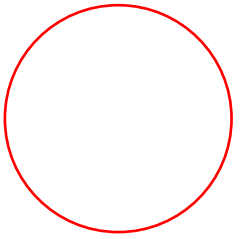
1)



Radius = 2cm

Diameter = 4cm

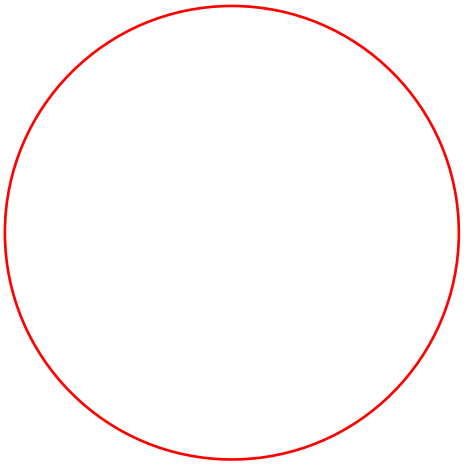
2)



Radius = 1.5cm

Diameter = 3cm

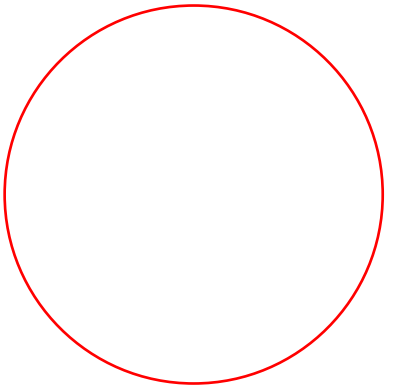
3)



Radius = 3cm

Diameter = 6cm

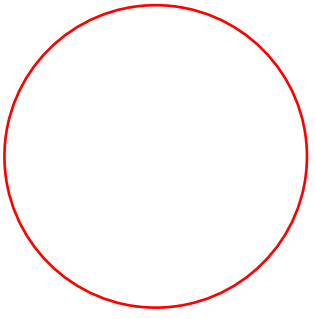
4)



Radius = 2.5cm

Diameter = 5cm

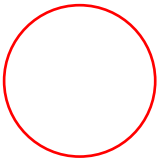
5)



Radius = 20mm

Diameter = 40mm

6)



Radius = 1cm

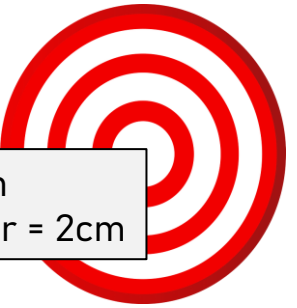
Diameter = 2cm

Name: Answers 32

Curriculum Connection
E2.4

Drawing Circles Using Radius and Diameter

Draw Draw a target using the measurements below



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

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

Name: Answers 33

Curriculum Connection
E2.4

Drawing Circles Using Circumference

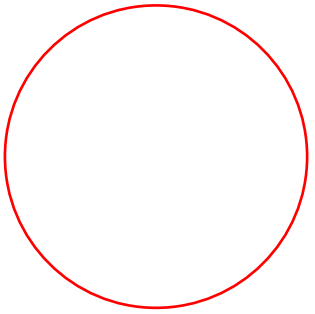
We can draw a circle if we know the radius, diameter, or circumference. Use the formula for calculating radius so you can set your compass to the right length.

Calculating Radius

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

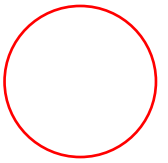
Draw Use a compass and a ruler to draw circles below. Round to the nearest tenth

1)



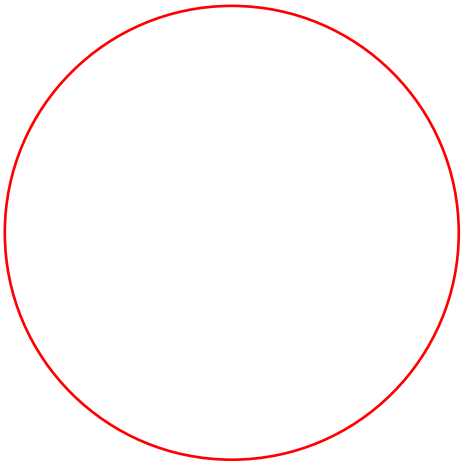
Circumference = 12.5cm

2)



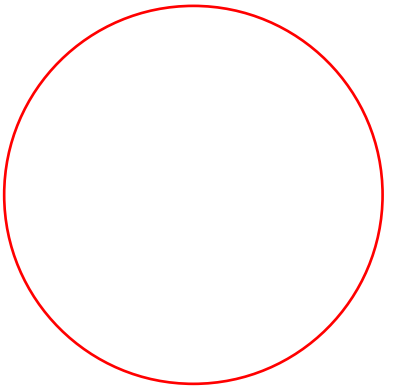
Circumference = 62.8mm

3)



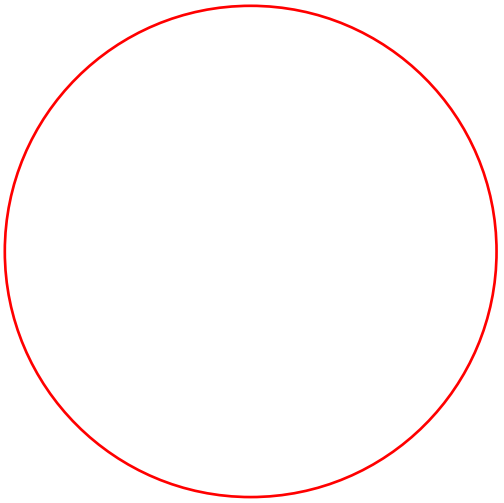
Circumference = 19cm

4)



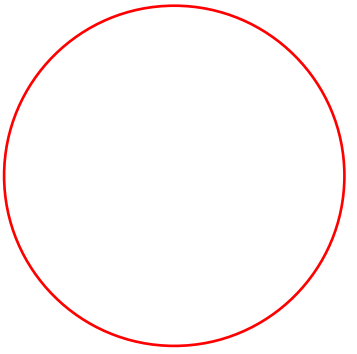
Circumference = 15.7cm

5)



Circumference = 20.4cm

6)



Circumference = 14.1cm

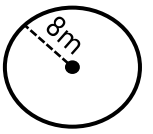
Name: Answers 34

Curriculum Connection
E2.5

Area of a Circle - Radius

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

Calculating Area Using Radius



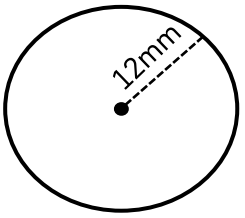
$a = \pi r^2$

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

$a = 200.96m^2$

Practice Calculate the area of the circles using the radius

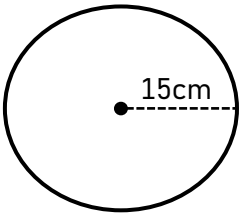
1)



Radius = 12mm

Area = $452mm^2$

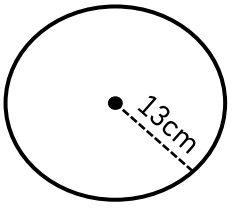
2)



Radius = 15cm

Area = $706.9cm^2$

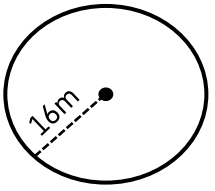
3)



Radius = 13cm

Area = $530.9cm^2$

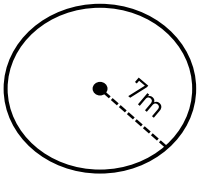
4)



Radius = 16m

Area = $804.2m^2$

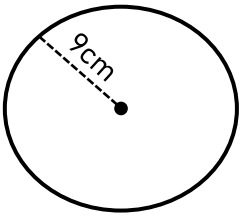
5)



Radius = 7m

Area = $153.9m^2$

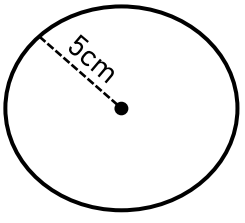
6)



Radius = 9cm

Area = $254.5cm^2$

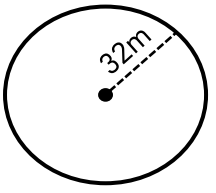
7)



Radius = 5cm

Area = $78.5cm^2$

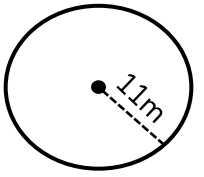
9)



Radius = 32m

Area = $3217m^2$

10)



Radius = 11m

Area = $380.1m^2$

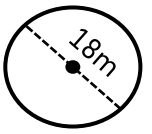
Name: Answers 35

Curriculum Connection
E2.5

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

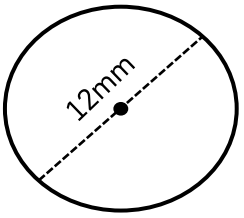


$a = \pi r^2$
diameter = 18, radius = 9
$a = \pi \times 9 \times 9$
$a = 254.34m^2$

Practice

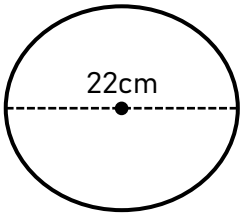
Calculate the area of the circles using the radius

1)



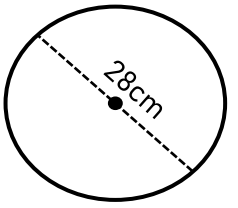
Diameter = 12mm
Radius = 6mm
Area = 113.1mm²

2)



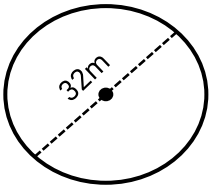
Diameter = 22cm
Radius = 11cm
Area = 380.1cm²

3)



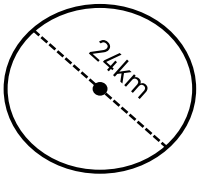
Diameter = 28cm
Radius = 14cm
Area = 615.8cm²

4)



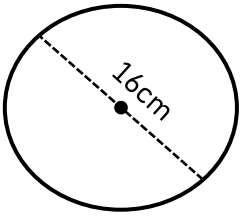
Diameter = 32m
Radius = 16m
Area = 804.2m²

5)



Diameter = 24km
Radius = 12km
Area = 452.4km²

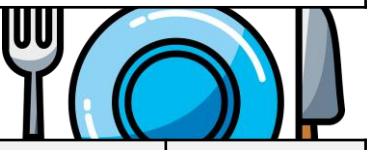
6)



Diameter = 16cm
Radius = 8cm
Area = 201.1cm²

Word Problems

Solve the problems below



	Questions	Answer
1)	A dinner plate has a diameter of 14cm. What is the area of the plate?	153.9cm²
2)	A circular table is 1.2 metres wide. What is the area of the table in centimetres?	11 310m²

Name: Answers 36

Curriculum Connection
E2.5

Calculating Area of a Circle - Circumference

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

Calculating Radius From Circumference

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

Calculating Area Using Radius

$$a = \pi r^2$$

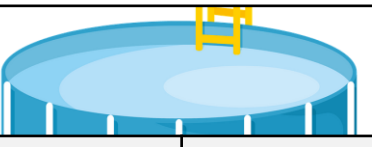
Practice

Calculate the diameter and radius. Round to the nearest tenth

	Circumference	Radius	Area
1)	12 mm	1.9 mm	11.3 mm^2
2)	18 cm	2.86cm	25.8cm^2
3)	22 m	3.5m	38.5m^2
4)	42 cm	6.7cm	140.4cm^2
5)	36 m	5.7m	103.1m^2
6)	58 mm	9.2mm	267.7mm^2
7)	55 km	8.8km	240.7km^2
8)	17 m	2.7m	23m^2
9)	63 cm	10cm	315.8cm^2
10)	76 mm	12.1mm	460mm^2

Part 2

Answer the word problems below



	Questions	Answer
1)	A pool has a perimeter of 15m. What is the area inside the pool?	17.9m^2
2)	A ribbon that wraps around a circular present is 42cm. What is the area of the present?	140.4cm^2
3)	The city of Williamsport is building a circular track. The track is 400m long. What will the area inside the track be?	12 732.4m^2

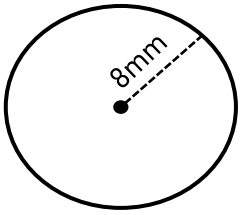
Name: Answers 37

Curriculum Connection
E2.5

Circles - Mixed Review

Practice Fill in the blanks below

1)



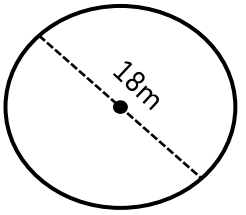
Radius = 8mm

Diameter = 16mm

Circumference = 50.3mm

Area = 201.1mm^2

2)



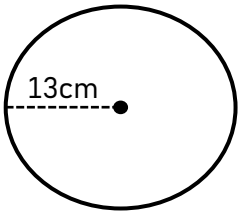
Radius = 9m

Diameter = 18m

Circumference = 56.5m

Area = 254.5m^2

3)



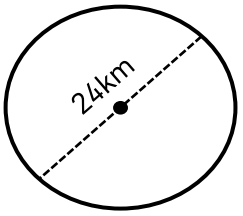
Radius = 13cm

Diameter = 26cm

Circumference = 81.7cm

Area = 531cm^2

4)



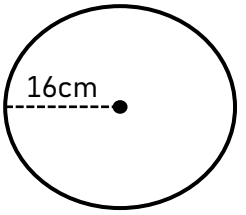
Radius = 12km

Diameter = 24km

Circumference = 75.4km

Area = 452.4km^2

5)



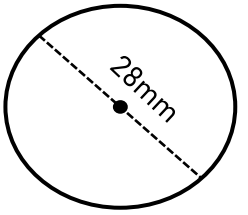
Radius = 16cm

Diameter = 32cm

Circumference = 100.5cm

Area = 804.2cm^2

6)



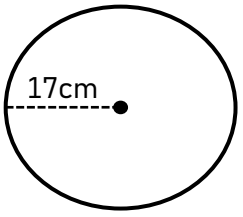
Radius = 14mm

Diameter = 28mm

Circumference = 88mm

Area = 615.8mm^2

7)



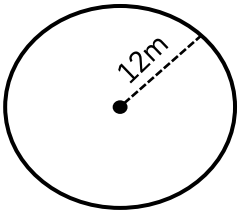
Radius = 17cm

Diameter = 34cm

Circumference = 106.8cm

Area = 907.9cm^2

8)



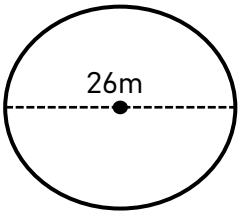
Radius = 12m

Diameter = 24m

Circumference = 75.4m

Area = 452.4m^2

9)



Radius = 13m

Diameter = 26m

Circumference = 81.7m

Area = 530.9m^2

Name: Answers 38

Curriculum Connection
E2.5

Circles - Word Problems

Questions Answer the word problems below

1)	A dinner plate has a diameter of 18cm. What is the area of the dinner plate? 254.5cm^2
2)	A circular golf green has an area of 15m^2. What is the diameter of the green? 4.4m 
3)	A dog is put on an 8m leash in the middle of its yard. It goes to the end of its leash and runs in a circle. What is the area the dog can play in? 201.1m^2
4)	The largest living tree in the world has a circumference of 36m. What is the diameter of the tree? 11.5m 
5)	A hula hoop has a diameter of 1.2m. What is the perimeter of the hula hoop in centimetres? 3.8m
6)	A steel rod is bent into a circle. The circle now has a circumference of 19cm. What is the area inside the circle? 28.7cm^2
7)	A storm is expected to hit 8km in every direction from the center of a town. What is the area that the storm will affect? 201.1km^2 

Name: Answers 39

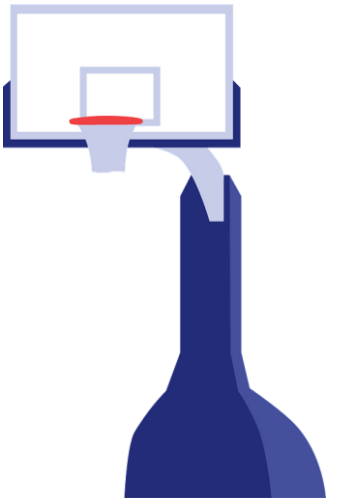
Curriculum Connection
E2.5

Circles - Basketball Word Problem

Questions Answer the word problems below

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

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



The diameter of a hoop is 46.15cm. The diameter of a ball is 23.9cm. Therefore, a hoop could not fit two basketballs.

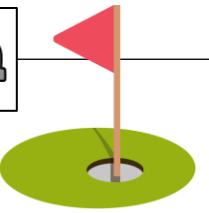
b) A WNBA basketball has a circumference of 72cm. Will 2 WNBA basketballs fit through the hoop at the same time?

A WNBA ball has a diameter of 22.9cm. Since a hoop is 46.15cm wide, two WNBA balls could fit through a hoop at the same time.

Name: Answers 40

Curriculum Connection
E2.5

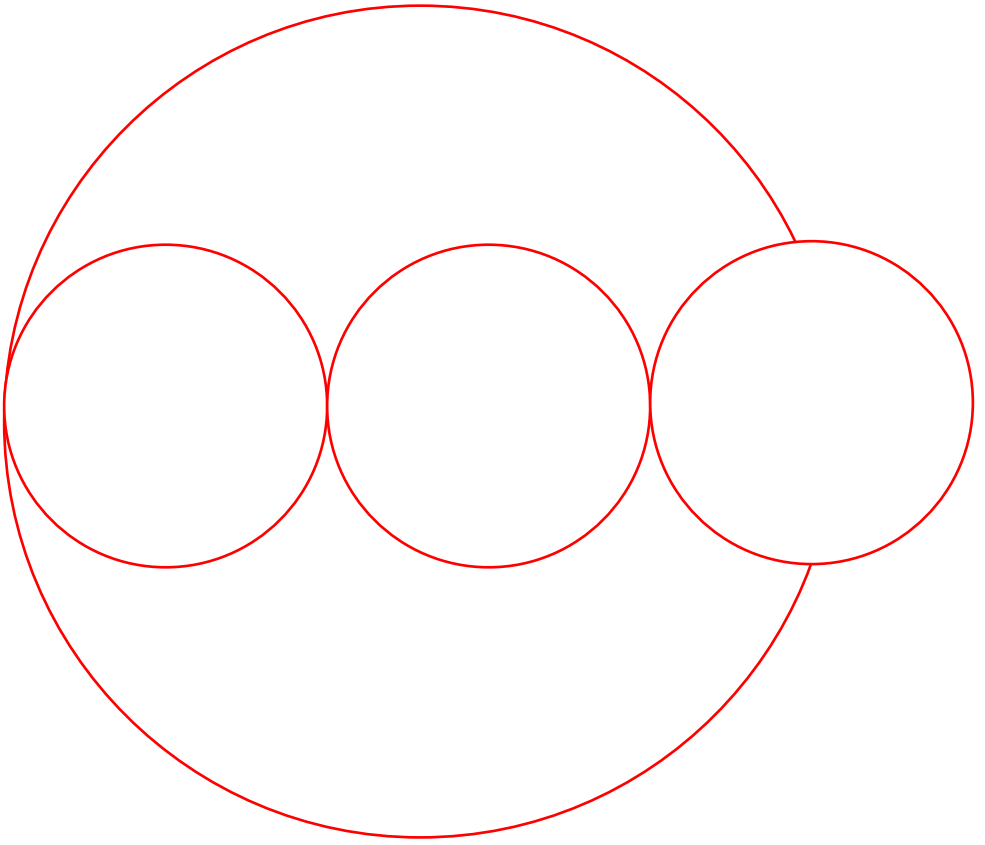
Circles - Putting Word Problem



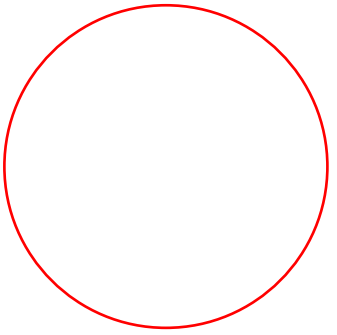
Questions Answer the word problems below

A golf hole has a diameter of 11cm.

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



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



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

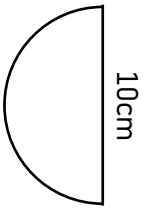
From the illustration above, you can see that only 2 golf balls will fit

Name: Answers 41

Curriculum Connection
E2.5

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

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

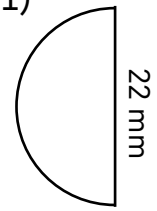
$a = 78.5cm^2 \div 2$

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

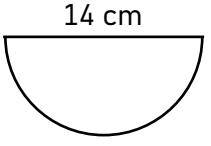
Part 1 — Fill in the table below

	Diameter	Radius	Area of Full Circle	Area of Semi-Circle
1)	6 cm	3cm	$28.3cm^2$	$14.15cm^2$
2)	4 km	2km	$12.5km^2$	$6.25km^2$
3)	24 m	12m	$452.4m^2$	$226.2m^2$
4)	10 mm	5mm	$78.5mm^2$	$39.25mm^2$
5)	16 m	8m	$201.1m^2$	$100.75m^2$
6)	30 cm	15cm	$706.9cm^2$	$353.45cm^2$

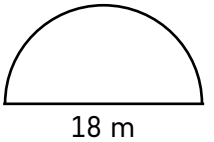
Part 2 — Calculate the area of the semi-circles

1) 

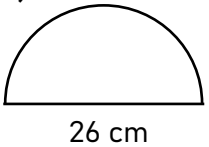
$190.05mm^2$

2) 

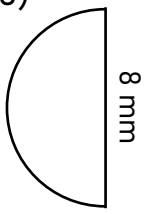
$76.95cm^2$

3) 

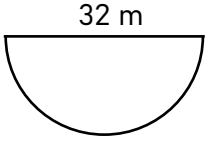
$127.25m^2$

4) 

$265.45cm^2$

5) 

$25.15mm^2$

6) 

$402.13m^2$

Name: Answers 42

Curriculum Connection
E2.5

Semi-Circles - Word Problems

Questions Answer the word problems below

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

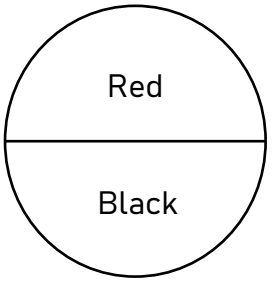
$1520.53cm^2/2$

$=760.27cm^2$

2) A circular spinner has 2 sections, half red and half green. The spinner has a radius of 8cm. What is the area of the red side of the spinner?

$201.1cm^2/2$

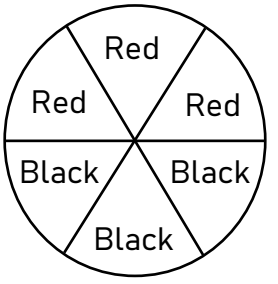
$=100.55cm^2$



3) A circular spinner has 6 sections. Half are red and half are black. If the diameter of the spinner is 18cm, what is the area of one section of the spinner?

$254.47cm^2/6$

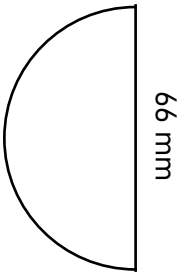
$=42.41cm^2$



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

$3421.19cm^2/2$

$1710.6cm^2$



Name: Answers 43

Quiz - Circles

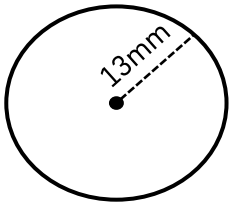
Part 1 Fill in the blanks below

	Radius	Diameter
1)	12 cm	24 cm
2)	8.5 mm	17 mm
3)	22.5 m	45 m

	Radius	Diameter
4)	7.5 km	15 km
5)	22.5 m	45 m
6)	44 cm	88 cm

Part 2 Fill in the blanks

1)

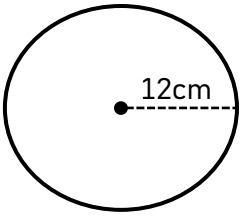


Radius = 13mm

Diameter = 26mm

Circumference = 81.7mm

2)



Radius = 12cm

Diameter = 24cm

Circumference = 75.4cm

3)

Radius = 11cm

Diameter = 22cm

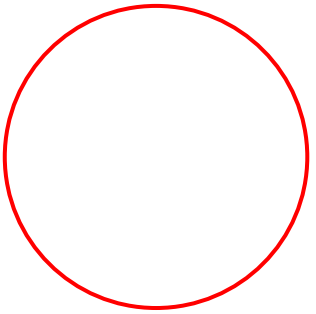
Circumference = 69.12cm

Part 3 Calculate the diameter and radius. Round to the nearest tenth

	Radius	Diameter	Circumference
1)	5 mm	10 mm	31.4 mm
2)	8 m	16 m	50.3 m
3)	3.5 cm	7 cm	22 cm
4)	32 mm	64 mm	201.1 mm
5)	8.75 m	17.5 m	55 m

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

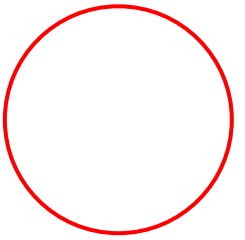
1)



Radius = 2cm

Diameter = 4cm

2)

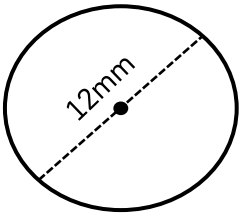


Radius = 1.5

Diameter = 3cm

Part 5 — Calculate the area of the circles

1)

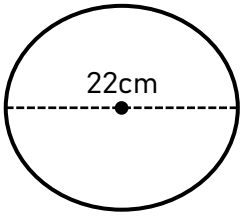


Diameter = 12mm

Radius = 6mm

Area = 113.1mm^2

2)

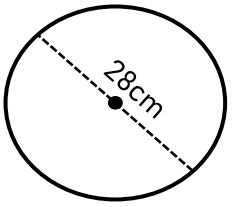


Diameter = 22cm

Radius = 11cm

Area = 380.1cm^2

3)



Diameter = 28cm

Radius = 14cm

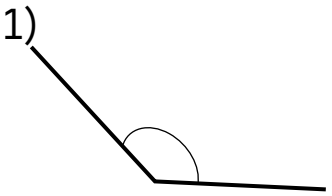
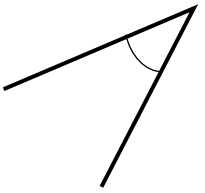
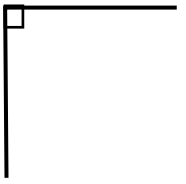
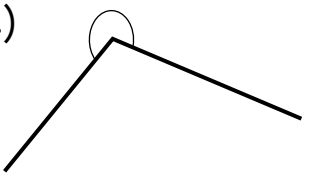
Area = 615.8cm^2

Part 6 — Solve the problems below

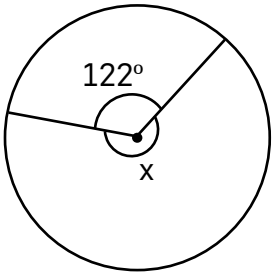
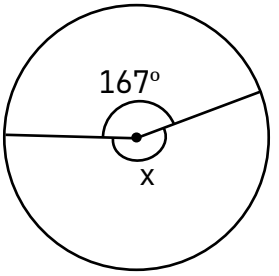
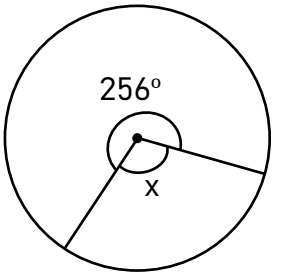
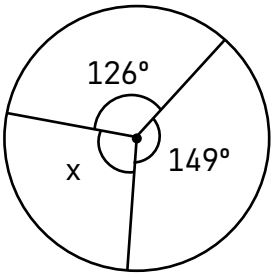
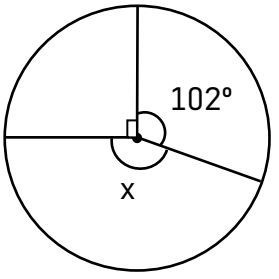
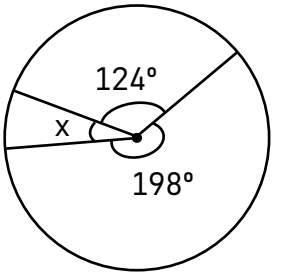
	Questions	Answer
1)	The distance around a carousel is 18m. What is its radius? 	2.9m
2)	A dog has its leash tied to a stake in a backyard. The dog's leash is 6.5 metres long. How much area can the dog play in?	132.7cm^2
3)	The diameter of a wheel on a car is 25 centimetres. How far does the car move with one rotation of the wheel? 	78.5cm

Answers

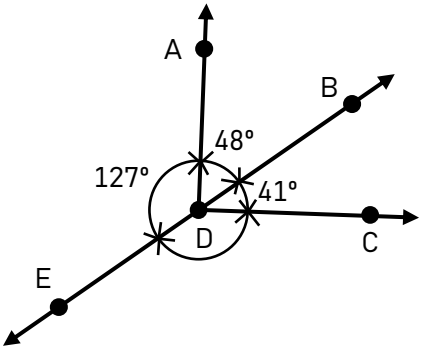
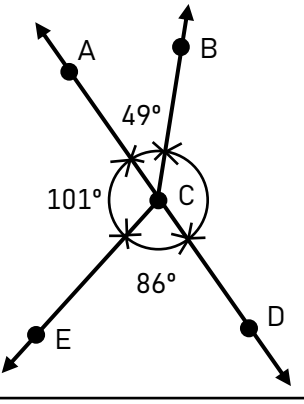
Part 7 — Measure the angles and label them acute, right, obtuse, or reflex

1)	2)	3)	4)
			
Obtuse	Acute	Right	Reflex

Part 8 — Determine the value of angle *x*

1)	2)	3)
		
∠x = 238°	∠x = 193°	∠x = 104°
4)	**5)**	**6)**
		
∠x = 85°	∠x = 168°	∠x = 38°

Part 9 — Find the missing angles below

1)	2)
	
∠CDE = 144°	∠BCD = 124°

Name: Answers 46

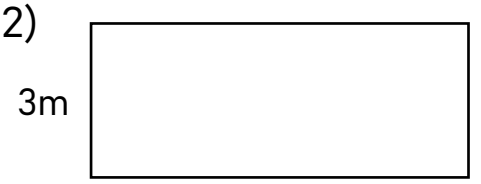
Curriculum Connection
SS.2

Finding the Area of Rectangles

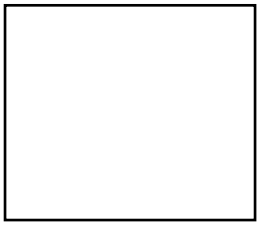
Questions Find the area (A= b x h) *Not to Scale

1) 

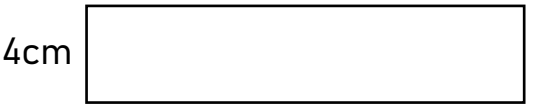
Area = 32cm^2

2) 

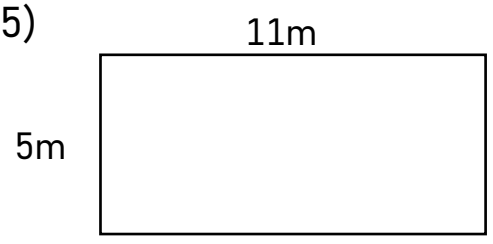
Area = 30m^2

3) 

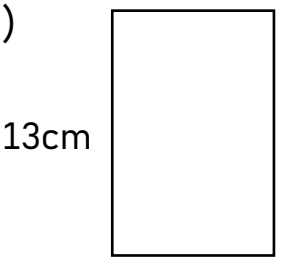
Area = 49cm^2

4) 

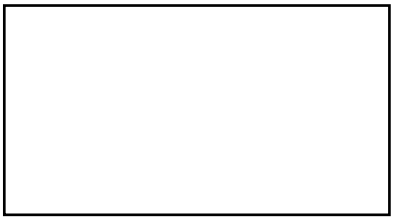
Area = 60cm^2

5) 

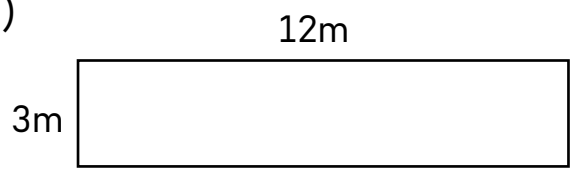
Area = 55m^2

6) 

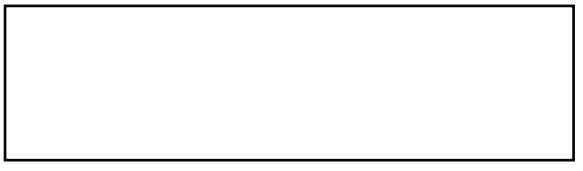
Area = 52cm^2

7) 

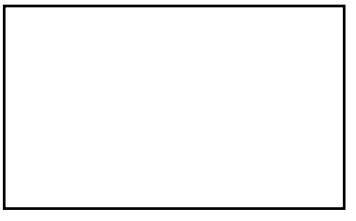
Area = 90cm^2

8) 

Area = 36m^2

9) 

Area = 100cm^2

10) 

Area = 84cm^2

Name: Answers 47

Curriculum Connection
E2.2

Finding the Area of Rectangles

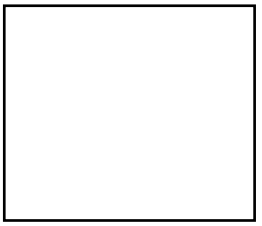
Questions Write the area as any metric unit of measurement

1) 

Area = 64 cm^2

2) 

Area = 36 m^2

3) 

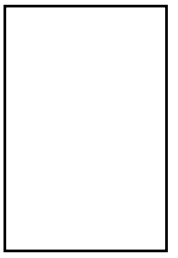
Area = 81 m^2

4) 

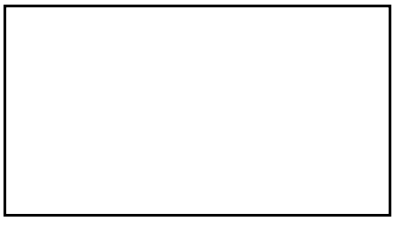
Area = 33 m^2

5) 

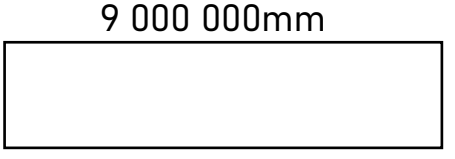
Area = 45 cm^2

6) 

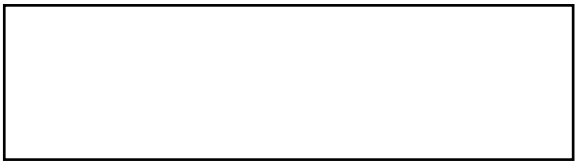
Area = 60 m^2

7) 

Area = 72 km^2

8) 

Area = 27 km^2

9) 

Area = 48 cm^2

10) 

Area = 66 mm^2

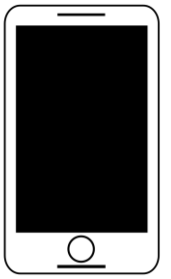
Name: Answers 48

Curriculum Connection
SS.2

Area Word Problems

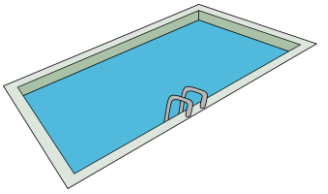
Questions Draw a picture of the problem and then find the area

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



66 m^2

2) A pool is 12m by 400cm. What is the area of the pool?



48 m^2

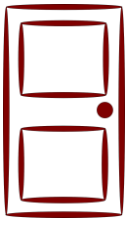
4) A candy wrapper is 40mm wide and 0.10m long. What is the area of the wrapper in cm?

40 cm^2

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

144 cm^2

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



4.5 m^2

Name: Answers 49

Curriculum Connection
SS.2

Finding the Missing Information

Questions

Find the missing value (A= b x h)

1)

11m

A=44m²

Base = 11m

Height = 4m

Area = 44m²

2)

1m A=14m²

Base = 14m

Height = 1m

Area = 14m²

3)

7cm A=63cm²

Base = 9cm

Height = 7cm

Area = 63cm²

4)

4m A=48m²

Base = 12m

Height = 4m

Area = 48m²

5)

3cm A=27cm²

Base = 9cm

Height = 3cm

Area = 27cm²

6)

A=77cm²

11cm

Base = 11cm

Height = 7cm

Area = 77cm²

7)

A=45cm²

5cm

Base = 5cm

Height = 9cm

Area = 45cm²

8)

A=72cm²

8cm

Base = 8cm

Height = 9cm

Area = 72cm²

9)

9cm A=45cm²

Base = 5cm

Height = 9cm

Area = 45cm²

10)

A=56cm²

8cm

Base = 8cm

Height = 7cm

Area = 56cm²

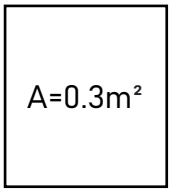
Name: Answers 50

Curriculum Connection
SS.2

Finding the Missing Information

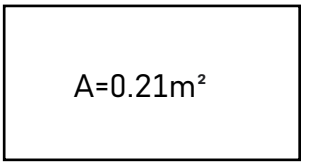
Questions Find the missing value (A= b x h)

1)



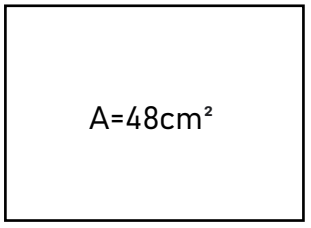
Base = 5cm
Height = 6cm
Area = 30cm²

2)

3cm 

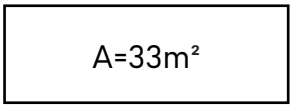
Base = 7cm
Height = 3cm
Area = 21cm²

3)



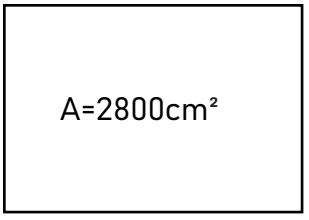
Base = 8cm
Height = 6cm
Area = 48cm²

4)

1100cm


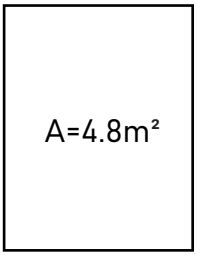
Base = 11m
Height = 3m
Area = 33m²

5)

4m 

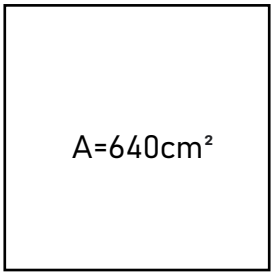
Base = 7m
Height = 4m
Area = 28m²

6)



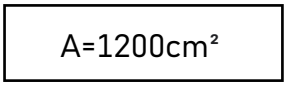
Base = 4m
Height = 12m
Area = 4.8m²

7)



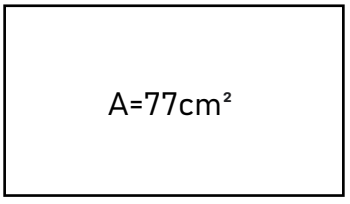
Base = 8cm
Height = 8cm
Area = 64cm²

8)

1m 

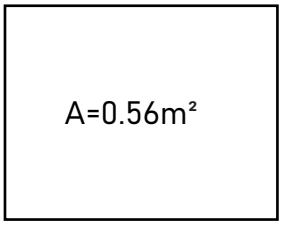
Base = 12m
Height = 1m
Area = 12m²

9)



Base = 11cm
Height = 7cm
Area = 77cm²

10)

7cm 

Base = 8cm
Height = 7cm
Area = 56cm²

Name: Answers 51

Curriculum Connection
SS.2

Finding the Missing Information - Word Problems

Questions Use the information you have to find the missing height or base

1) A piece of paper has an area of 88cm². The base of the paper is 8cm. What is the height of the paper?

11cm

2) Jack's yard has an area of 56m². The height of the yard is 8m. What is the base?

7m

3) A bus has an area of 24m². The height of the bus in 3m. What is the base?

8m²

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

6cm

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

8cm

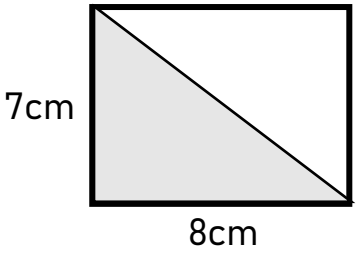
Name: Answers 52

Curriculum Connection
SS.2

Introduction - Area of a Triangle

Questions Find the area of the rectangles and triangles below

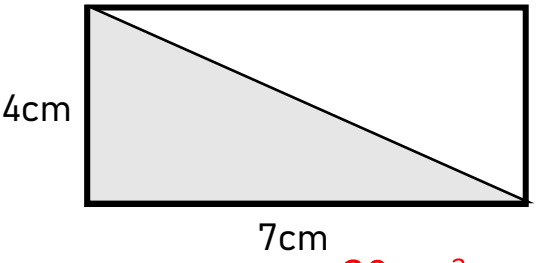
1)



Area of a rectangle = 56 cm^2

Area of a triangle = 28 cm^2

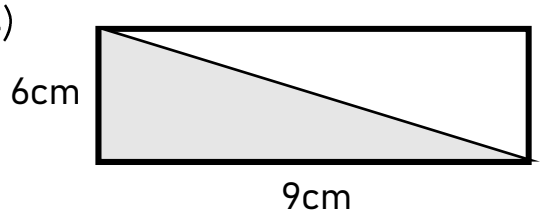
2)



Area of a rectangle = 28 cm^2

Area of a triangle = 14 cm^2

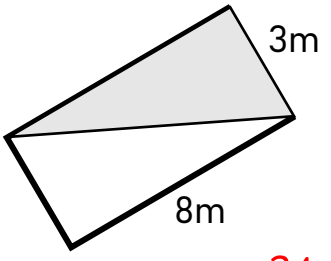
3)



Area of a rectangle = 54 cm^2

Area of a triangle = 27 cm^2

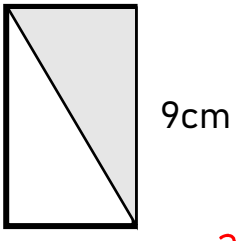
4)



Area of a rectangle = 24 m^2

Area of a triangle = 12 m^2

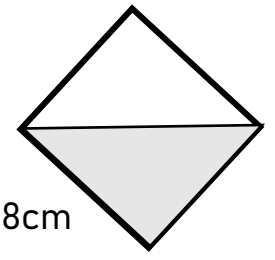
5)



Area of a rectangle = 36 cm^2

Area of a triangle = 18 cm^2

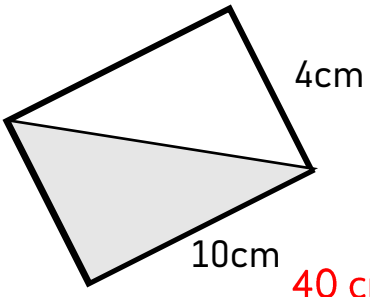
6)



Area of a square = 64 cm^2

Area of a square = 32 cm^2

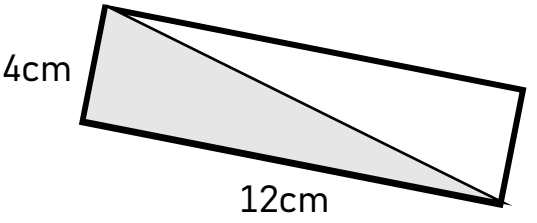
7)



Area of a rectangle = 40 cm^2

Area of a triangle = 20 cm^2

8)



Area of a rectangle = 48 cm^2

Area of a triangle = 24 cm^2

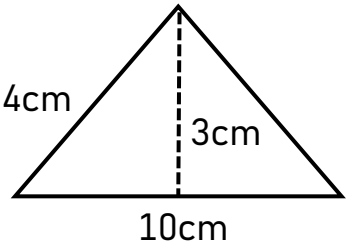
Name: Answers 53

Curriculum Connection
SS.2

Area of a Triangle

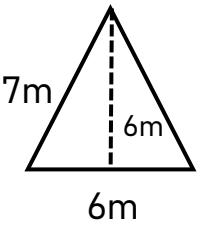
Questions Find the area of the triangles below (A= b x h ÷ 2)

1)



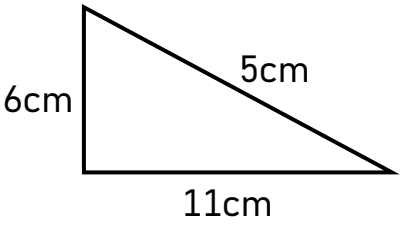
Area = 15 cm^2

2)



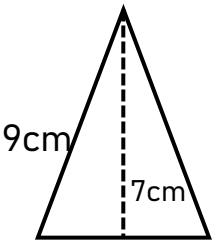
Area = 18 m^2

3)



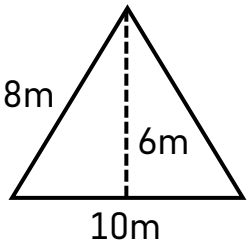
Area = 33 cm^2

4)



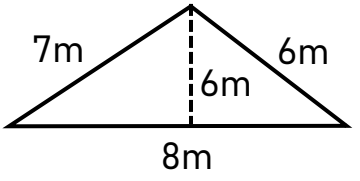
Area = 21 cm^2

5)



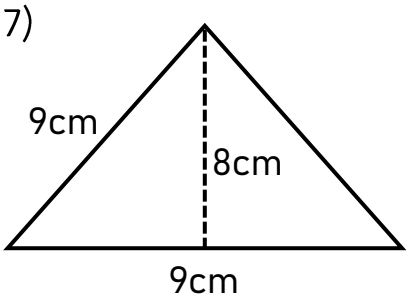
Area = 30 m^2

6)



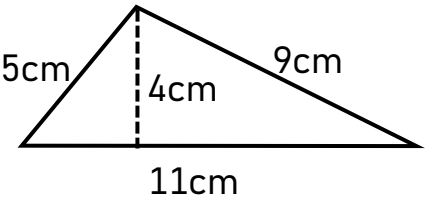
Area = 24 m^2

7)



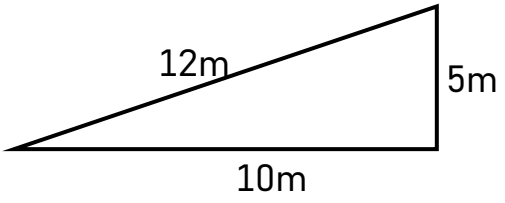
Area = 36 cm^2

8)



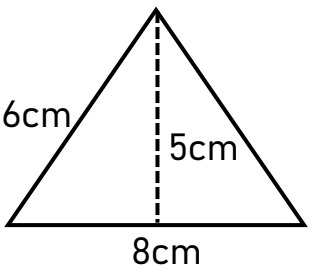
Area = 22 cm^2

9)



Area = 25 m^2

10)



Area = 20 cm^2

Name: Answers 54

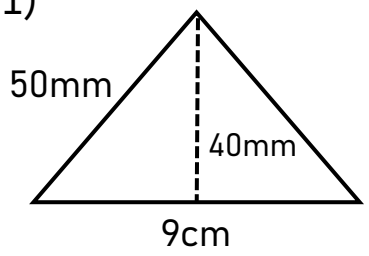
Curriculum Connection
SS.2

Area of a Triangle

Part 1

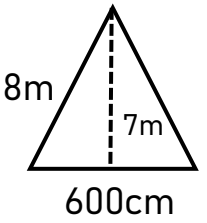
Find the area of the triangles below (A= b x h ÷ 2)

1)



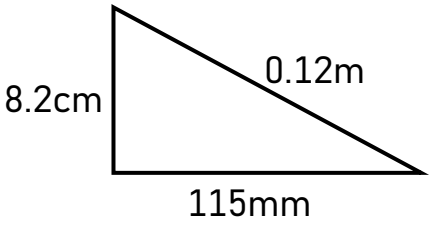
Area = 18cm²

2)



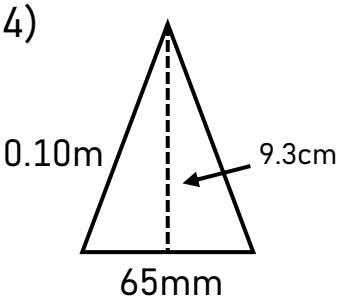
Area = 21m²

3)



Area = 47.15cm²

4)

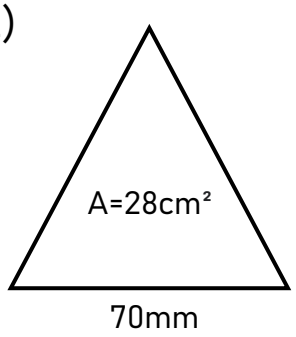


Area = 30.225cm²

Part 2

Find the missing value

1)

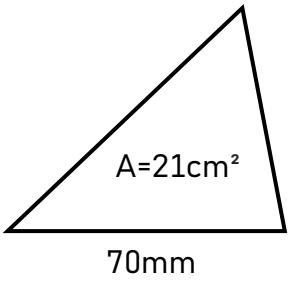


Base = 7cm

Height = 8cm

Area = 28cm²

2)

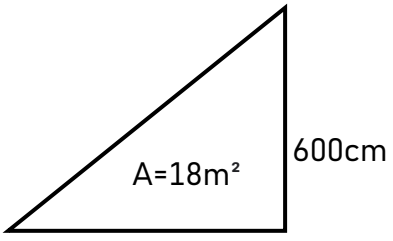


Base = 7cm

Height = 6cm

Area = 21cm²

3)

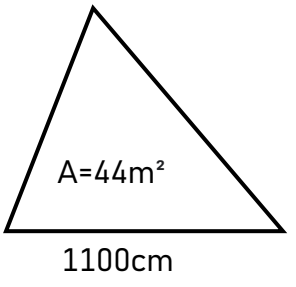


Base = 6m

Height = 6m

Area = 18m²

4)



Base = 11m

Height = 8m

Area = 44m²

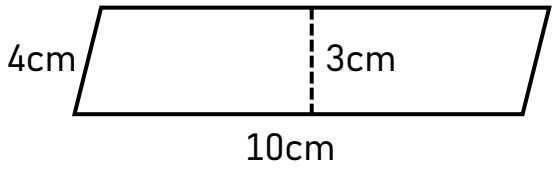
Name: Answers 55

Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

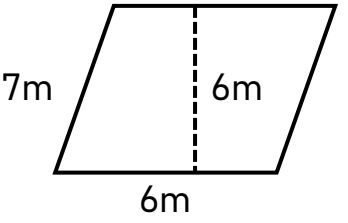
Questions Find the perimeter and area of the parallelograms below (A= b x h)

1)



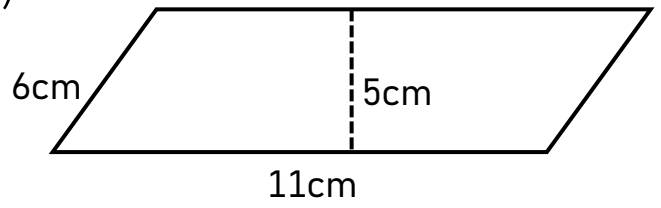
Perimeter = 28 cm Area = 30 cm^2

2)



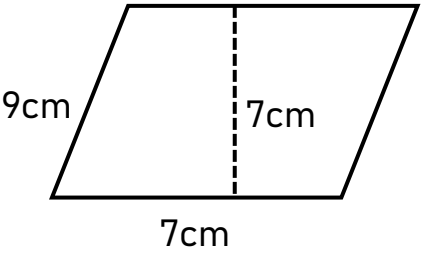
Perimeter = 26 m Area = 36 m^2

3)



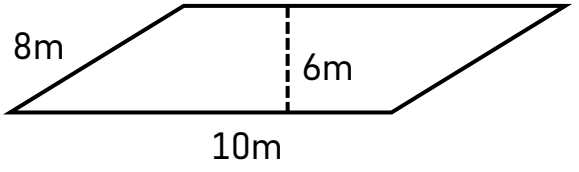
Perimeter = 34 cm Area = 55 cm^2

4)



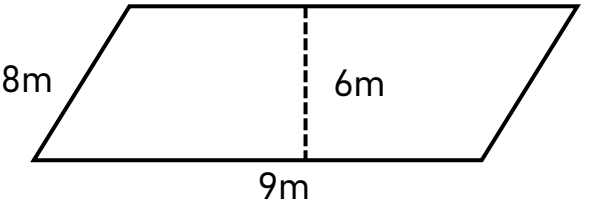
Perimeter = 32 cm Area = 49 cm^2

5)



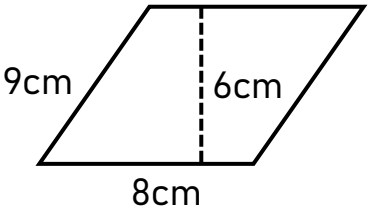
Perimeter = 36 m Area = 60 m^2

6)



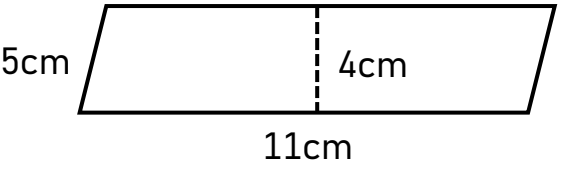
Perimeter = 34 m Area = 54 m^2

7)



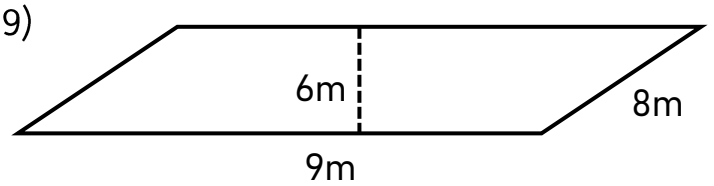
Perimeter = 34 cm Area = 48 cm^2

8)



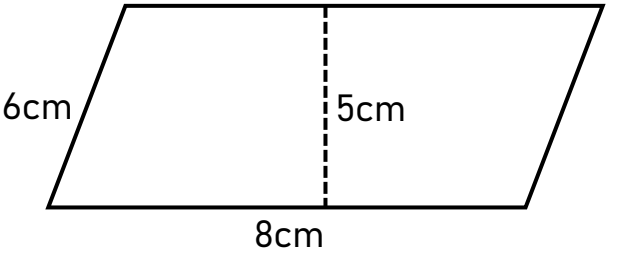
Perimeter = 32 cm Area = 44 cm^2

9)



Perimeter = 34 m Area = 54 m^2

10)



Perimeter = 28 cm Area = 40 cm^2

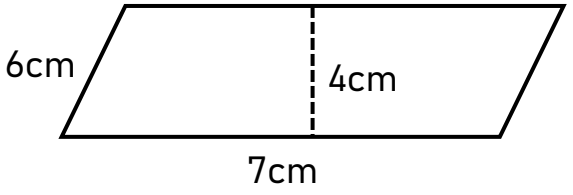
Name: Answers 56

Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

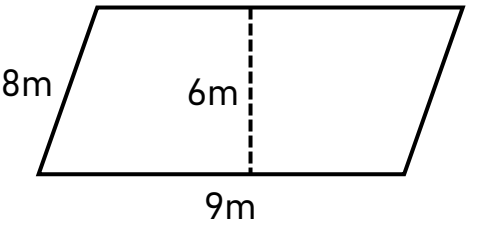
Part 1 Find the perimeter and area of the parallelograms below (A= b x h)

1)



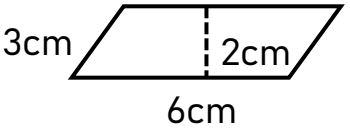
Perimeter = 26 cm Area = 28 cm^2

2)



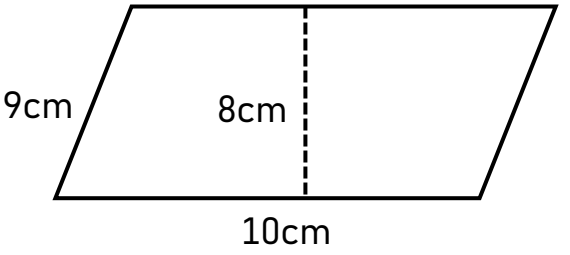
Perimeter = 34 m Area = 54 m^2

3)



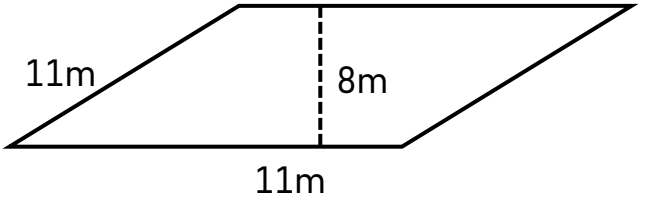
Perimeter = 18 cm Area = 12 cm^2

4)



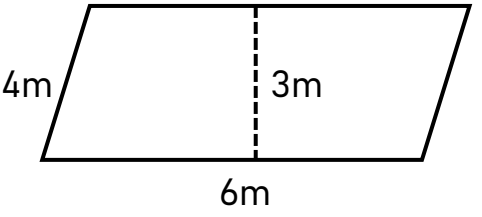
Perimeter = 38 cm Area = 80 cm^2

5)



Perimeter = 44 m Area = 88 m^2

6)



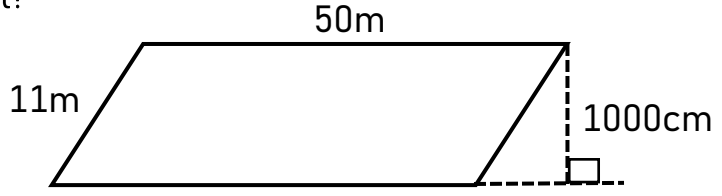
Perimeter = 20 m Area = 18 m^2

Part 2 Answer the word problems below

1) A parallelogram has a top side length of 12cm. The height of the parallelogram is 7cm. What is the area of the parallelogram?

84 cm^2

2) A parking lot is constructed in the shape of a parallelogram. What is the area of the parking lot?



110 m^2

Name: Answers 57

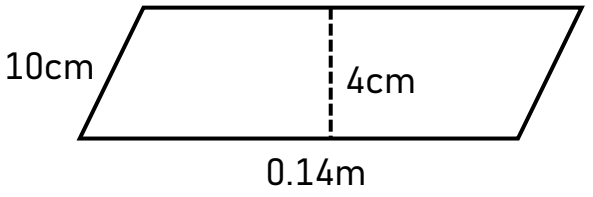
Curriculum Connection
SS.2

Perimeter and Area of Parallelograms

Part 1

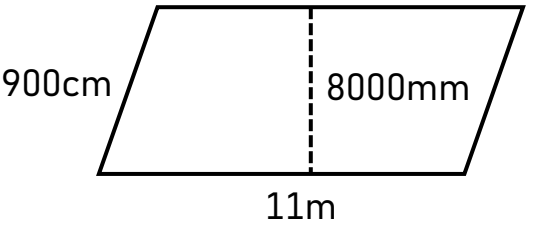
Find the perimeter and area of the parallelograms below (A= b x h)

1)



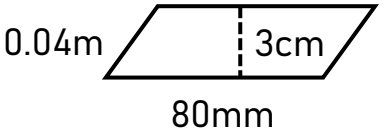
Perimeter = 48cm Area = 56cm²

2)



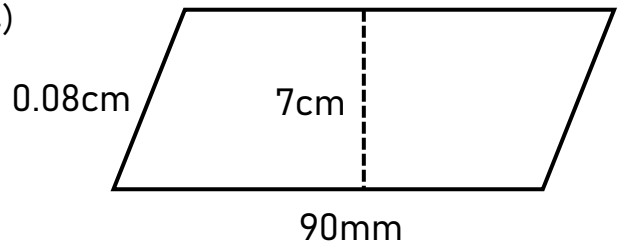
Perimeter = 40m Area = 88m²

3)



Perimeter = 24cm Area = 24cm²

4)

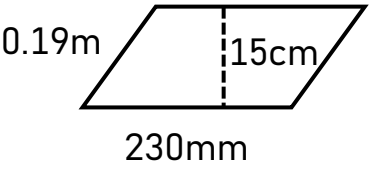


Perimeter = 34cm Area = 63cm²

Part 2

Answer the word problems below

A bathroom is being tiled with parallelogram shaped tiles. The dimensions of the tiles are below.



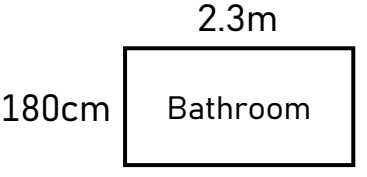
1) What is the area of the parallelogram?

345cm²

2) The dimensions of the bathroom are displayed below.

a) What is the area of the bathroom?

44,400cm²



b) How many tiles will fit in the bathroom?

44,400 / 345 = 120 tiles

Name: Answers 58

Curriculum Connection
SS.2

Area of a Triangle/Parallelogram Word Problems

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

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

5m x 4m = 20m/2 = 10m²

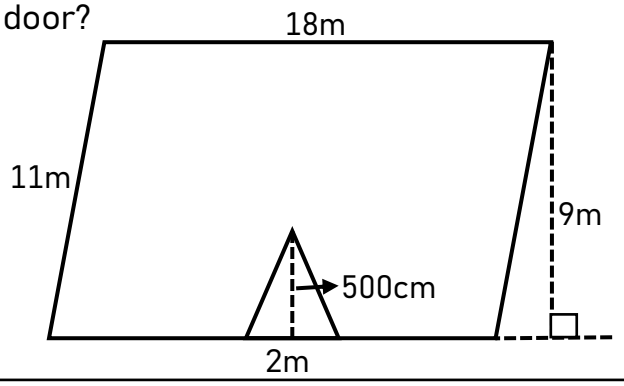
2) A farmer is buying seed for his farmland. His land is shaped like a parallelogram. It has a base of 5000cm and a height of 10m. The sides of the garden are 2000cm. What is the area of his farmland in metres?

50 x 10 = 500m²

3) Christina is painting her triangular artwork. The artwork has a base of 14cm and a height of 80mm. What is the area of her artwork in millimetres?

140mm x 80mm = 5600mm²

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



18m x 9m = 162m²
5 x 2 = 10m²/2 = 5m²
162 – 5 = 157

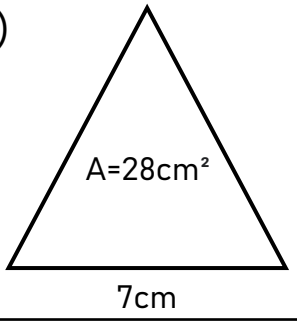
Name: Answers 59

Curriculum Connection
SS.2

Finding the Missing Information

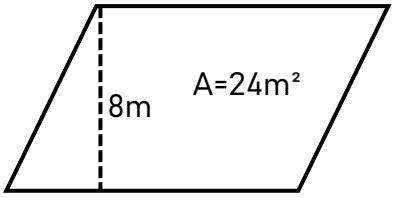
Questions Find the missing value (A= b x h)

1)



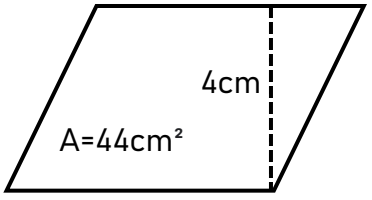
Base = 7cm
Height = 8cm
Area = 28cm²

2)



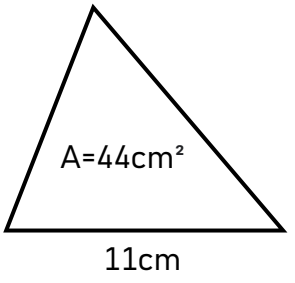
Base = 6m
Height = 8m
Area = 24m²

3)



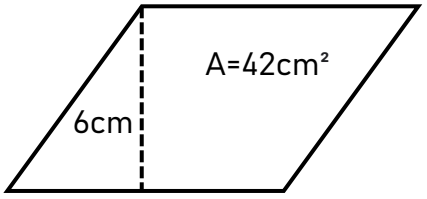
Base = 22cm
Height = 4cm
Area = 44cm²

4)



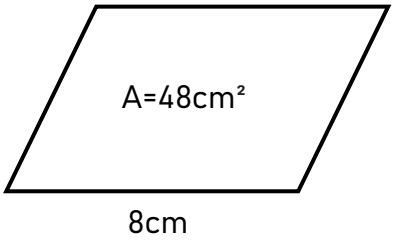
Base = 11cm
Height = 8cm
Area = 44cm²

5)



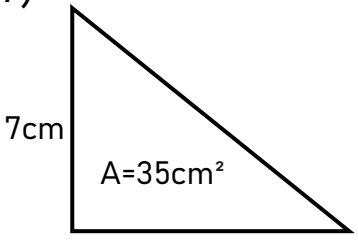
Base = 14cm
Height = 6cm
Area = 42cm²

6)



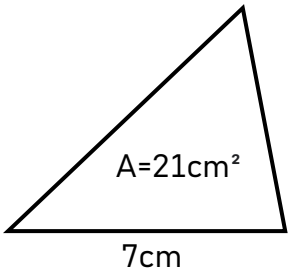
Base = 8cm
Height = _____
Area = 48cm²

7)



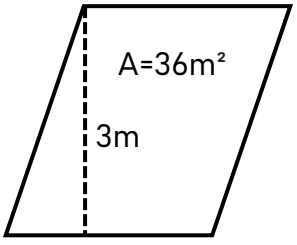
Base = 10cm
Height = 7cm
Area = 35cm²

8)



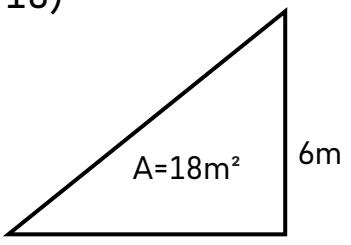
Base = 7cm
Height = 6cm
Area = 21cm²

9)



Base = 24m
Height = 3m
Area = 36m²

10)



Base = 6m
Height = 6m
Area = 18m²

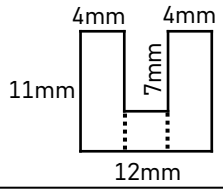
Name: Answers 60

Curriculum Connection
SS.2

Area of Composite Polygons

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

Example



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

Rectangle 1:
A = 11 x 4
A = 44 mm²

Rectangle 2:
A = 4 x 4
A = 16mm²

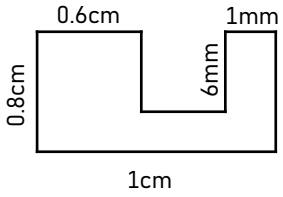
Rectangle 3:
A = 4 x 11
A = 44mm²

Area = 44 + 44 + 16
A = 104mm²

Questions

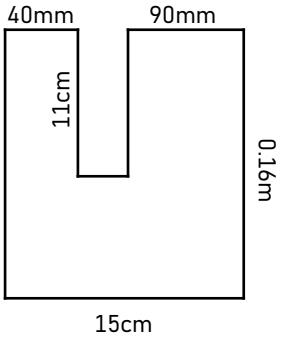
Find the area of the composite polygons below

1)



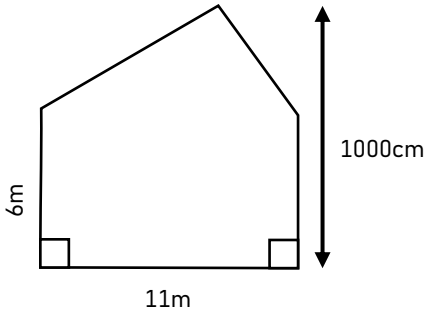
Area = 62mm²

2)



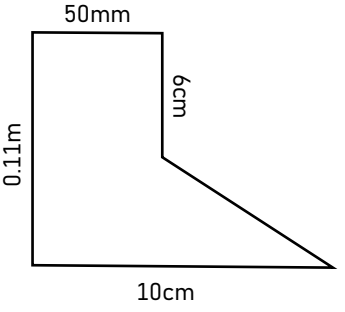
Area = 218cm²

3)



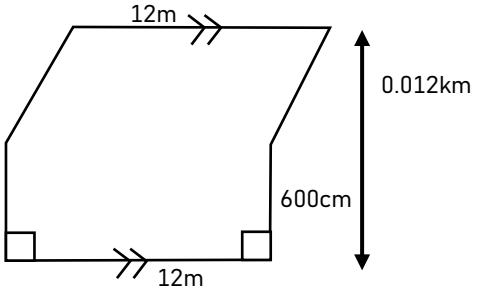
Area = 88cm²

4)



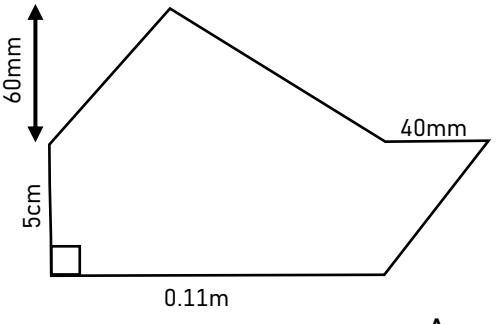
Area = 67.5cm²

5)



Area = 144cm²

6)



Area = 108cm²

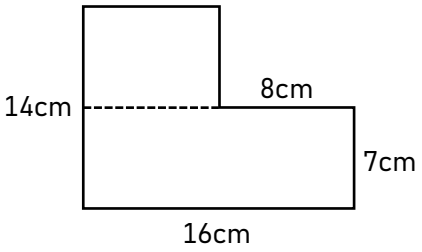
Name: Answers 61

Curriculum Connection
SS.2

Area of Composite Polygons

Questions Find the area of each composite shape

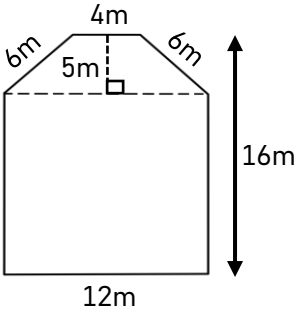
1)



Perimeter: 60 cm

Area: 168 cm^2

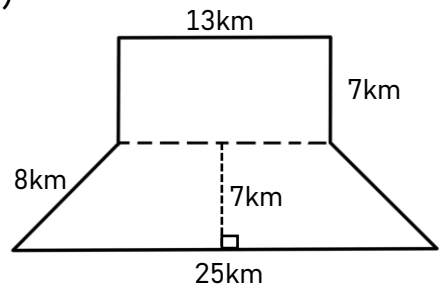
2)



Perimeter: 60 m

Area: 232 m^2

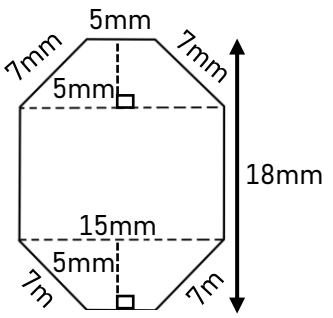
3)



Perimeter: 68 km

Area: 224 km^2

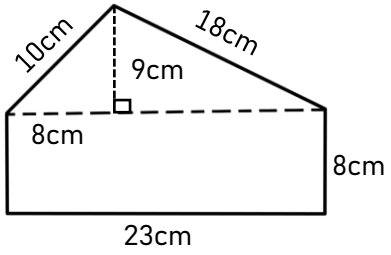
4)



Perimeter: 54 mm

Area: 495 mm^2

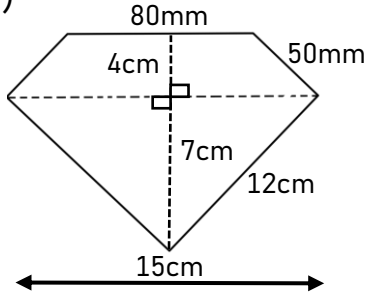
5)



Perimeter: 67 cm

Area: 287.5 cm^2

6)



Perimeter: 42 cm

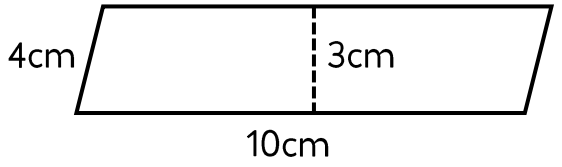
Area: 292.5 cm^2

Name: Answers 62

Area Quiz - Triangles and Parallelograms

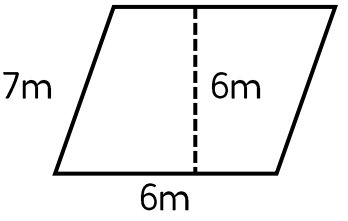
Part 1 Find the area of the parallelograms below

1)



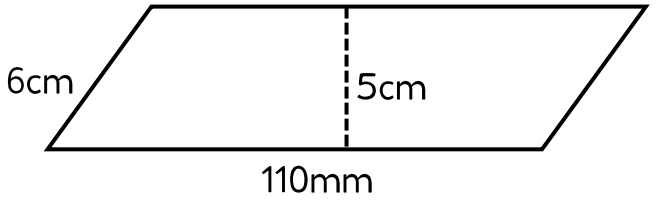
Area = 30cm²

2)



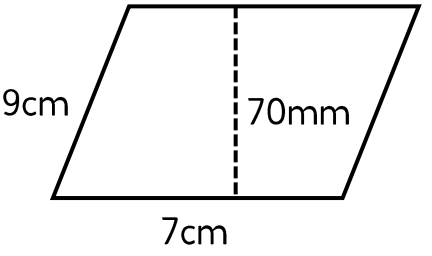
Area = 36m²

3)



Area = 55cm²

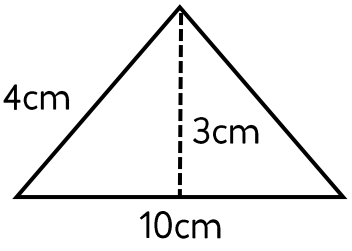
4)



Area = 49cm²

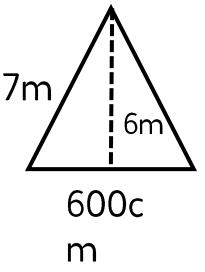
Part 2 Find the area of the triangles below

1)



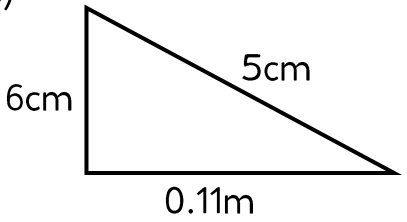
Area = 15cm²

2)



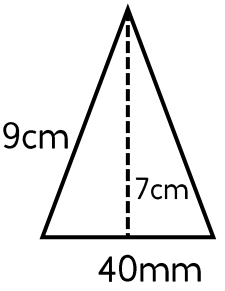
Area = 18cm²

3)



Area = 33cm²

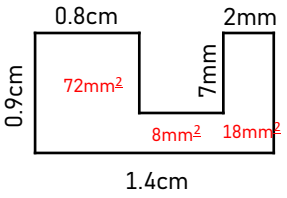
4)



Area = 14cm²

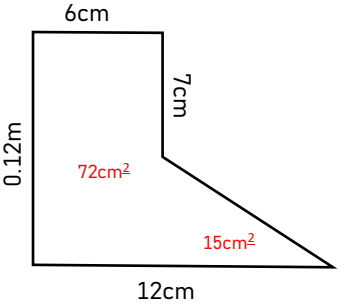
Part 3 — Find the area of the composite polygons below

1)



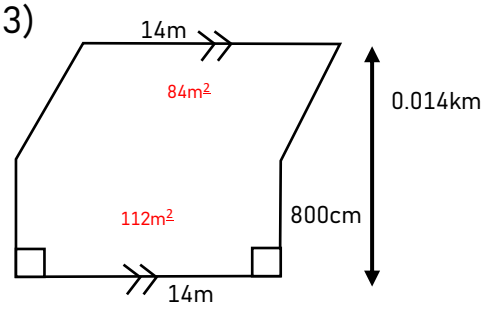
Area = 98mm²

2)



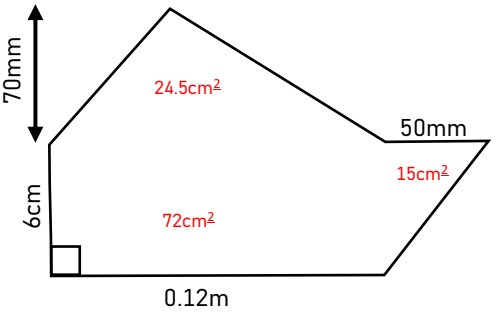
Area = 88cm²

3)



Area = 196m²

4)



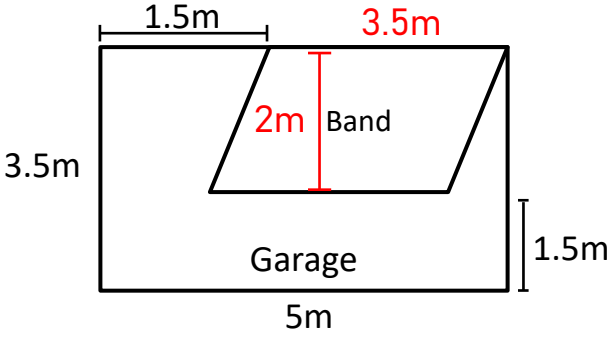
Area = 111.5cm²

Part 4 — Solve the word problems below. Make sure to show your work

1) Jeremy's triangular picture frame has a base of 10cm and a height of 0.12m. What is the area of the triangular frame?

60cm²

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



7m²

Name: Answers 65

Curriculum Connection
SS.3

Lines, Rays, and Line Segments

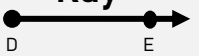
Point

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

Line

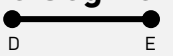
A **line** is straight and goes on forever in both directions (arrows). Lines can have points on them ($\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$)

Ray



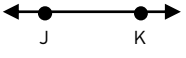
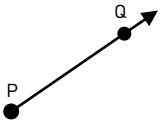
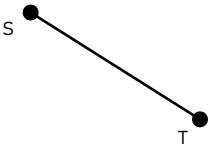
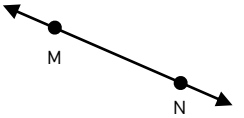
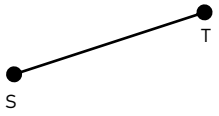
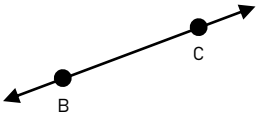
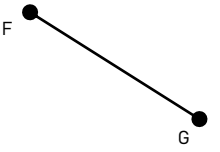
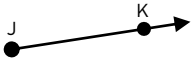
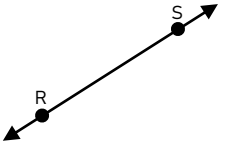
A **ray** is a straight path that goes on forever in one direction (1 arrow). The ray above is $\overrightarrow{DE}$.

Line Segment

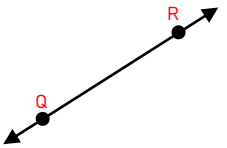


A **line segment** is a straight line between two points. The line segment above is $\overline{DE}$ or $\overline{ED}$.

Part 1 — Label whether the example is a point, line, ray or line segment

1) 	2) 	3) 	4) 
Line JK or KJ $\overleftrightarrow{JK}$ or $\overleftrightarrow{KJ}$	Ray PQ	Line Segment ST or TS	Line MN or NM
5) 	6) 	7) 	8) 
Line Segment ST or TS	Point K	Line BC or CB	Line Segment FG or GF
9) 	10) 	11) 	12) 
Ray JK	Line RS or SR	Line Segment VW or WV	Point Y

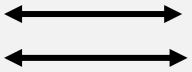
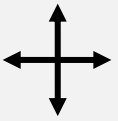
Part 2 — Construct a ray, line, point, and line segment. Label each.

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

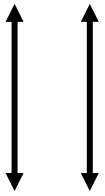
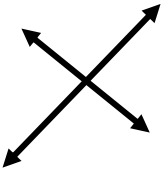
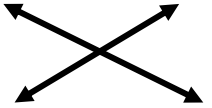
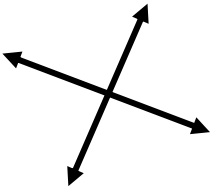
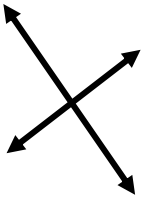
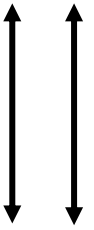
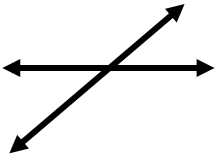
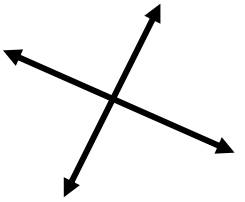
Name: Answers 66

Curriculum Connection
SS.3

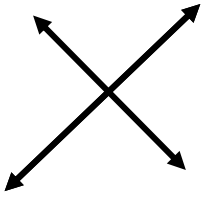
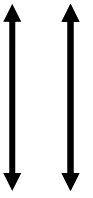
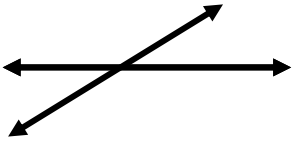
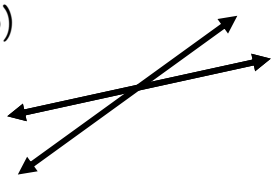
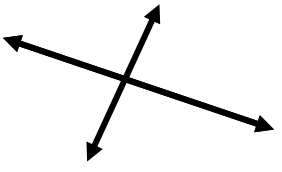
Parallel, Perpendicular and Intersecting Lines

 = Parallel Lines  = Perpendicular Lines  = Intersecting Lines

Part 1 Label the lines parallel, perpendicular, or intersecting

1) 	2) 	3) 	4) 
parallel	perpendicular	intersecting	perpendicular
5) 	6) 	7) 	8) 
perpendicular	paralllel	intersecting	perpendicular

Part 2 Draw a second line that is intersecting, perpendicular, or parallel to the other line

1) 	2) 	3) 	4) 
Perpendicular	Parallel	Intersecting	Parallel
5) 	6) 	7) 	8) 
Intersecting	Perpendicular	Intersecting	Parallel

Name: Answers

67

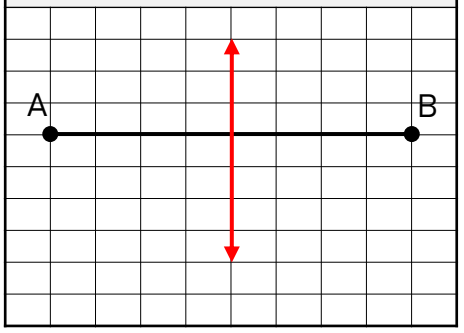
Curriculum Connection
SS.3

Perpendicular and Parallel Line Segments

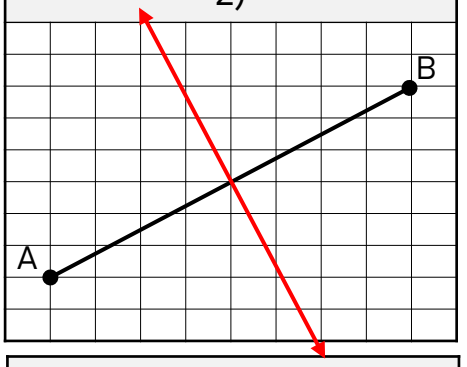
Part 1

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

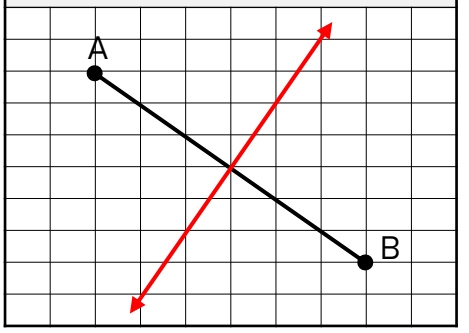
1)



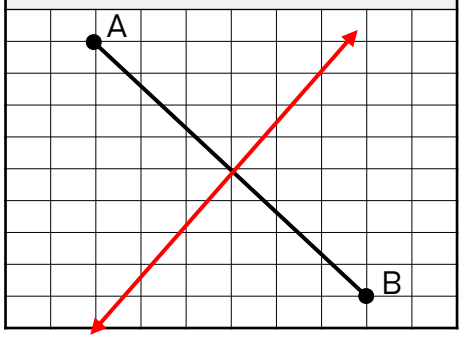
2)



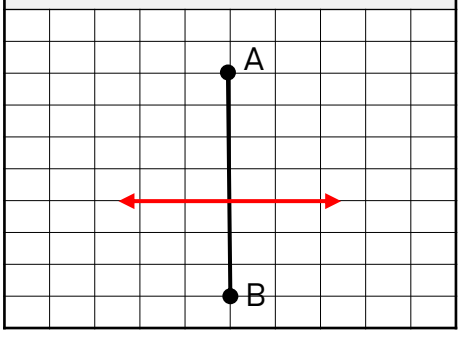
3)



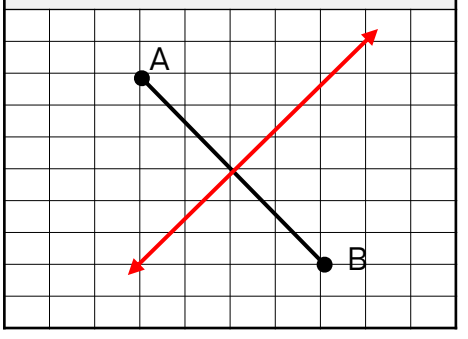
4)



5)



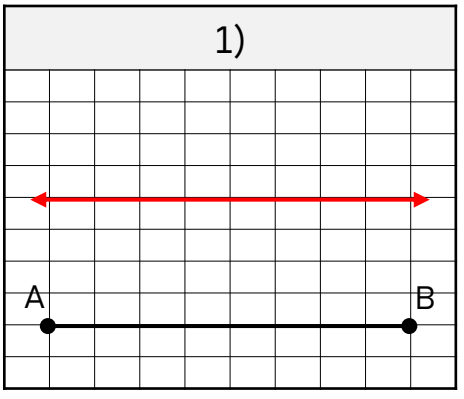
6)



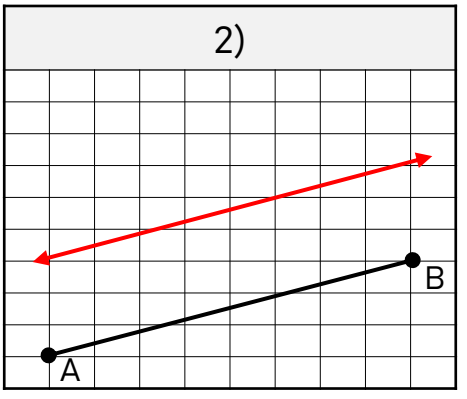
Part 2

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

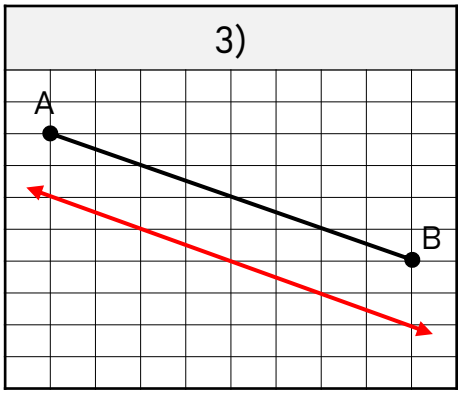
1)



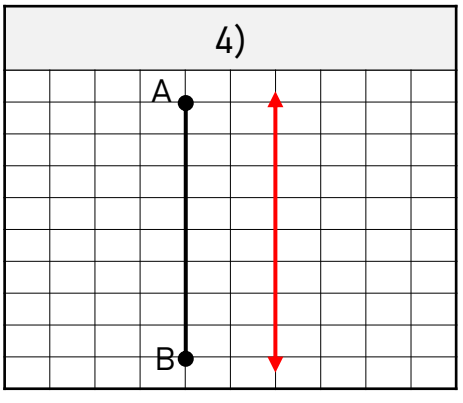
2)



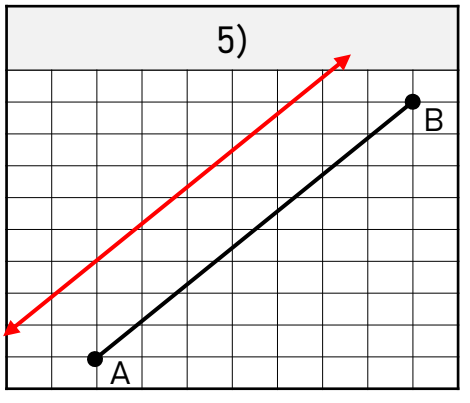
3)



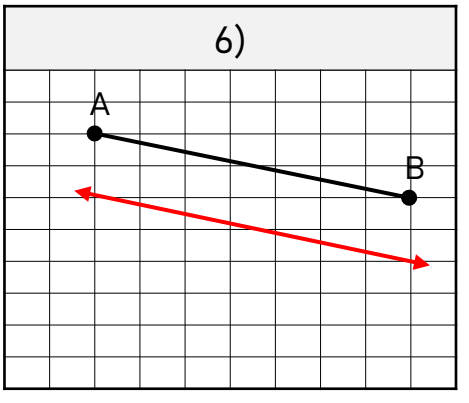
4)



5)



6)

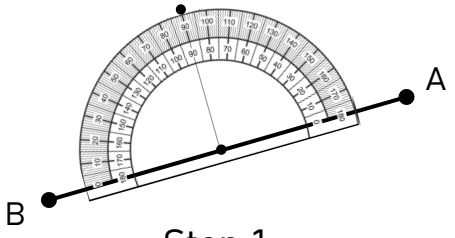


Name: Answers 68

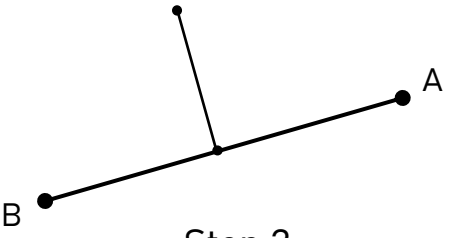
Curriculum Connection
SS.3

Perpendicular Line Segments

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



Step 1

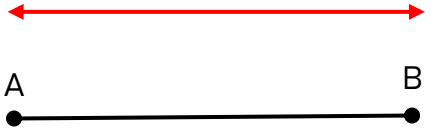


Step 2

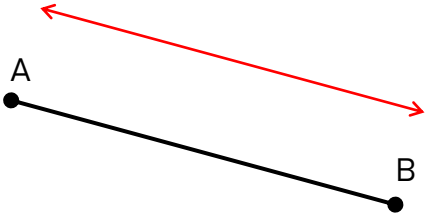
Questions

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

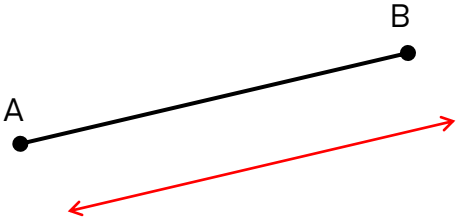
1)



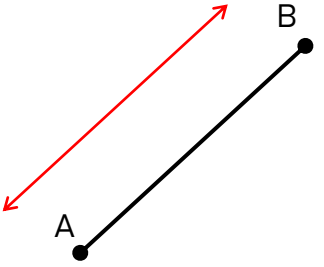
2)



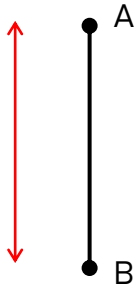
3)



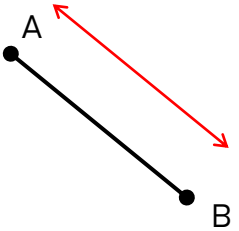
4)



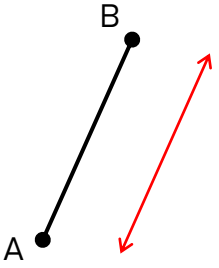
5)



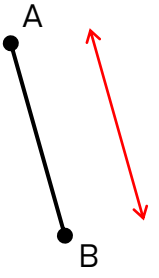
6)



7)



8)

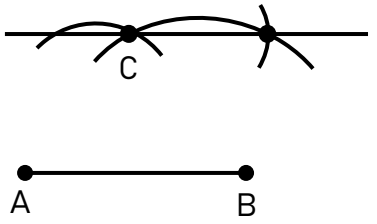


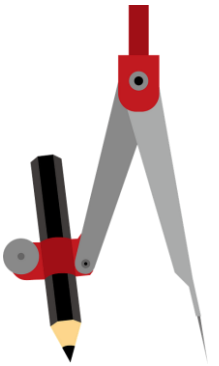
Name: Answers 69

Curriculum Connection
SS.3

Parallel Line Segments

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

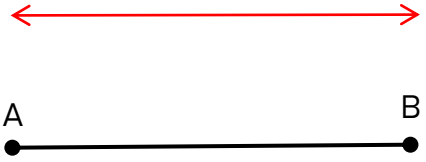




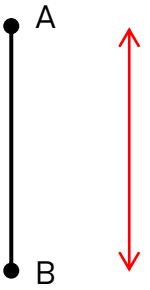
Questions

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

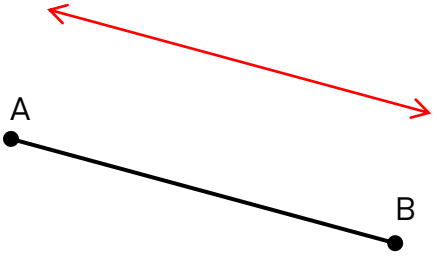
1)



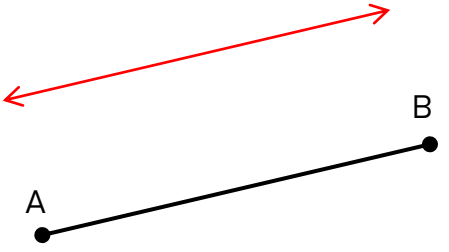
2)



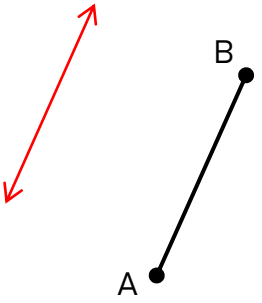
3)



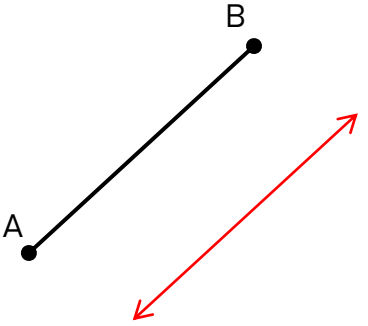
4)



5)



6)



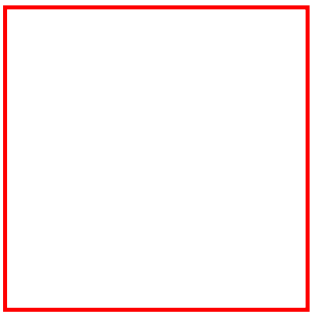
Name: Answers 70

Curriculum Connection
SS.3

Constructing Quadrilaterals - Parallel and Perpendicular Lines

Questions Construct the quadrilaterals below using parallel and perpendicular lines

1)



Square

2)

Rectangle

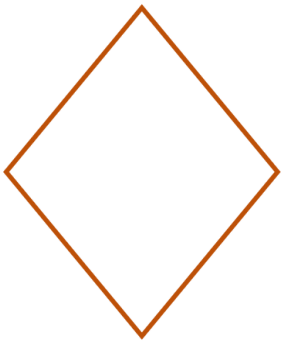
3)

Parallelogram (2 sets of parallel lines)

4)

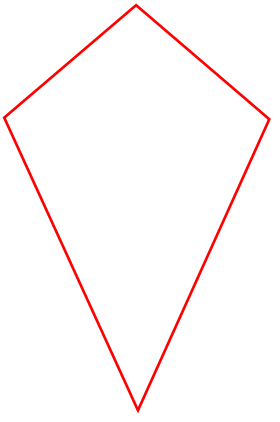
Trapezoid (bases have parallel lines)

5)



Rhombus (parallel opposite sides)

6)



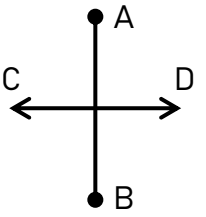
Kite (diagonal lines are perpendicular)

Name: Answers 71

Curriculum Connection
SS.3

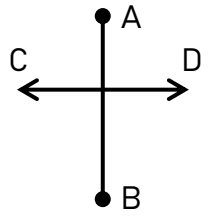
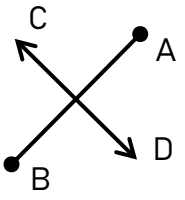
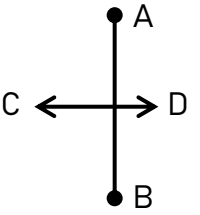
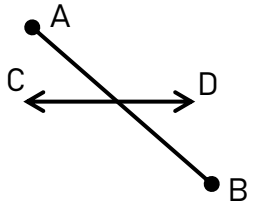
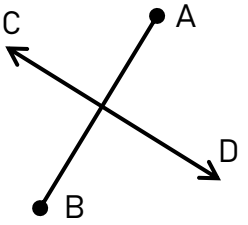
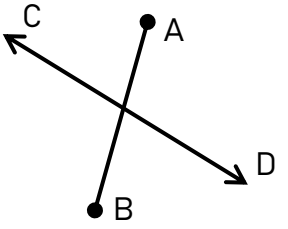
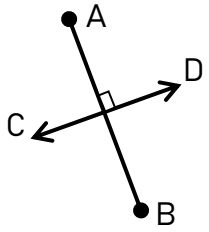
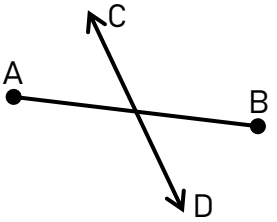
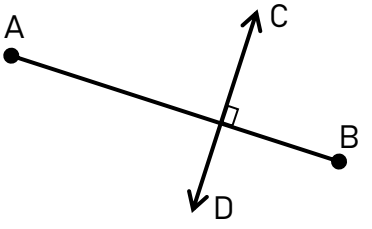
Perpendicular Bisector

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



Part 1

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

1) 	2) 	3) 
Yes No	**Yes** No	**Yes** No
4) 	5) 	6) 
Yes **No**	**Yes** No	Yes **No**
7) 	8) 	9) 
Yes No	Yes **No**	**Yes** No

Part 2

Write what the terms below mean in your own words

Term	Definition
Perpendicular	A line that is at an angle of 90° to a given line
Midpoint	The middle of a line

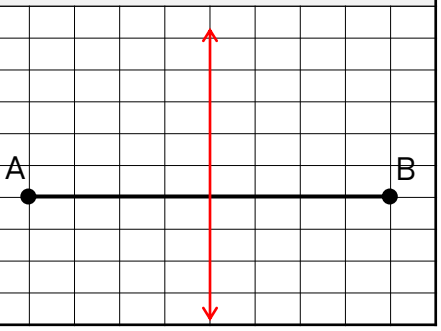
Name: Answers 72

Curriculum Connection
SS.3

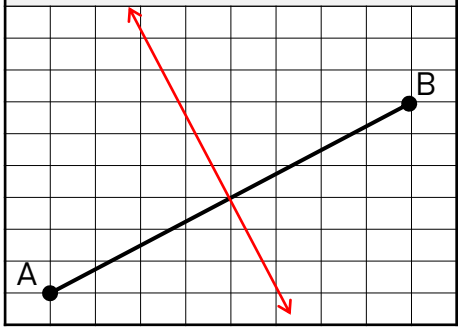
Perpendicular Bisector

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

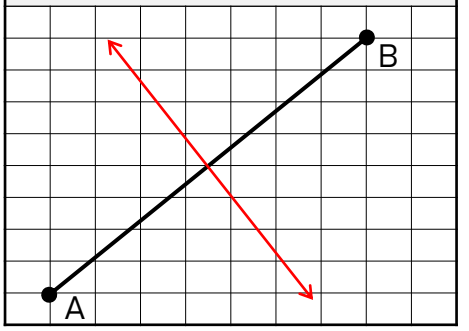
1)



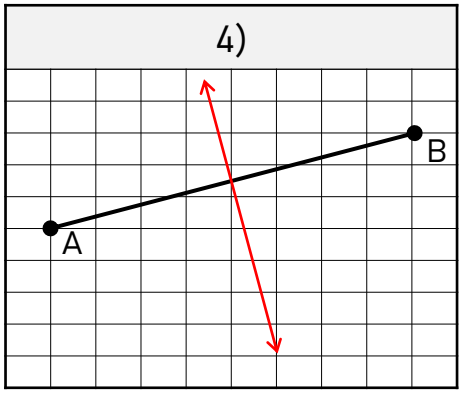
2)



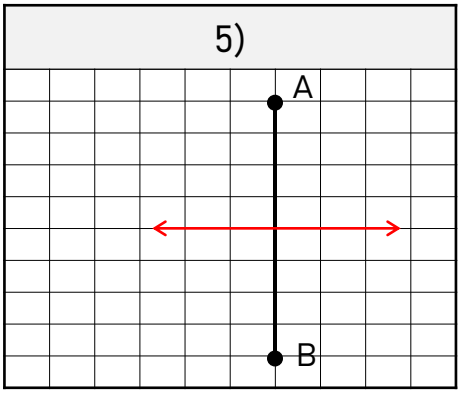
3)



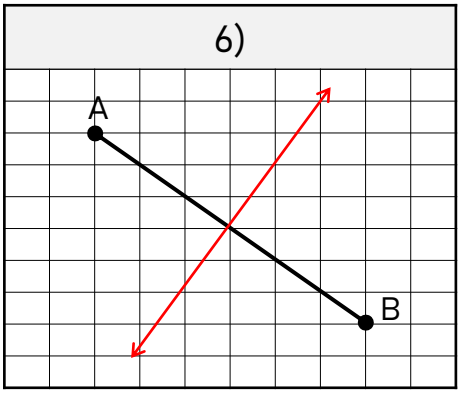
4)



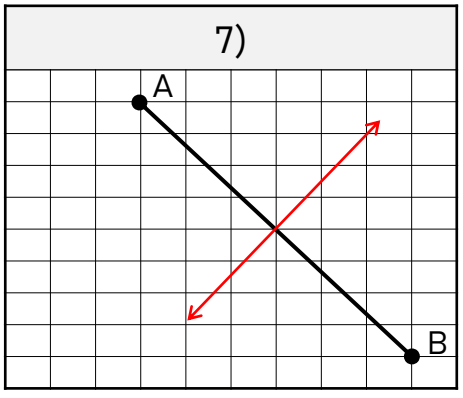
5)



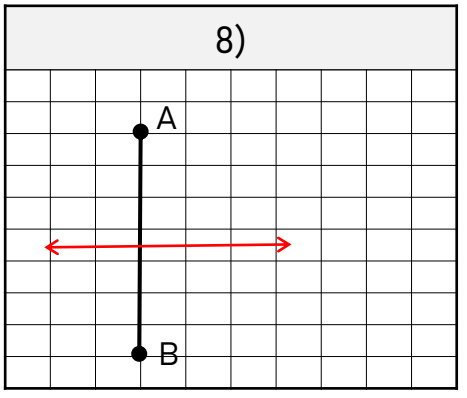
6)



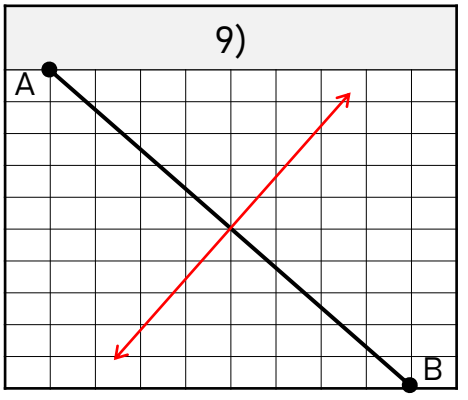
7)



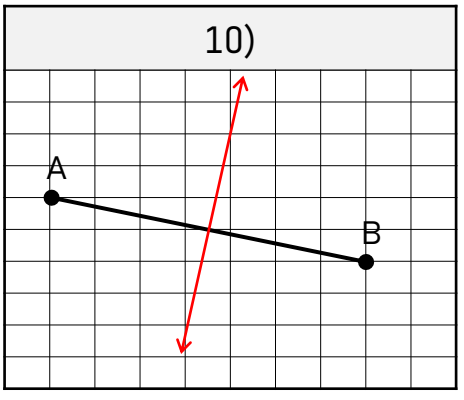
8)



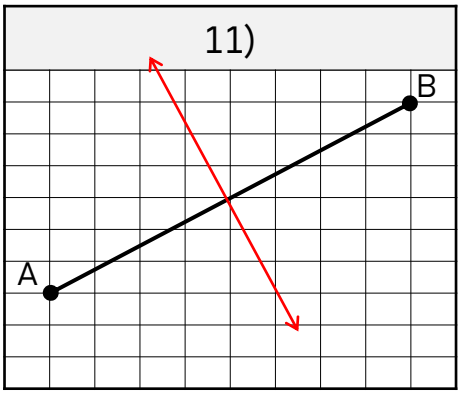
9)



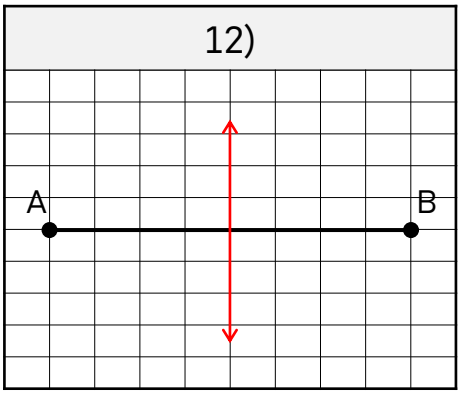
10)



11)



12)



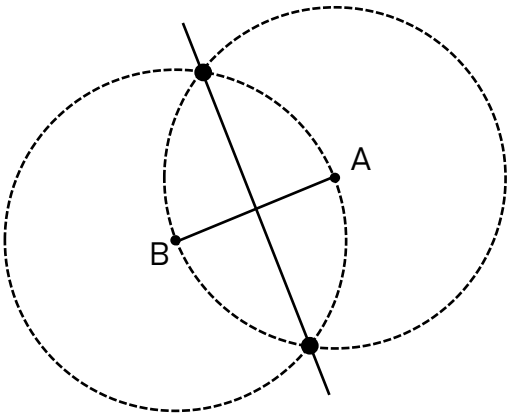
Name: Answers 73

Curriculum Connection
SS.3

Perpendicular Bisector

Example - Perpendicular line bisector of the line segment AB

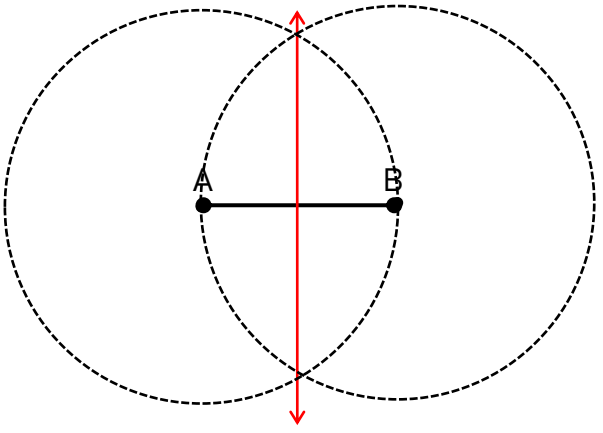
- Use a compass to sketch a circle around point A
- Use a compass to sketch a circle around point B
- Where the circles intersect, place a point
- Connect the two points to finish constructing your perpendicular bisector



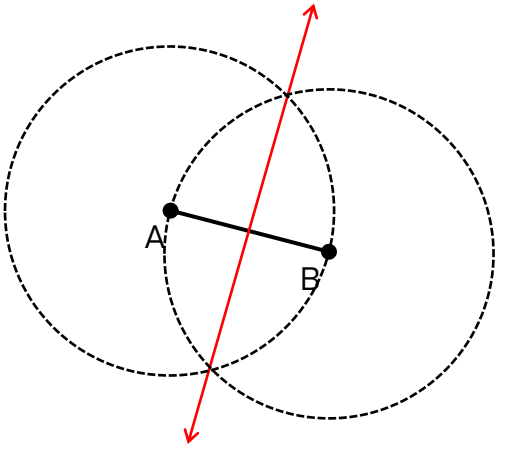
Questions

Construct perpendicular bisectors of the line segment $\overline{AB}$

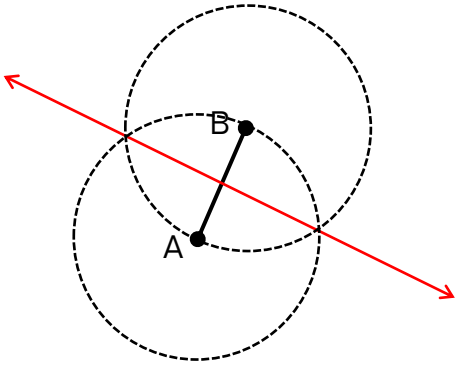
1)



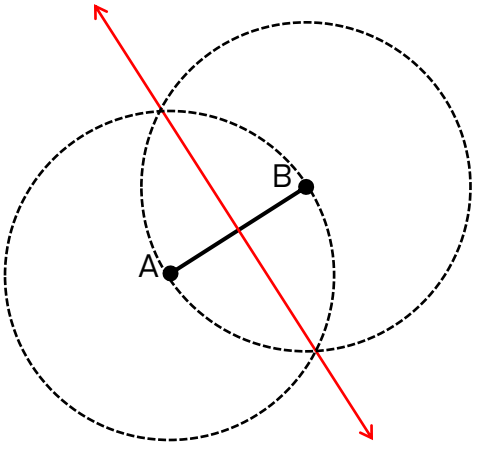
2)



3)



4)



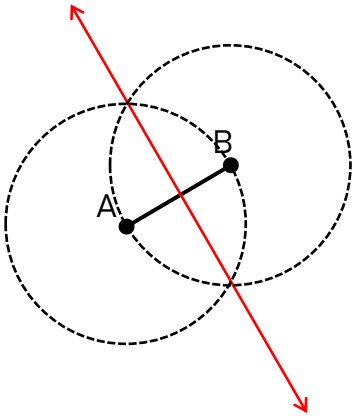
Name: Answers 74

Curriculum Connection
SS.3

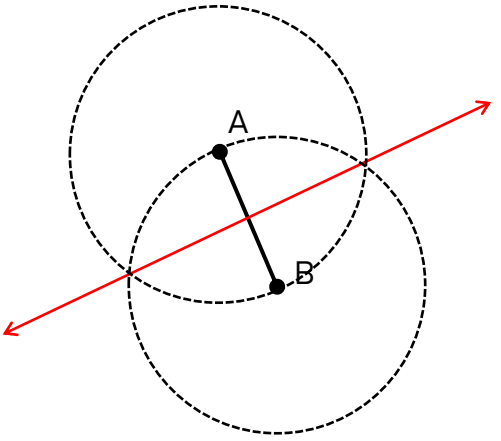
Perpendicular Bisector

Questions Construct perpendicular bisectors of the line segment $\overline{AB}$

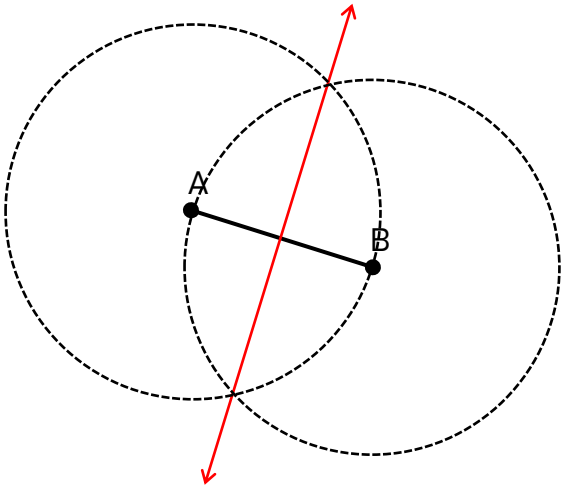
1)



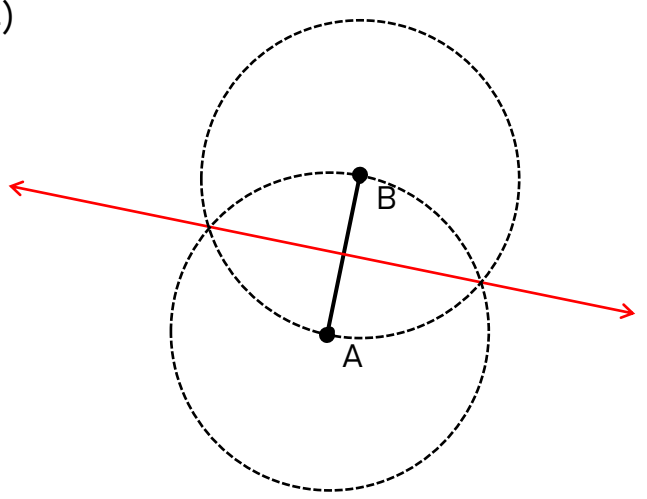
2)



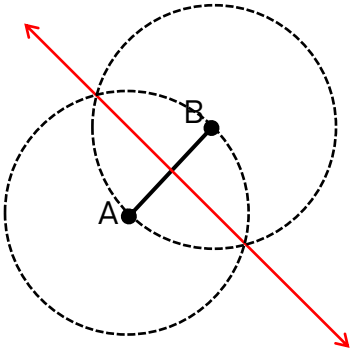
3)



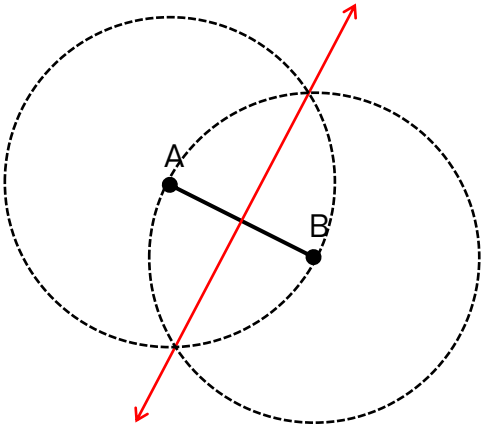
4)



5)



6)

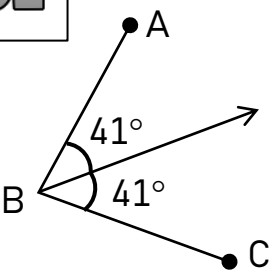


Name: Answers 75

Curriculum Connection
SS.3

Angle Bisector

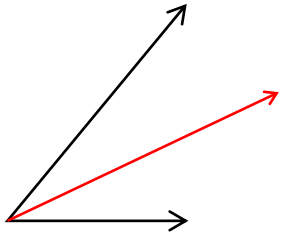
An **angle bisector** is a line that cuts an angle into two identical (congruent) parts. For example, if we construct an angle bisector on a 90° angle, we will have two 45° angles.



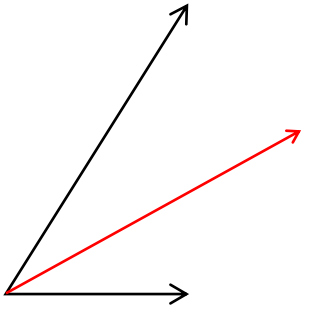
∠ABC =82°

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

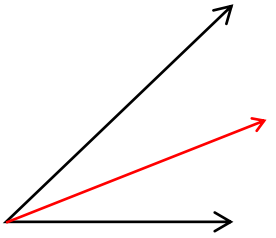
1)



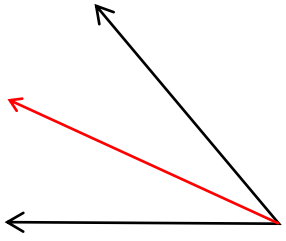
2)



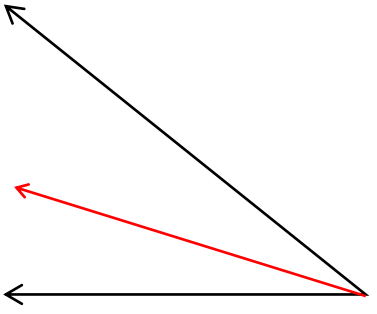
3)



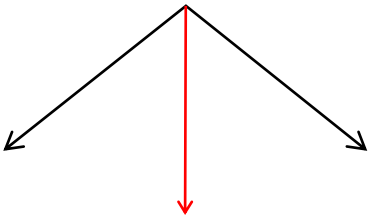
4)



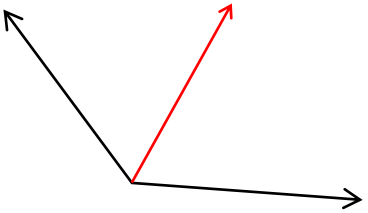
5)



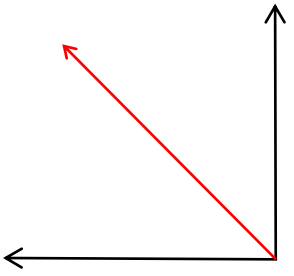
6)



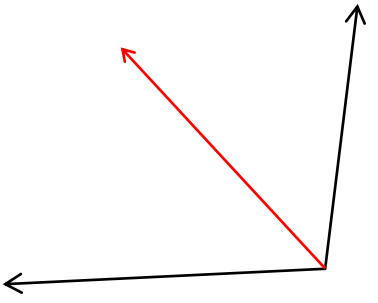
7)



8)



9)



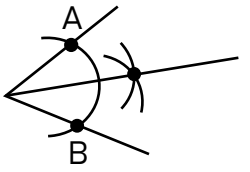
Name: Answers 76

Curriculum Connection
SS.3

Angle Bisector

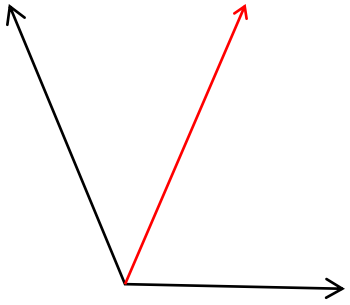
We can also use a compass to find an angle bisector.

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

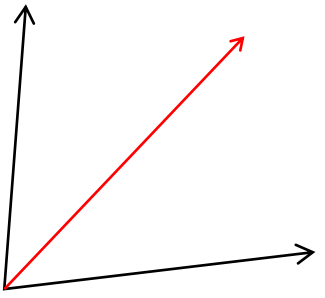


Directions Construct an angle bisector of the angles below using a compass

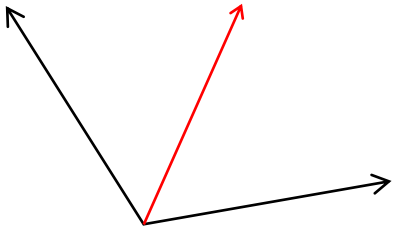
1)



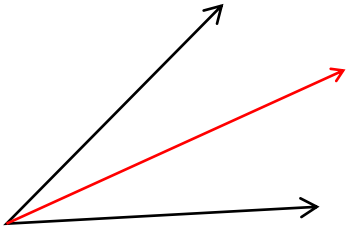
2)



3)



4)



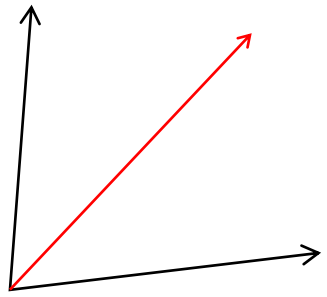
Name: Answers 77

Curriculum Connection
SS.3

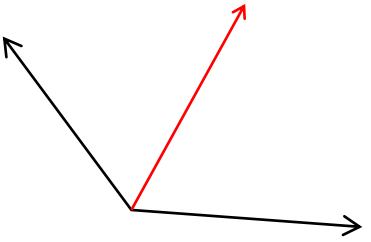
Angle Bisector

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

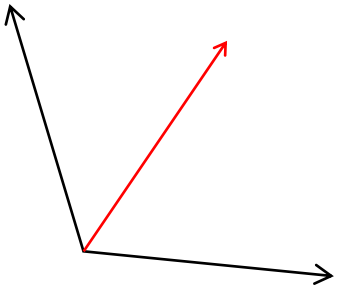
1)



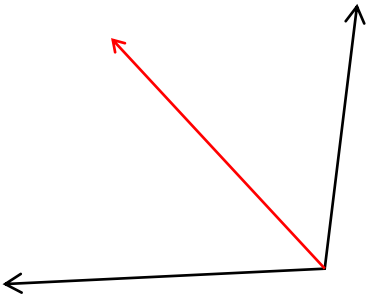
2)



3)



4)

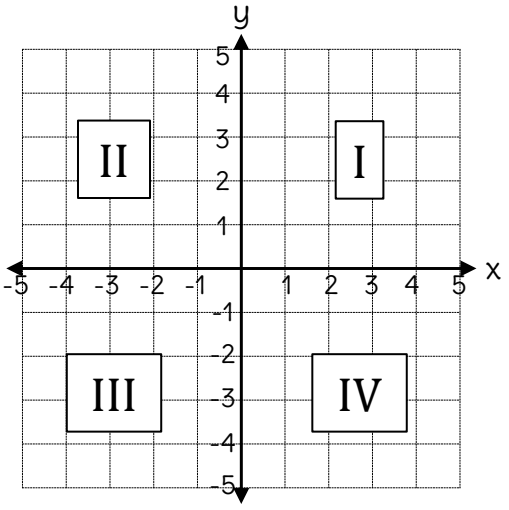


Name: Answers 78

Curriculum Connection
SS.4

Four Quadrants - Cartesian Plane

Part 1 Write which quadrant the points would be found



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

Part 2 Write your own coordinates for a point that could be found in the quadrant

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

Answers will vary

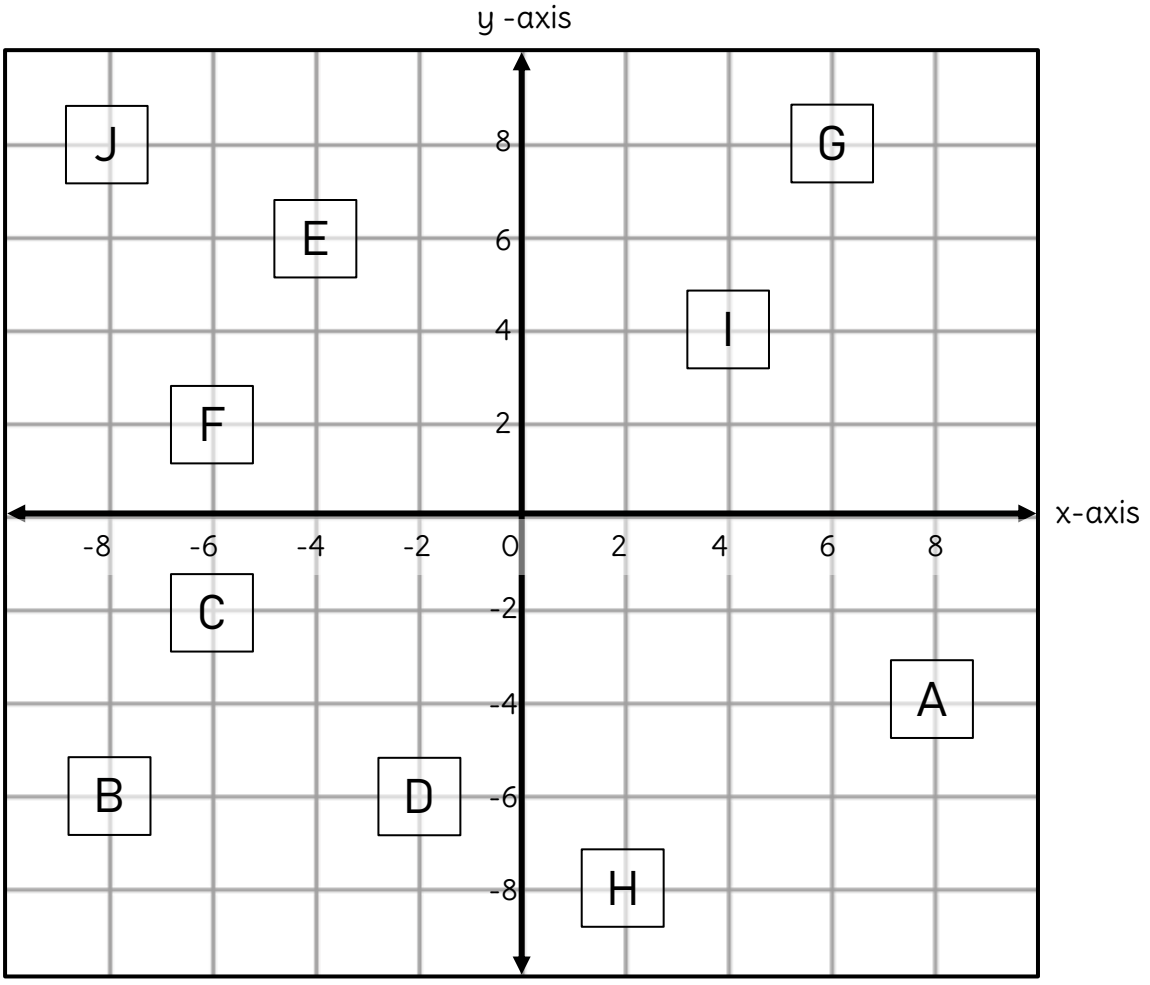
Part 3 Which quadrant number is associated with the descriptions below

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

Name: Answers

Curriculum Connection
SS.4

Using 4 Quadrants on a Cartesian Plane



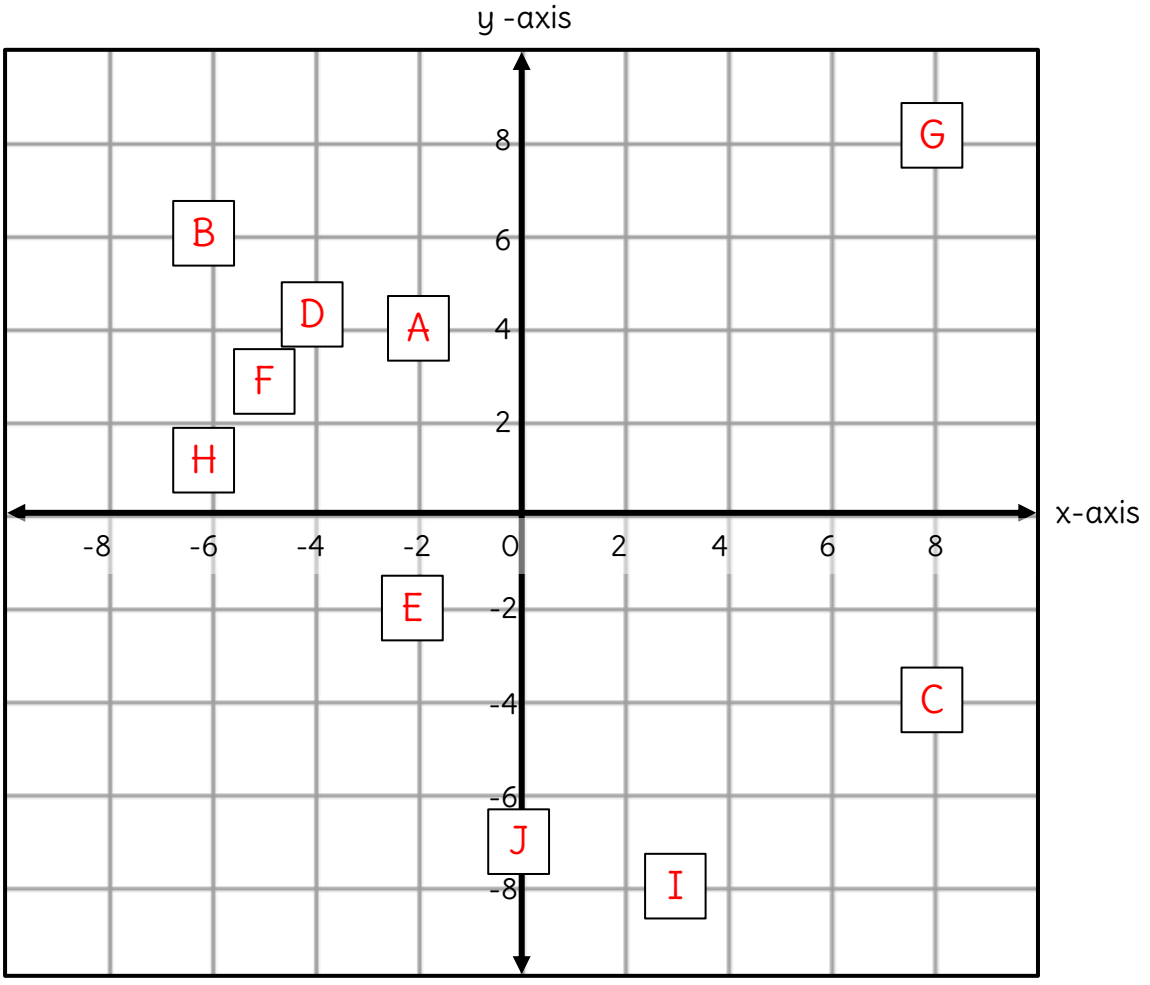
Questions Write the coordinates for each object on the cartesian plane

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

Symbol	Coordinates (x, y)
F	(-6, 2)
G	(6, 8)
H	(2, -8)
I	(4, 4)
J	(-8, 8)

Name: Answers 80

Using 4 Quadrants on a Cartesian Plane



Questions Write the letters on the grid according to the coordinates

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

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

Name: Answers 81

Curriculum Connection
SS.4

Plotting Ordered Pairs on Cartesian Plane

Directions

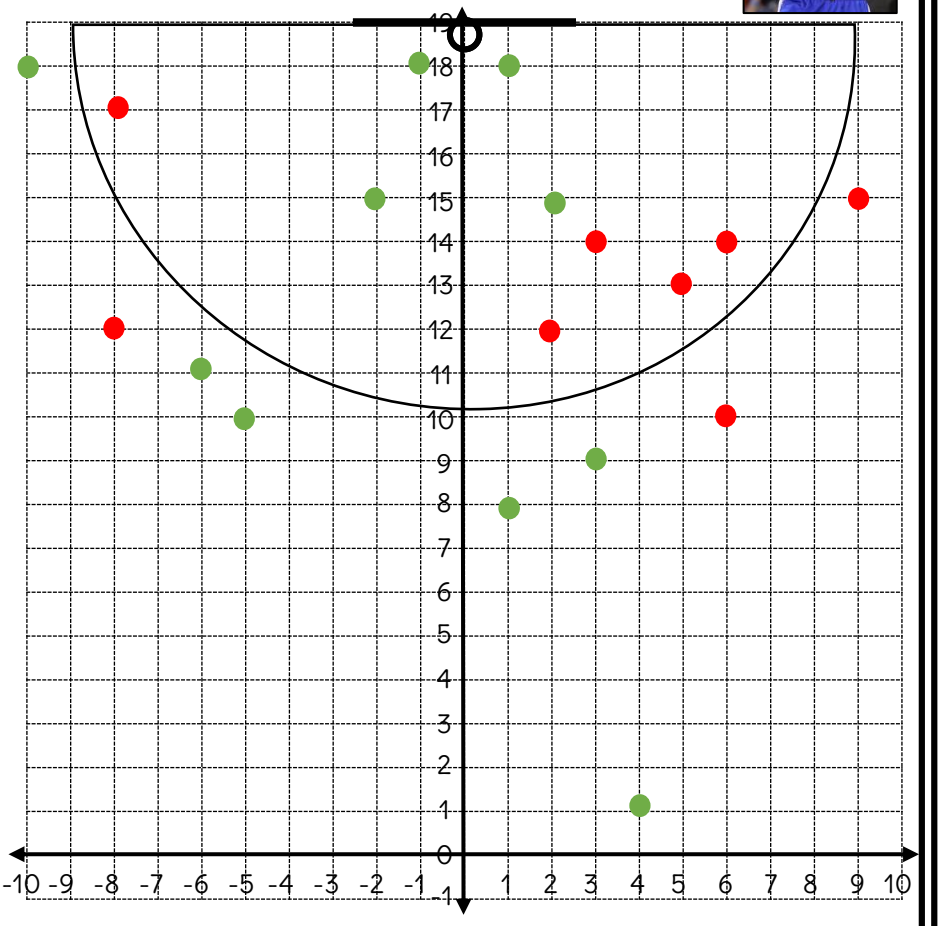
Plot the ordered pairs on the cartesian plane

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

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

If the shot is missed, plot a red dot using the coordinates.

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



Questions

Answer the questions below

Questions	Answers
1) What was Curry's field goal percentage? (#Makes/#Total Shots)	10/18 = 55.6%
2) What was Curry's 3-point percentage? (#3-Point Makes/#Total 3-Point Shots)	6/9 = 66.7%
3) How many points did Curry have?	26 points
4) Curry has asked you where he should shoot from. Use the coordinates you plotted to give him at least 2 tips.	Shoot more threes, less long two pointers. Shoot more layups

Name: Answers 82

Curriculum Connection
SS.4

Plotting Ordered Pairs on Cartesian Plane

Directions

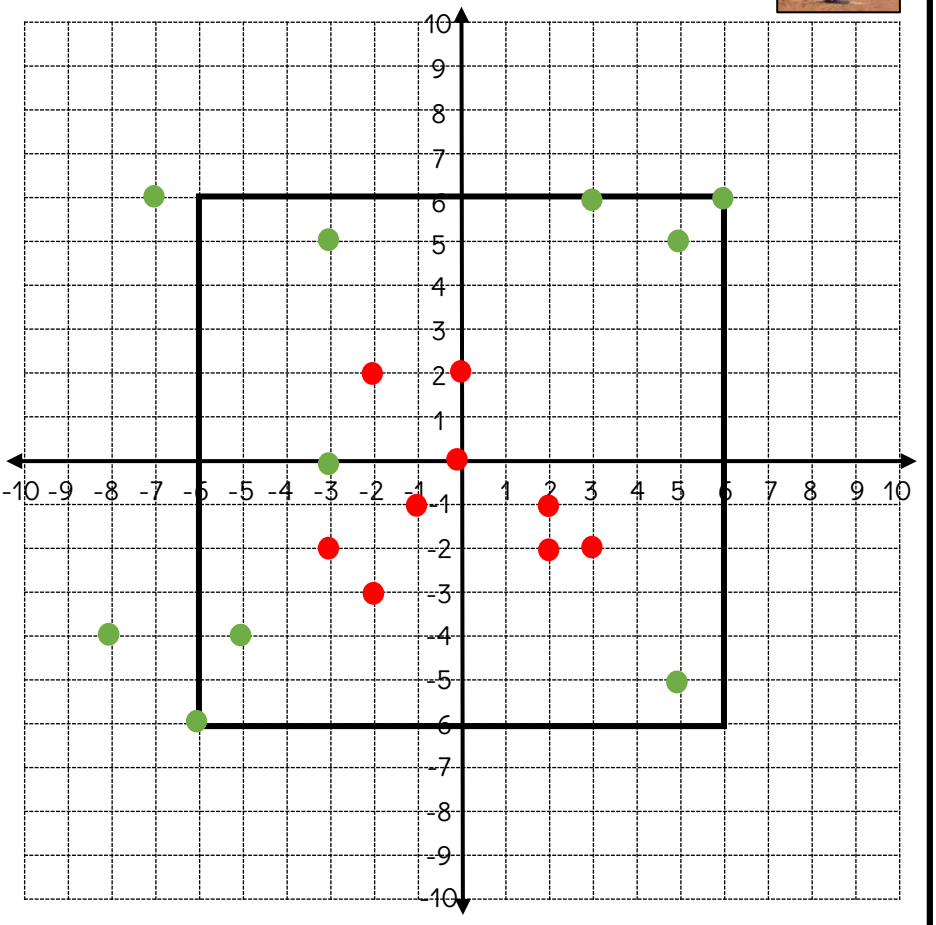
Plot the ordered pairs on the cartesian plane

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

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

If the pitch is hit, plot a red dot using the coordinates.

Strikes	Hits
(-3, 0)	(0, 0)
(-6, -6)	(0, 2)
(5, -5)	(-1, -1)
(3, 6)	(-2, 2)
(-7, 6)	(2, -1)
(6, 6)	(-3, -2)
(-5, -4)	(3, -2)
(-8, -4)	(-2, -3)
(5, 5)	(2, -2)
(-3, 5)	



Questions

Answer the questions below

Questions	Answers
1) How many strikes did Ray throw?	10
2) How many hits did he give up?	9
3) How many pitches did he make in the upper part of the strike zone?	6
4) How many strikes did Ray throw out of the strike zone?	2
5) Ray has asked you where he should throw his pitches. Use the coordinates you plotted to give him at least 2 tips.	Around the outside of the strike zone and in the upper part of the strike zone.

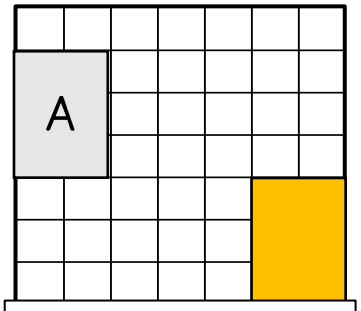
Name: Answers 83

Curriculum Connection
E1.4

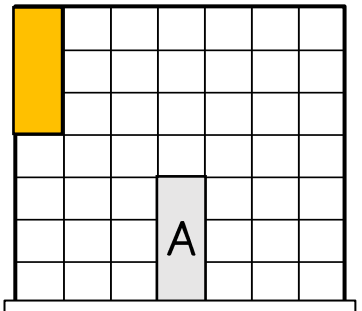
Transformations - Translations

Part 1

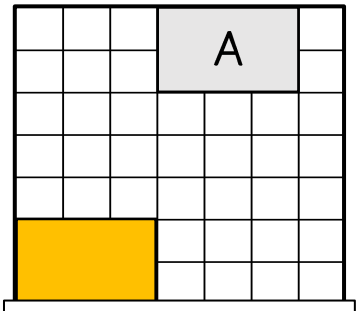
Describe the translations below. Shape A is the original object



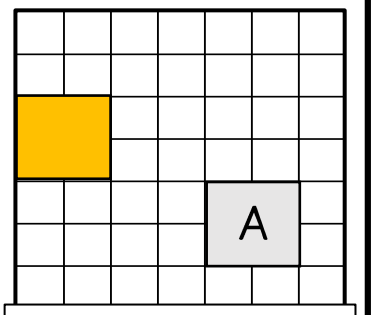
1) down 3, right 5



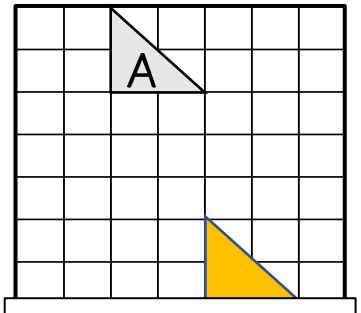
2) Up 4, left 3



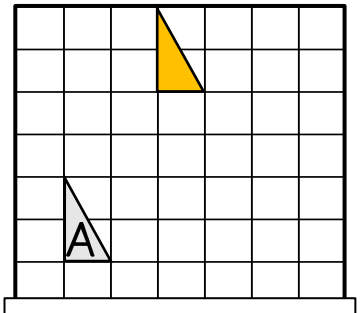
3) Down 5, left 3



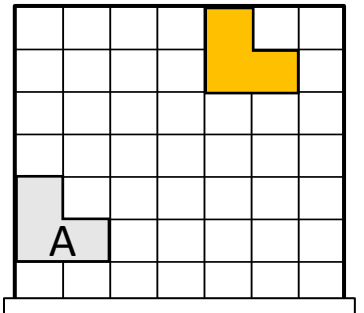
4) Left 4, up 2



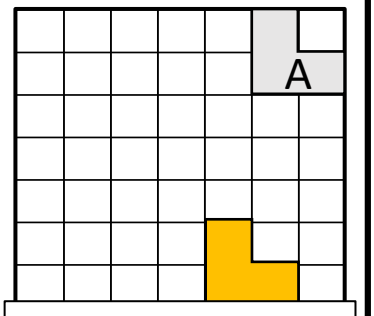
5) Down 5, right 2



6) Up 4, right 2



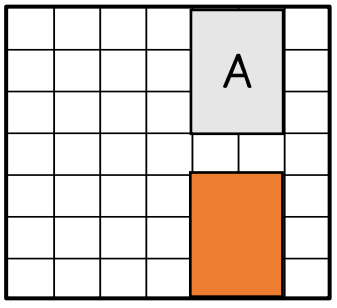
7) Up 4, right 4



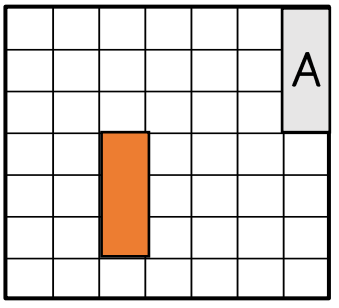
8) Down 5, left 1

Part 2

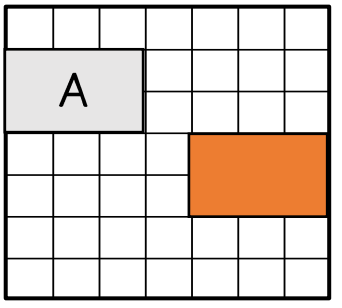
Draw the translations below



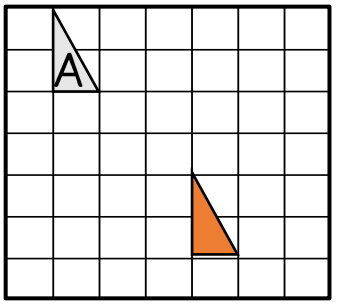
1) 4↓



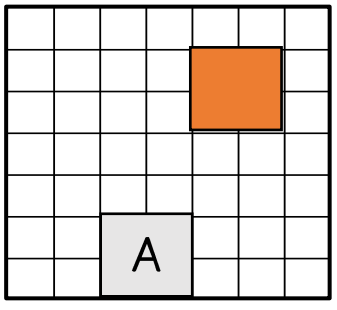
2) 3↓, 4←



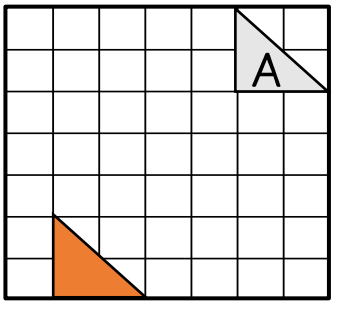
3) 2↓, 4→



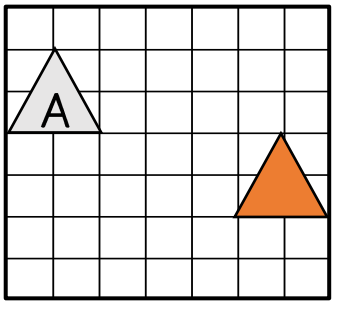
4) 4↓, 3→



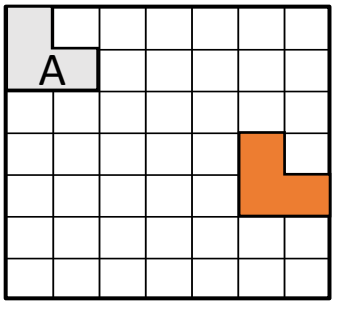
5) 4↑, 2→



6) 5↓, 4←



7) 2↓, 5→



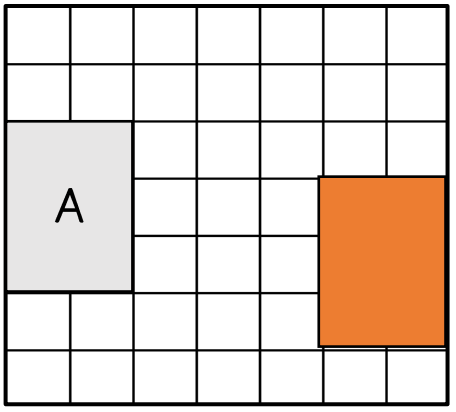
8) 3↓, 5→

Name: Answers 84

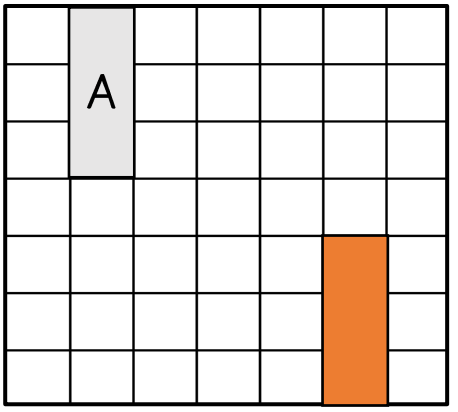
Curriculum Connection
E1.4

Performing Translations

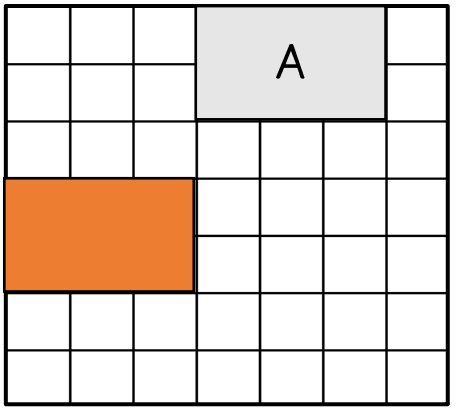
Questions Draw the new shape after reading the 3 steps



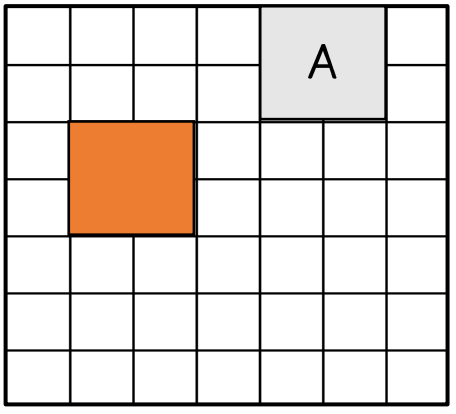
1) 2↑, 5→, 3↓



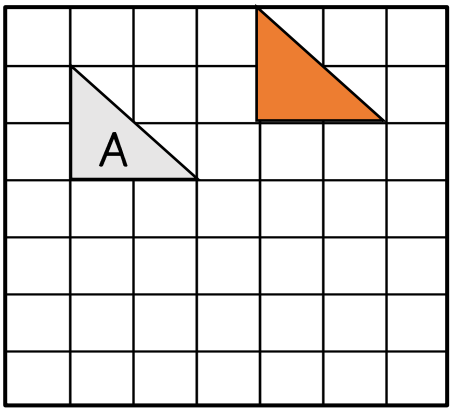
2) 3↓, 4→, 1↓



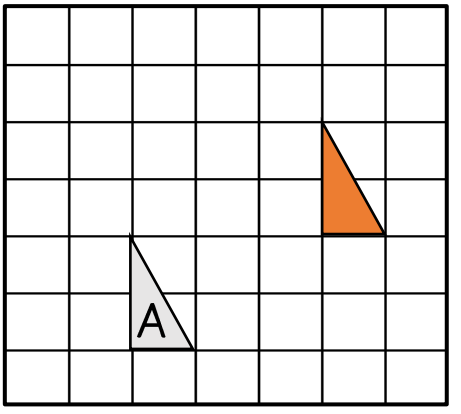
3) 1↓, 3←, 2↓



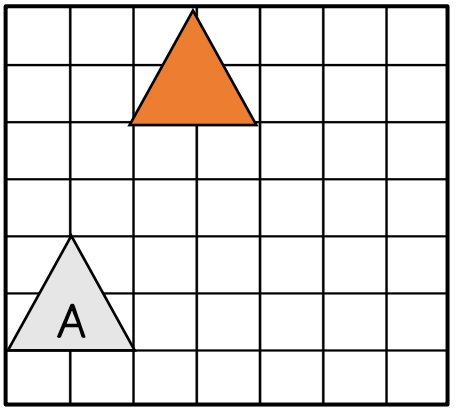
4) 4↓, 3←, 2↑



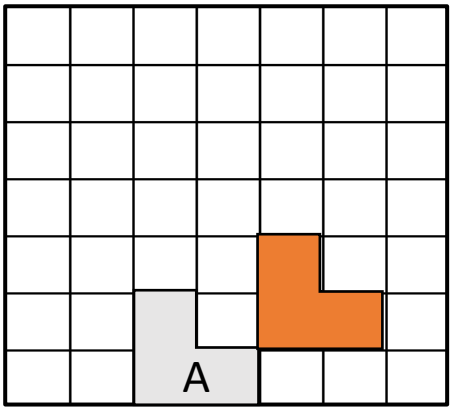
5) 3↓, 3→, 4↑



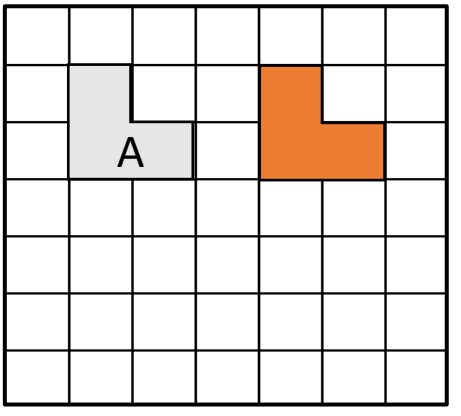
6) 4↑, 3→, 2↓



7) 4↑, 3→, 1←



8) 5↑, 2→, 4↓



9) 3↓, 3→, 3↑

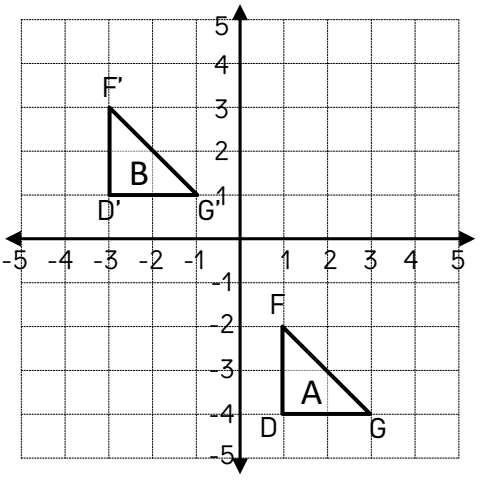
Name: Answers 85

Curriculum Connection
E1.4

Translations - Mapping Rules

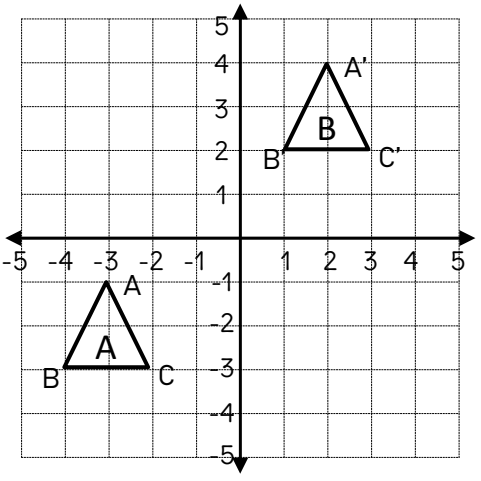
Mapping Rules for Translations
Each point on a shape slides according to the mapping rule.
The rule is (x, y) → (x + a, y + b)

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

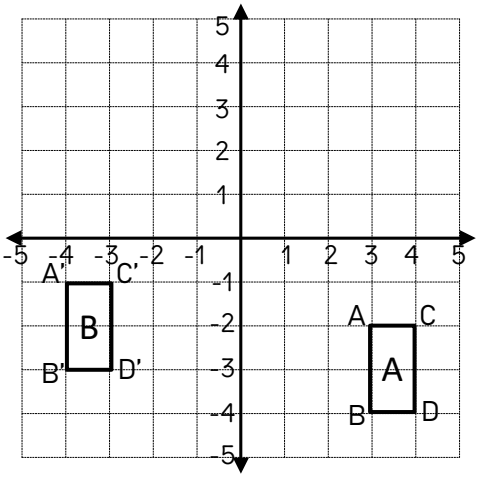


Questions

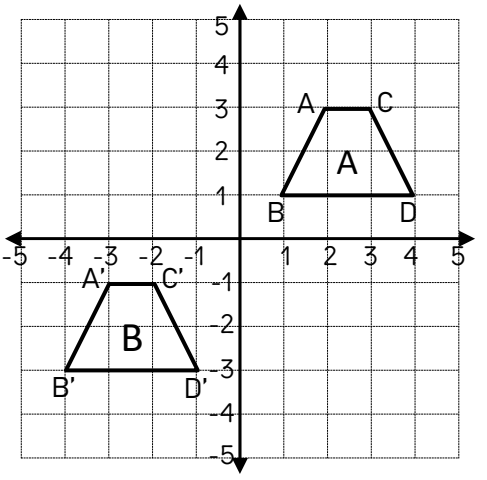
Fill in the mapping rule that translates figure A to figure B



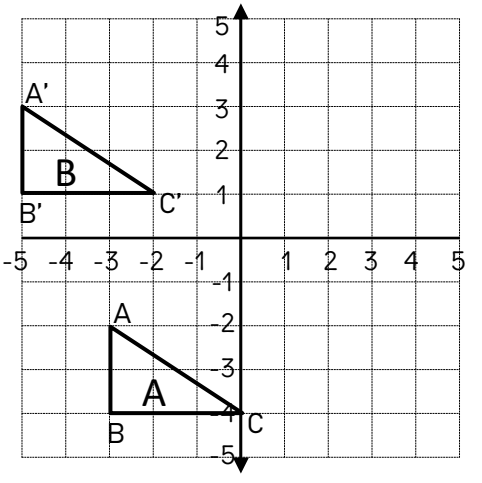
Mapping Rule (x + 5, y + 5)



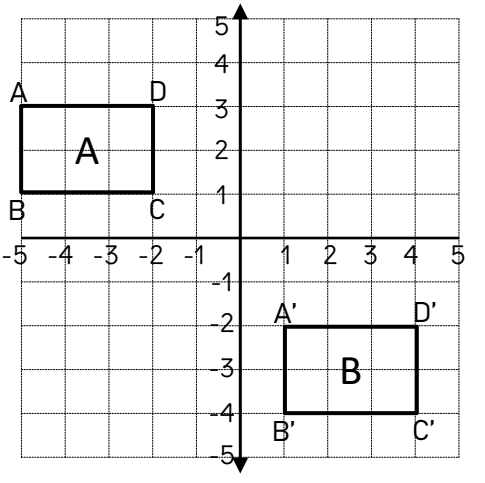
Mapping Rule (x - 7, y + 1)



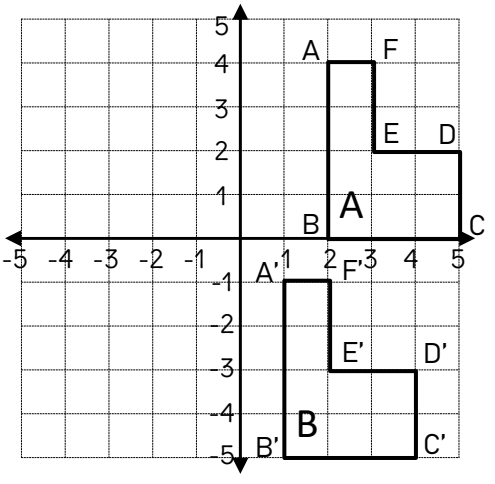
Mapping Rule (x - 5, y - 4)



Mapping Rule (x - 2, y + 5)



Mapping Rule (x + 6, y - 5)



Mapping Rule (x - 5, y - 1)

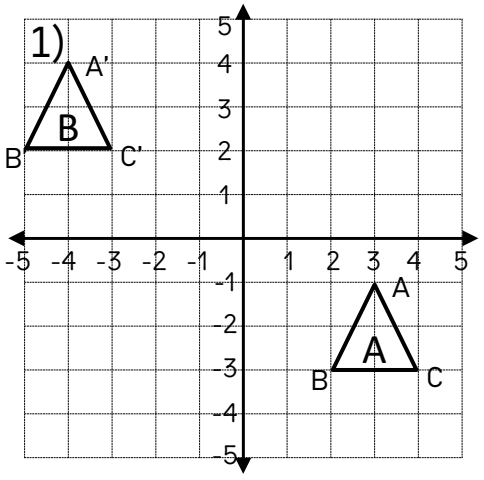
Name: Answers 86

Curriculum Connection
E1.4

Translations - Mapping Rules

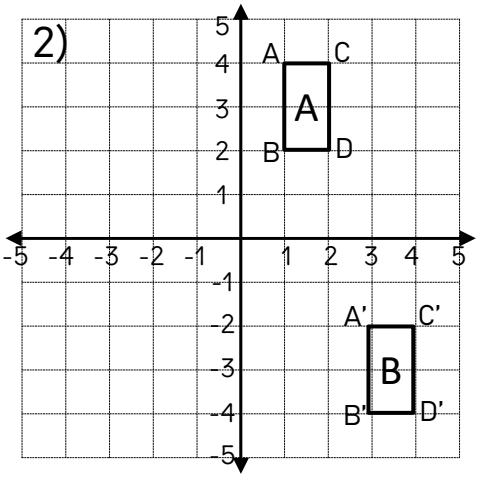
Questions Fill in the mapping rule

1)



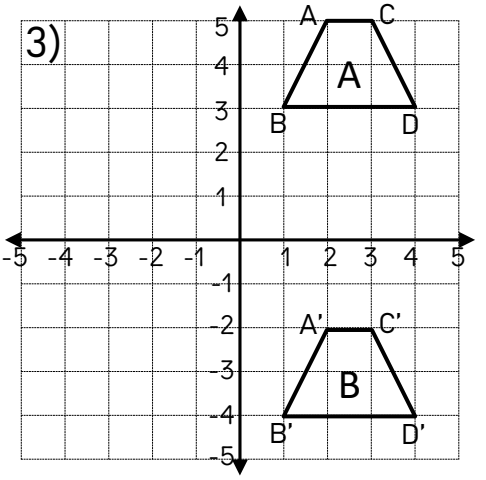
Mapping Rule	(x – 7, y + 5)

2)



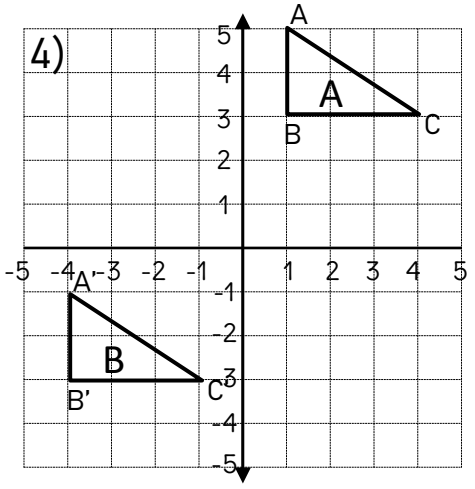
Mapping Rule	(x + 2, y – 6)

3)



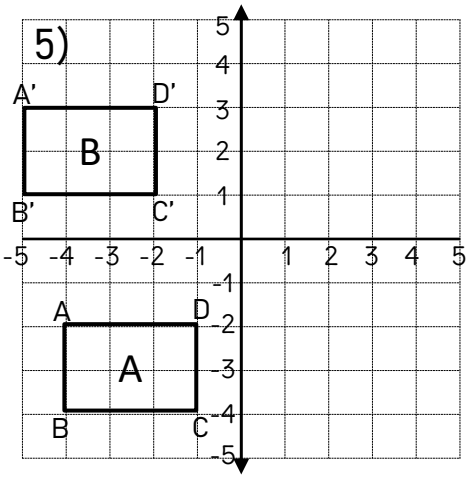
Mapping Rule	(x, y – 7)

4)



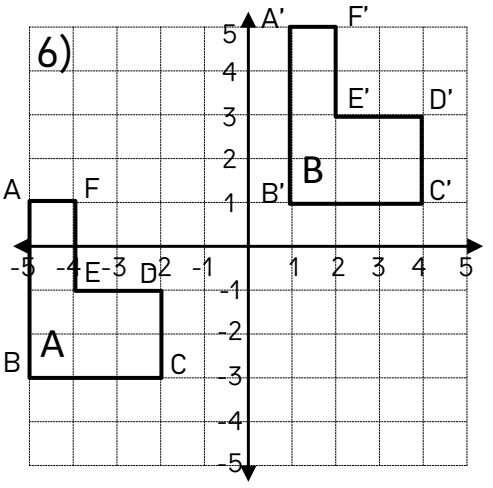
Mapping Rule	(x – 5, y – 6)

5)



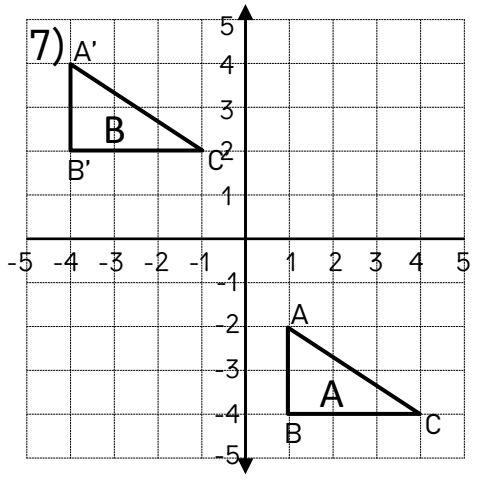
Mapping Rule	(x – 1, y + 5)

6)



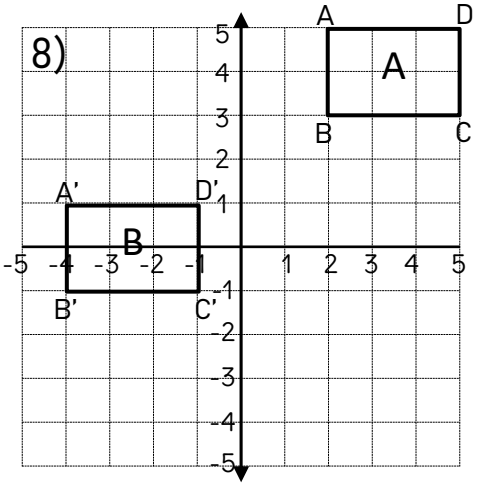
Mapping Rule	(x + 6, y + 4)

7)



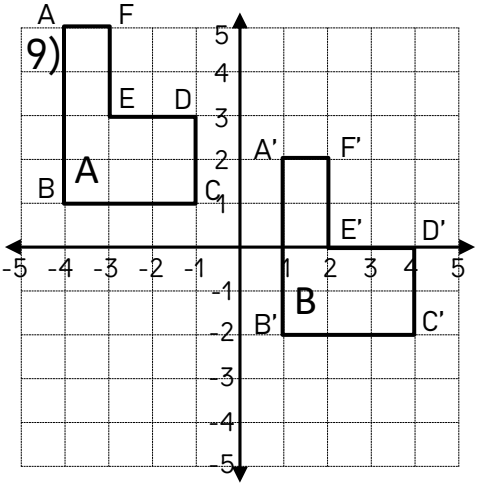
Mapping Rule	(x – 5, y + 6)

8)



Mapping Rule	(x – 6, y – 4)

9)



Mapping Rule	(x + 5, y – 3)

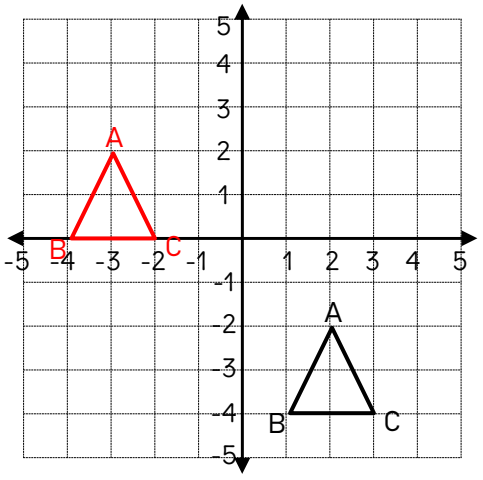
Name: Answers

87

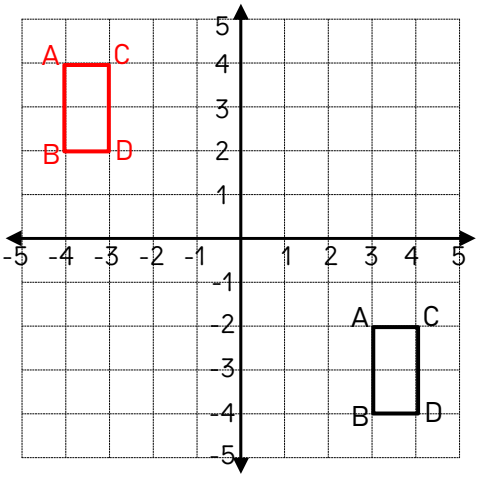
Curriculum Connection
E1.4

Translations - Mapping Rules

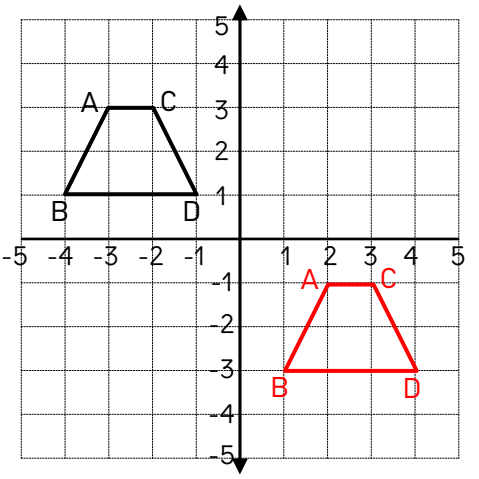
Questions Translate the shape using the mapping rule



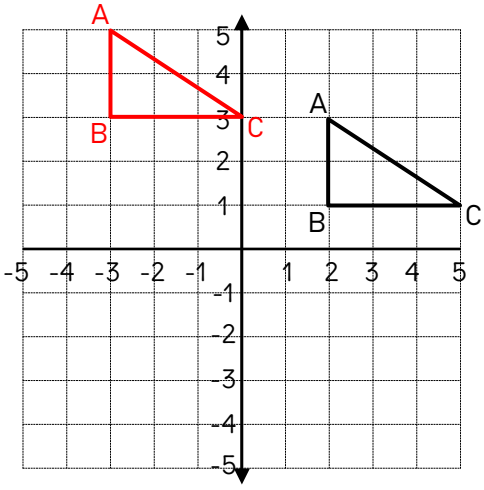
Mapping Rule	(x – 5, y + 4)



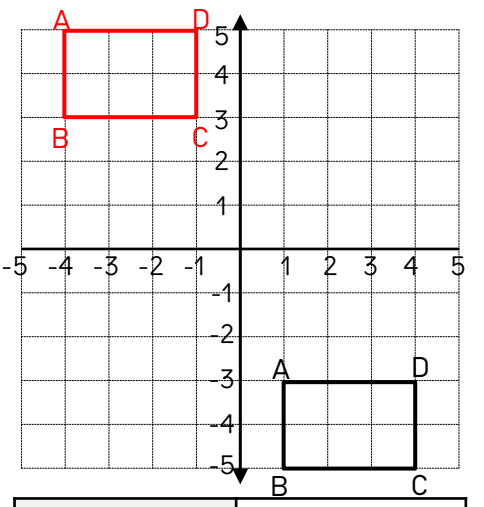
Mapping Rule	(x – 7, y + 6)



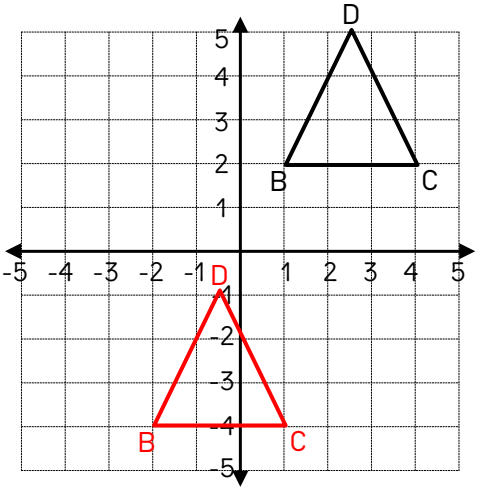
Mapping Rule	(x + 5, y – 4)



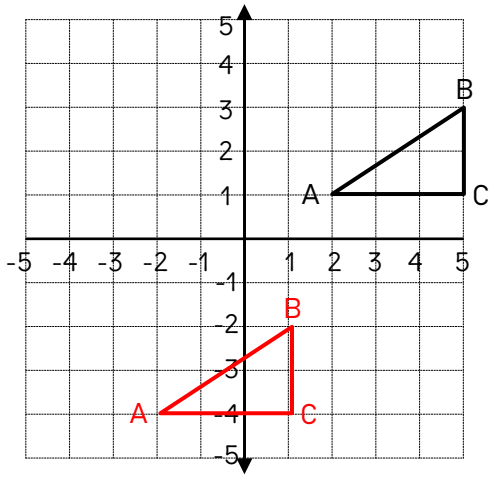
Mapping Rule	(x – 5, y + 2)



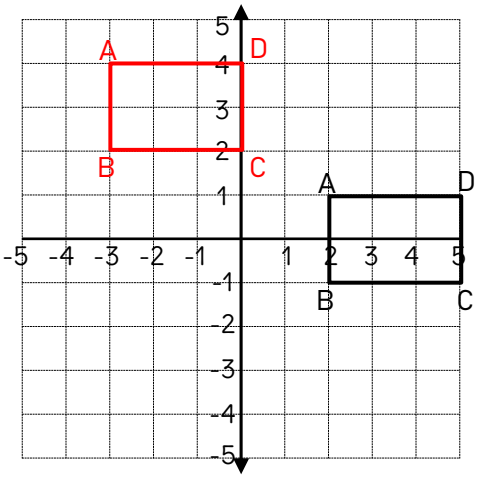
Mapping Rule	(x – 5, y + 8)



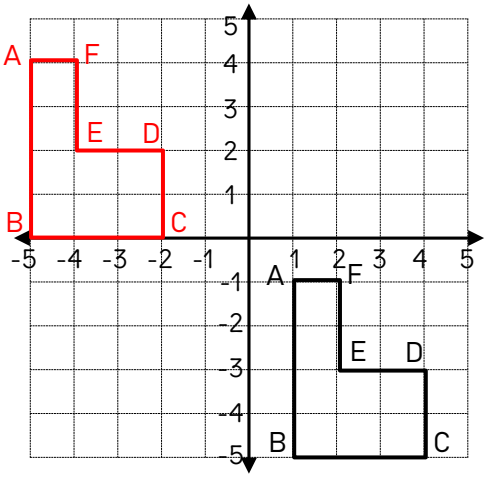
Mapping Rule	(x – 3, y – 6)



Mapping Rule	(x – 4, y – 5)



Mapping Rule	(x – 5, y + 3)



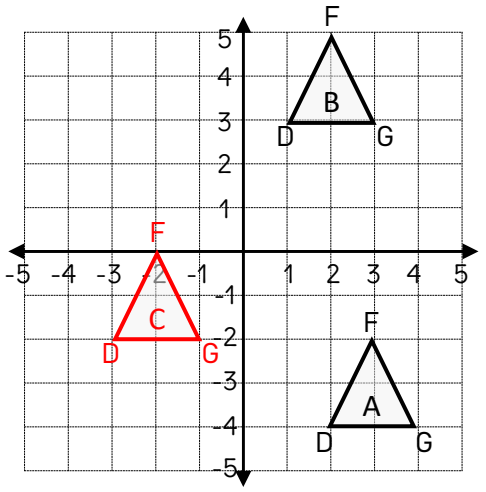
Mapping Rule	(x – 6, y + 5)

Name: Answers 88

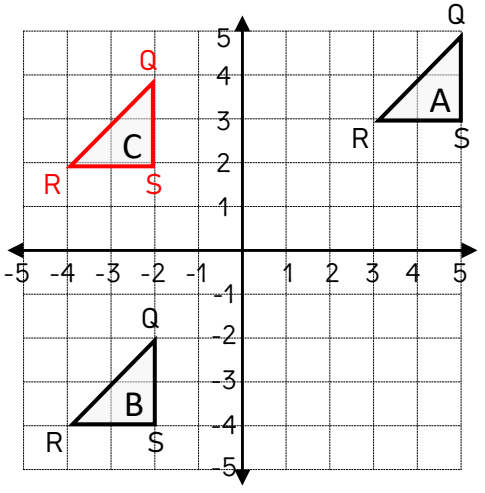
Curriculum Connection
E1.4

Transformations - Translations

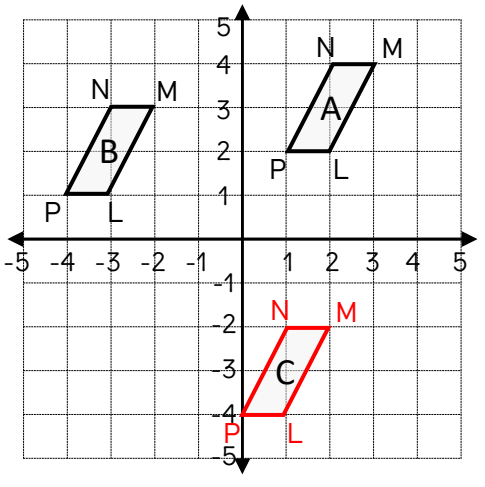
Questions 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



Coordinates A	Coordinates B
D(2,-4), F(3,-2), G(4,-4)	D(1,3), F(2,5), G(3,3)
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
(x – 1, y + 7)	
Translate Shape B to Shape C (x – 4, y – 5)	**Coordinates C**
	D(-3,-2) F(-2,0) G(-1,-2)



Coordinates A	Coordinates B
R(3,3), S(5,3), Q(5,5)	R(-4,-4), S(-2,-4), Q(-2,-2)
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
(x – 7, y – 7)	
Translate Shape B to Shape C (x, y + 6)	**Coordinates C**
	R(-4,2), S(-2,2), Q(-2,4)



Coordinates A	Coordinates B
P(1,2), L(2,2), N(2,4), M(3,4)	P(-4,1), L(-3,1), N(-3,3), M(-2,3)
Mapping Rule (x, y) → (x, y) → (x + a, y + b)	
(x – 5, y – 1)	
Translate Shape B to Shape C (x + 4, y – 5)	**Coordinates C**
	P(0,-4), L(1,-4), N(1,-2), M(2,-2)

Name: Answers 89

Curriculum Connection
E1.4

Translations - New Coordinates

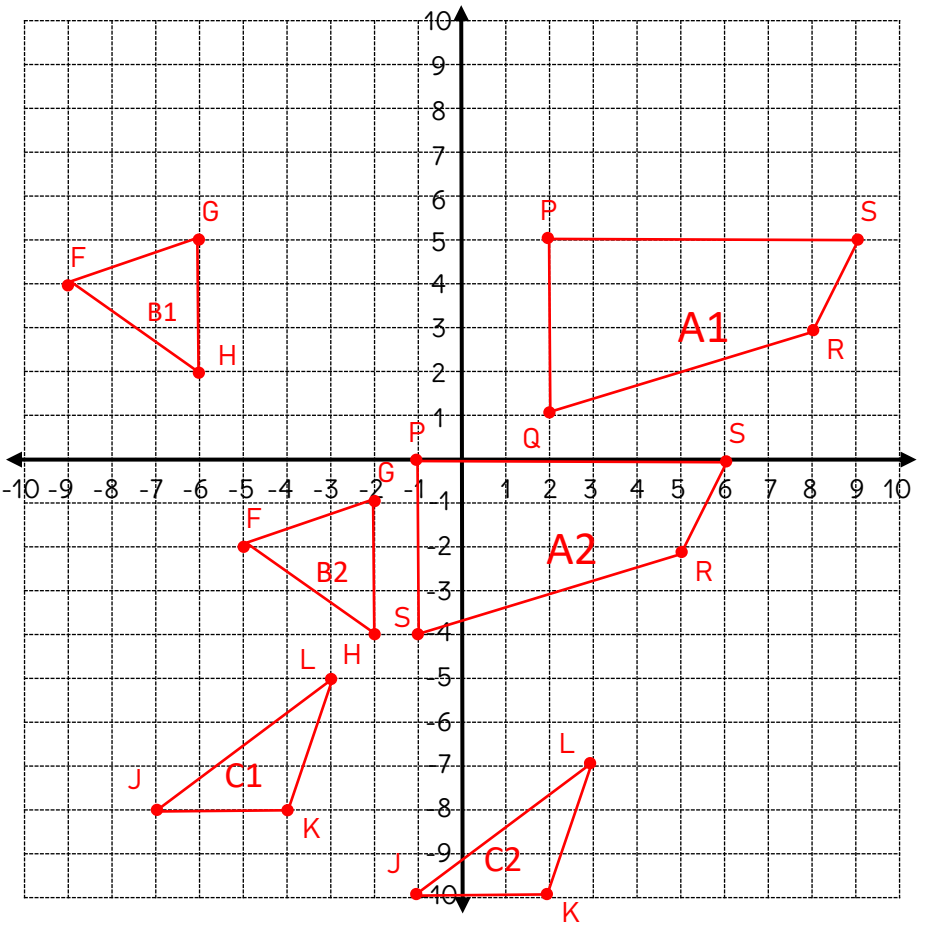
Part 1

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

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

Shape B
F(-9,4), G(-6,5), H(-6,2)
Translate the shape B
(x + 4, y – 6)

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



Part 2

Give the coordinates of each point after the translation

	Original Coordinate	Translation – Mapping Rule	New Coordinates
1)	P(3, -4)	(x - 6, y + 4)	P(-3, 0)
2)	S(-5, 8)	(x + 3, y - 5)	S(-2, 3)
3)	Q(-9, -5)	(x + 2, y - 7)	Q(-7, -12)
4)	L(10, 5) P(-3, -8)	(x - 5, y + 8)	L(5, 13) P(-8, 0)
5)	T(-8, 7) Y(-9, -5)	(x + 8, y + 5)	T(0, 12) Y(-1, 0)
6)	S(-14, -16) R(15, 12)	(x - 11, y - 6)	S(-25, -22) R(4, 6)
7)	N(-21, 11) K(20, -14)	(x - 9, y + 13)	N(-30, 24) K(11, -1)
8)	P(28, -21) E(-25, 20)	(x + 17, y + 22)	P(45, -4) E(-8, 42)

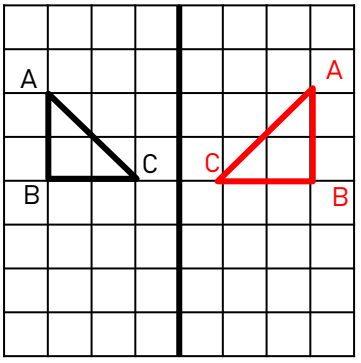
Name: Answers 90

Curriculum Connection
E1.4

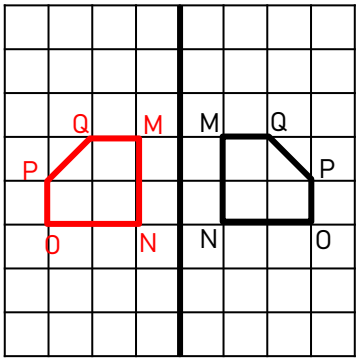
Drawing Reflections

Questions Reflect the shapes across the mirror line

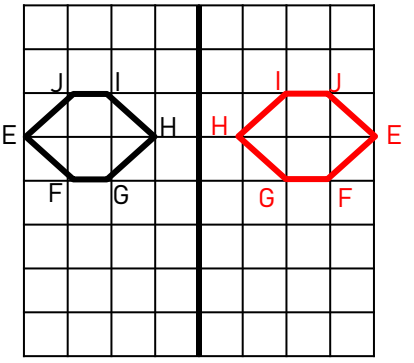
1)



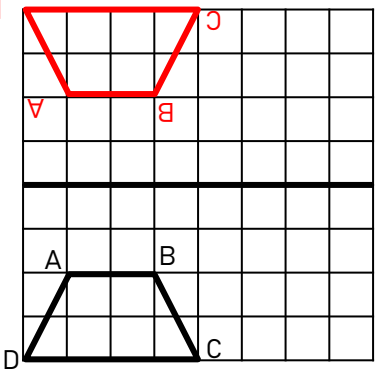
2)



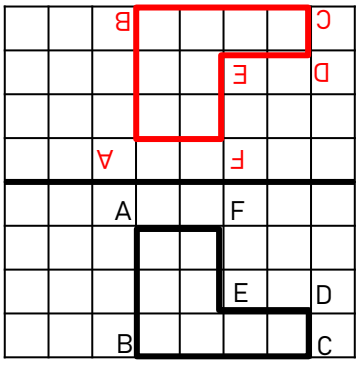
3)



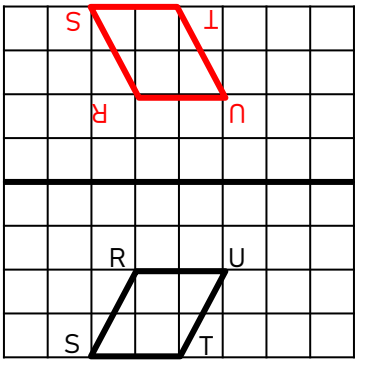
4)



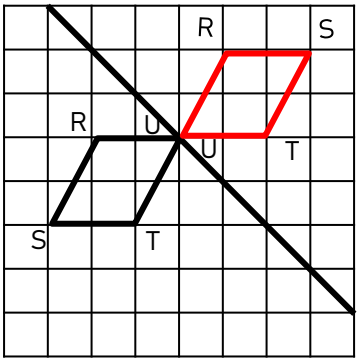
5)



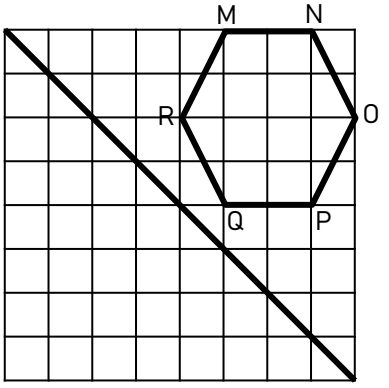
6)



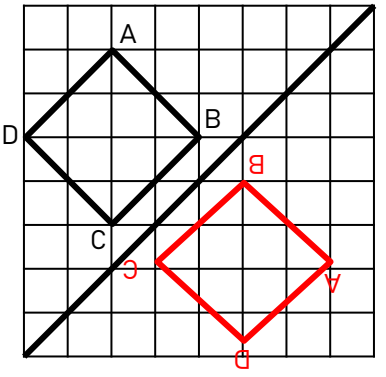
7)



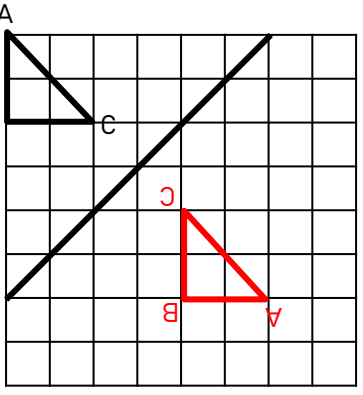
8)



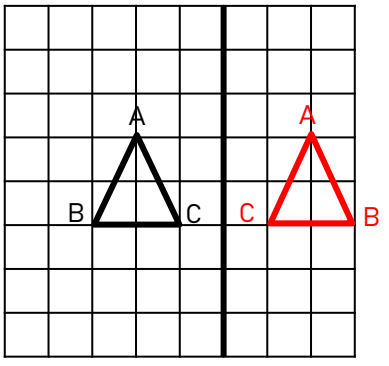
9)



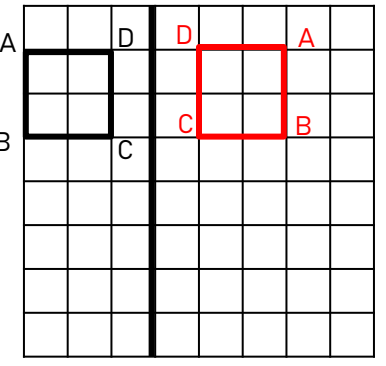
10)



11)



12)



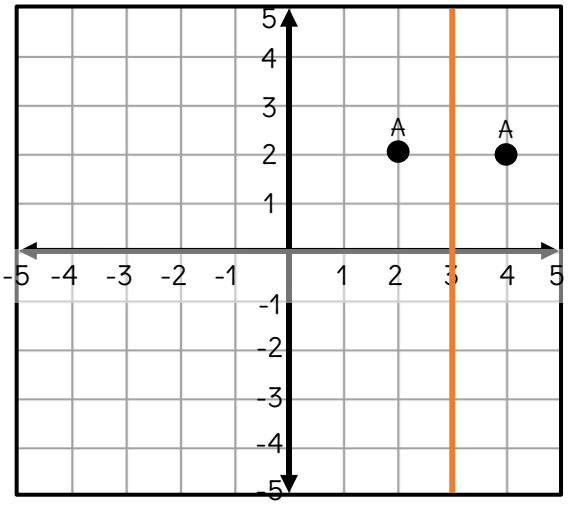
Name: Answers 91

Curriculum Connection
E1.4

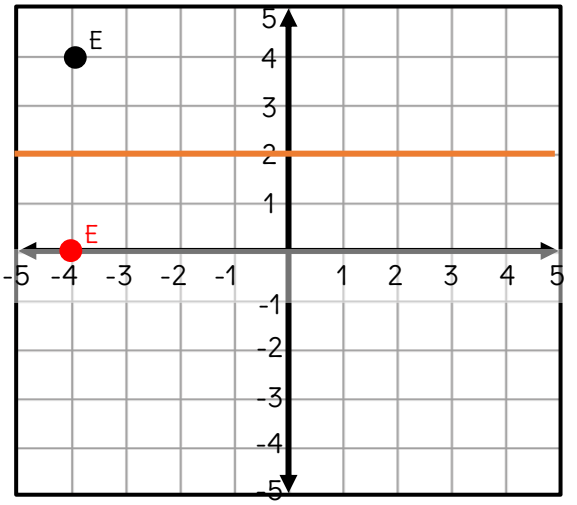
Reflecting a Point Using a Mirror Line

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

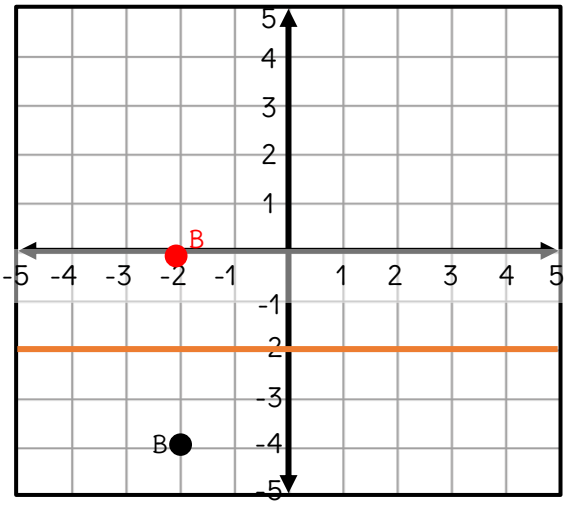
1) Reflection across the line x = 3



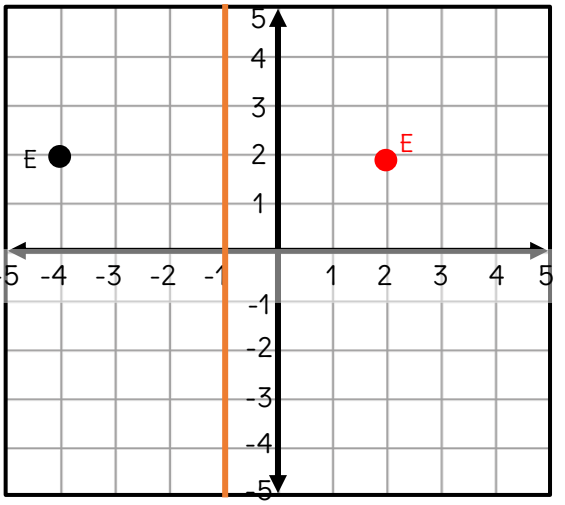
2) Reflection across the line y = 2



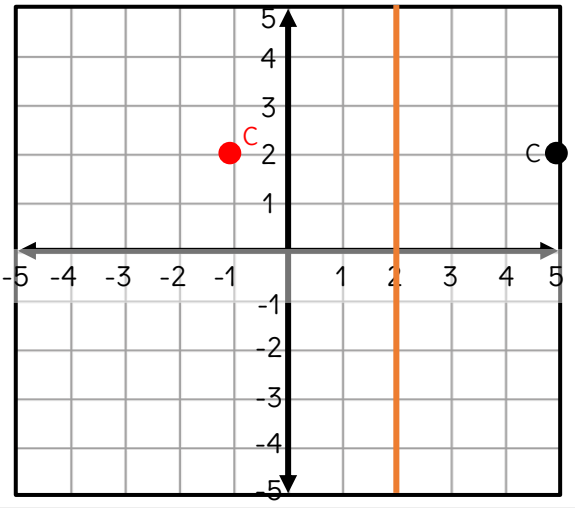
3) Reflection across the line y = -2



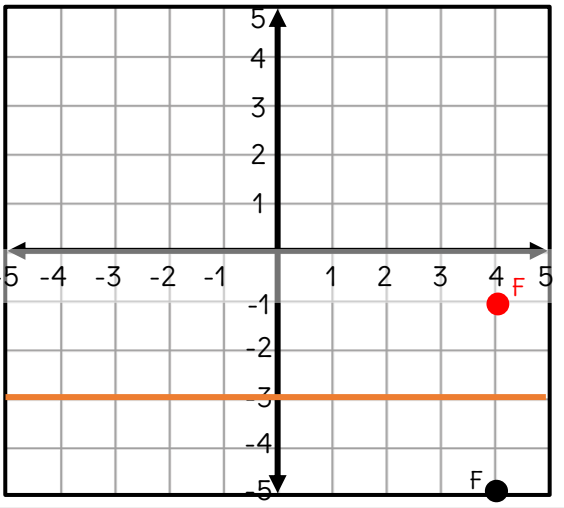
4) Reflection across the line x = -1



5) Reflection across the line x = 2



6) Reflection across the line y = -3



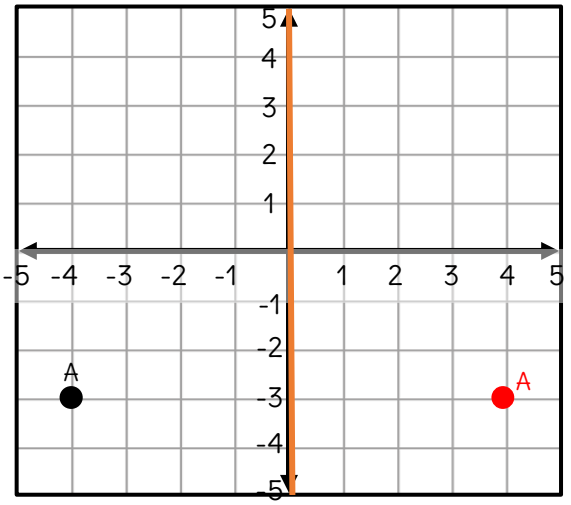
Name: Answers 92

Curriculum Connection
E1.4

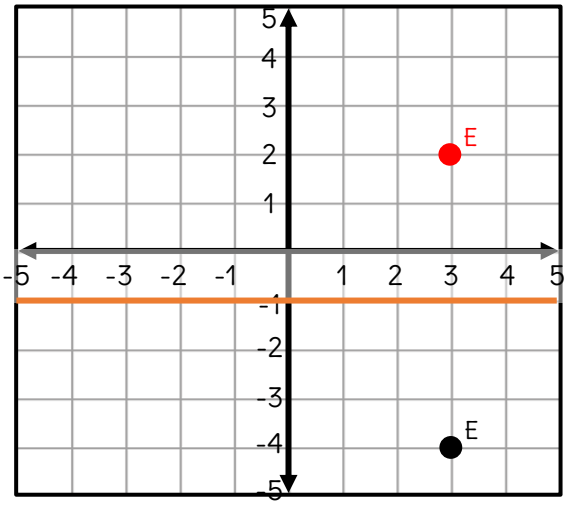
Reflecting a Point Using a Mirror Line

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

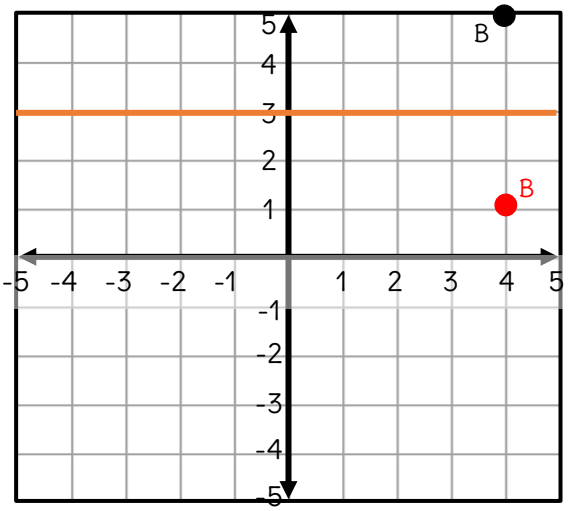
1) Reflection across the y-axis



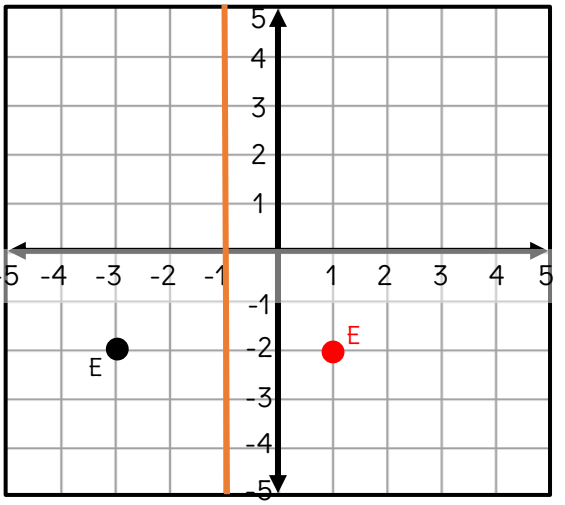
2) Reflection across the line y = -1



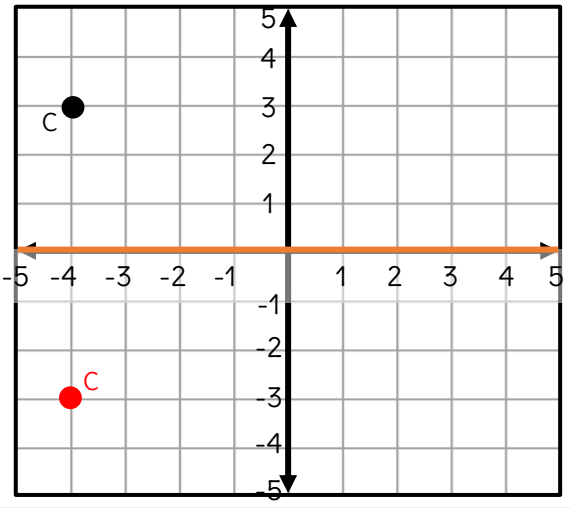
3) Reflection across the line y = 3



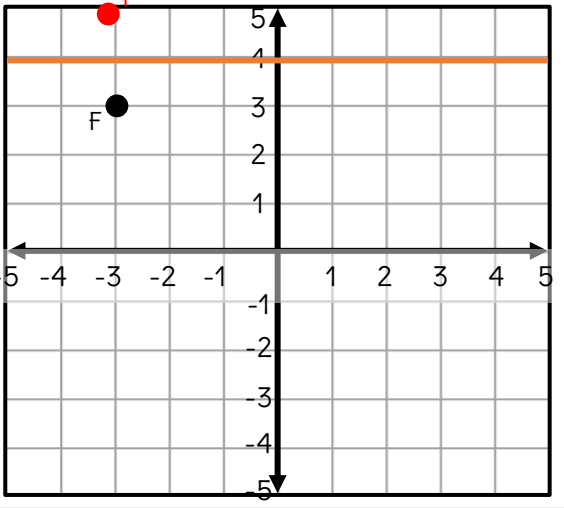
4) Reflection across the line x = -1



5) Reflection across the x-axis



6) Reflection across the line y = 4



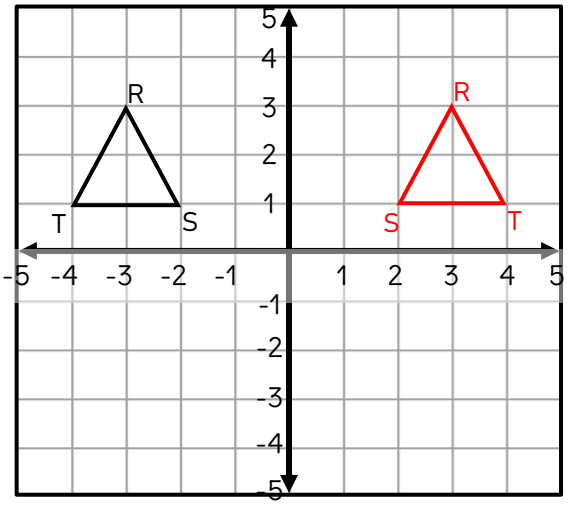
Name: Answers 93

Curriculum Connection
E1.4

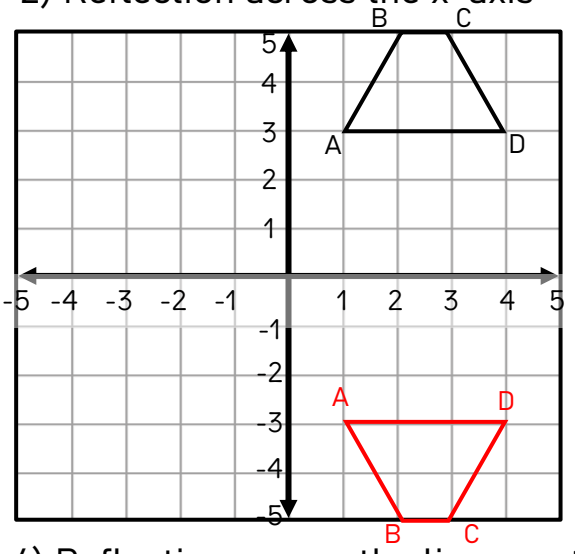
Reflecting Shapes using a Mirror Line

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

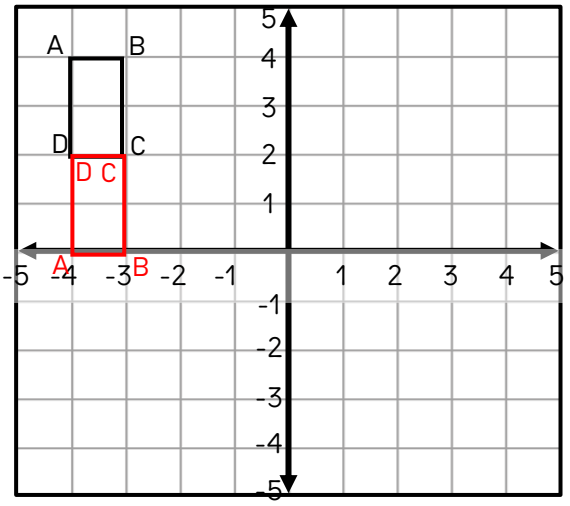
1) Reflection across the y-axis



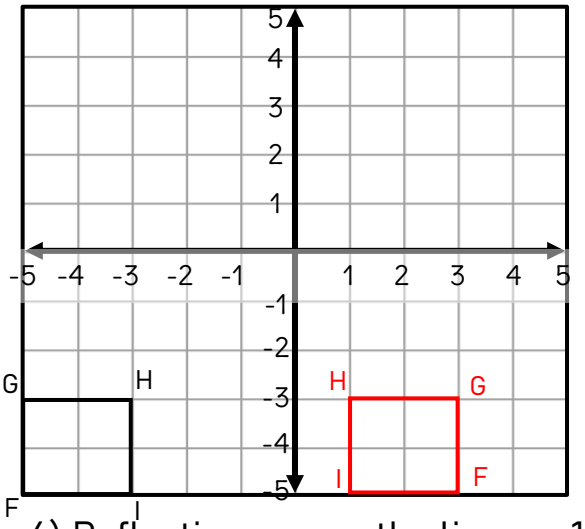
2) Reflection across the x-axis



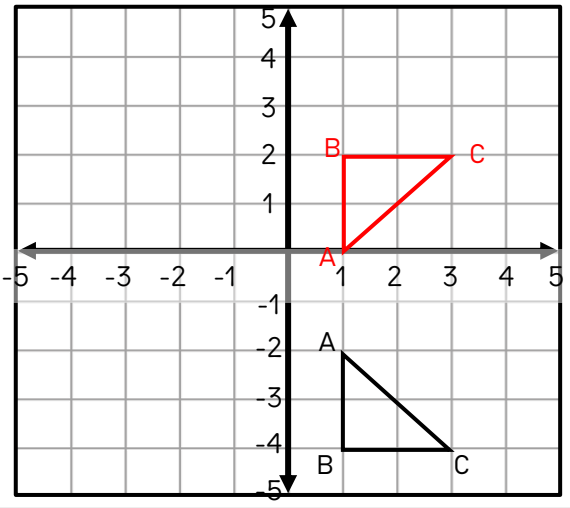
3) Reflection across the line y = 2



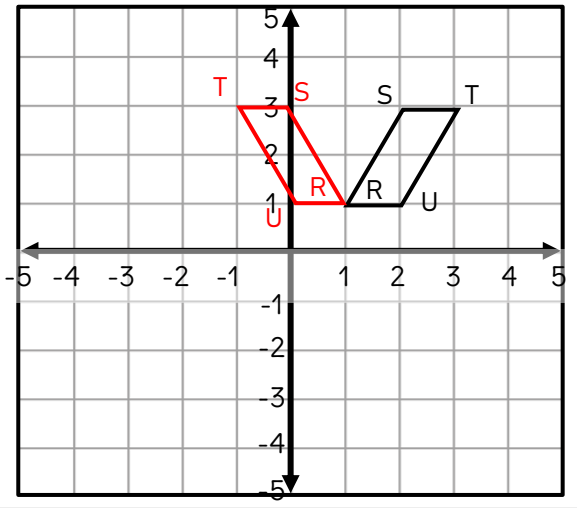
4) Reflection across the line x = -1



5) Reflection across the line y = -1



6) Reflection across the line x = 1



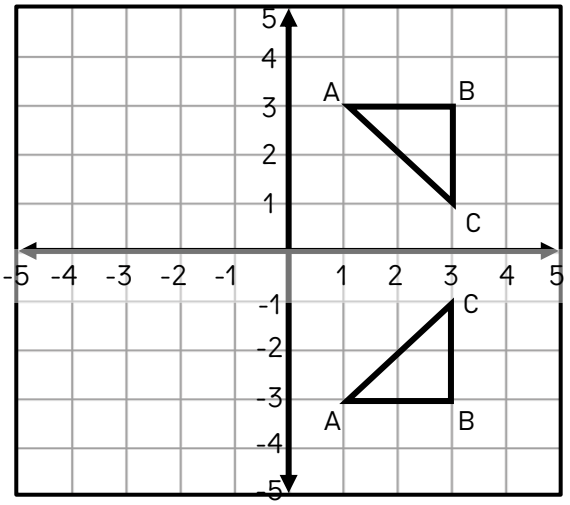
Name: Answers 94

Curriculum Connection
E1.4

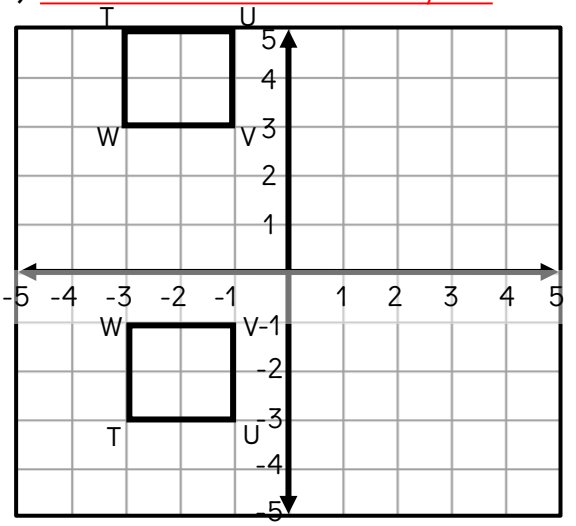
Reflections - Determine the Rule

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

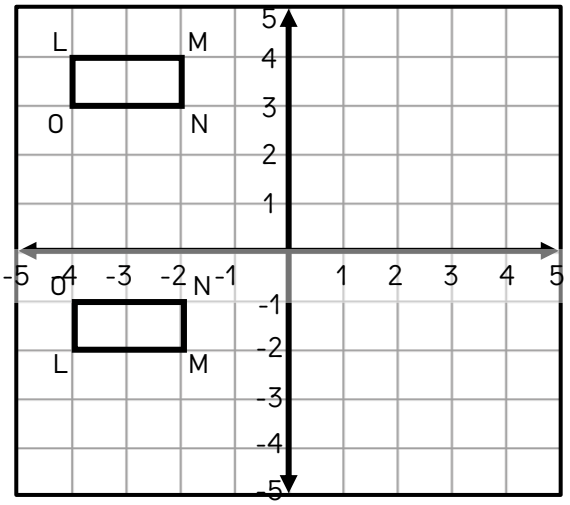
1) Reflection across the x-axis



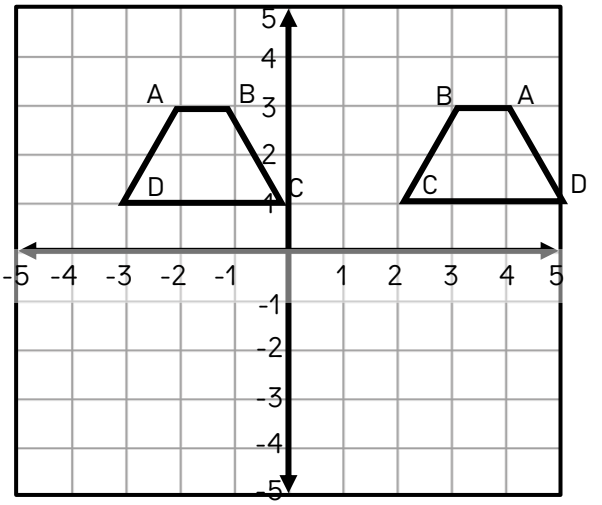
2) Reflection across the line y = 1



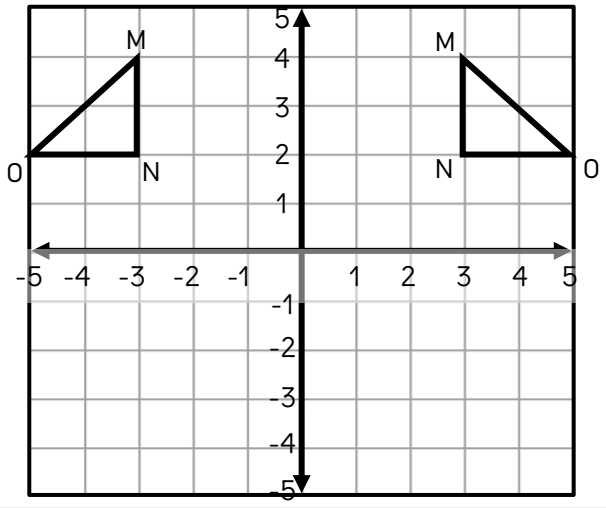
3) Reflection across the line y = 1



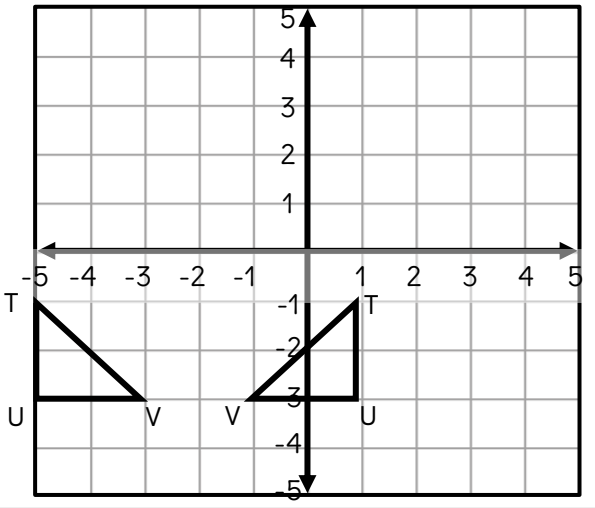
4) Reflection across the line x = 1



5) Reflection across the y-axis



6) Reflection across the line x = -2



Name: Answers 95

Curriculum Connection
E1.4

Reflections - Mapping Rules

Mapping Rules for Reflections

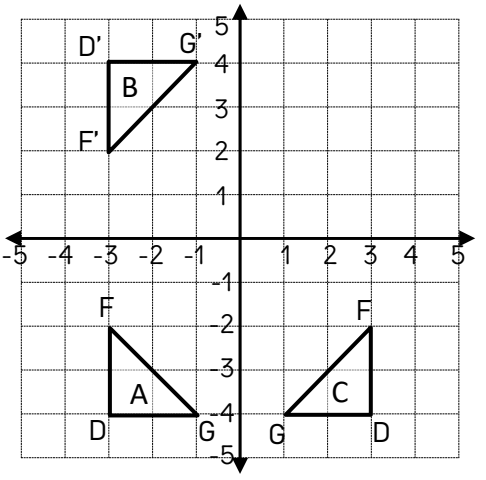
Each point on a shape moves according to the mapping rule.

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

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

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

If Shape A was reflected across the Y axis to Shape C, point F becomes (3, -2).



Questions

Use the mapping rules to write the new coordinates

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

Name: Answers 96

Curriculum Connection
E1.4

Reflections - Coordinates

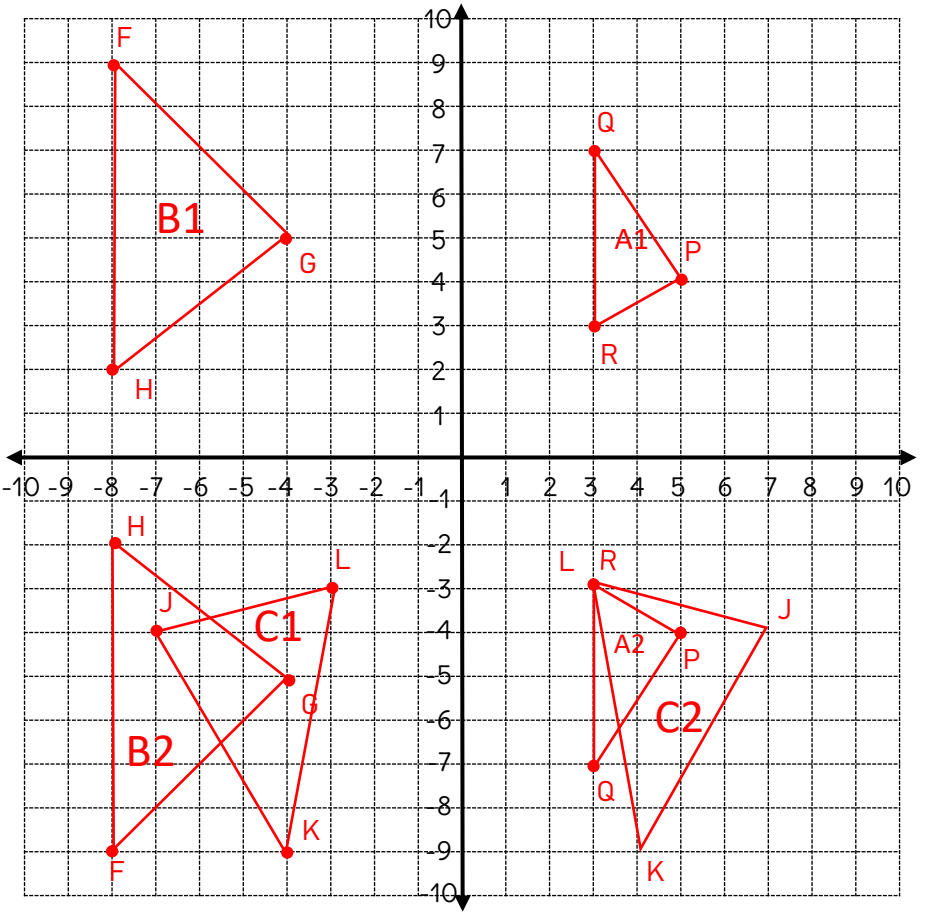
Part 1

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

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

Shape B
F(-8,9), G(-4,5), H(-8,2)
Reflect over the x-axis
New Coordinates
F(-8,-9), G(-4,-5), H(-8,-2)

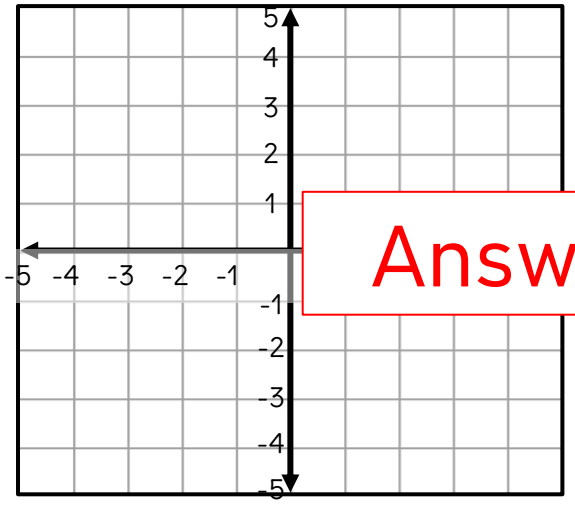
Shape C
J(-7,-4), K(-4,-9), L(-3,-3)
Reflect over the y-axis
New Coordinates
J(7,-4), K(4,-9), L(3,-3)



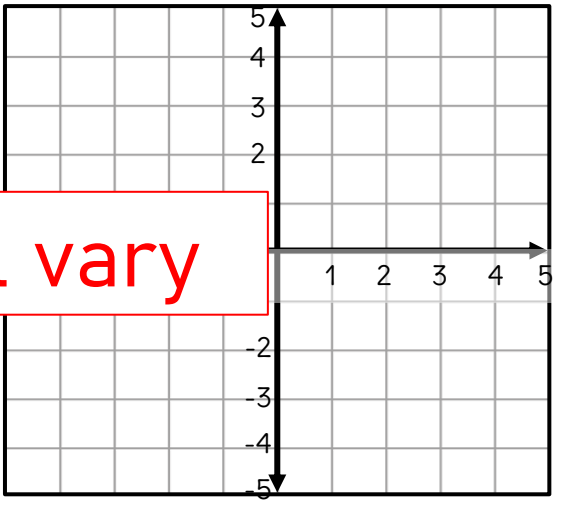
Part 2

Draw your own shape and then perform the reflection provided

1) Reflection across the y-axis



2) Reflection across the line x = -1



Answers will vary

Name: Answers 97

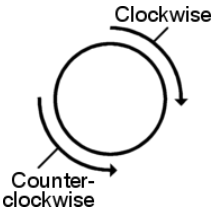
Curriculum Connection
E1.4

Clockwise and Counterclockwise Rotations

360° rotation 

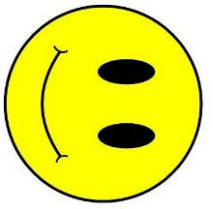
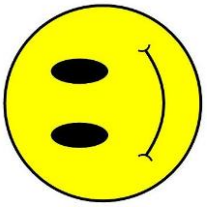
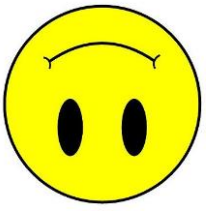
180° rotation 

90° rotation 



Questions

Draw the smiley face after it has been rotated

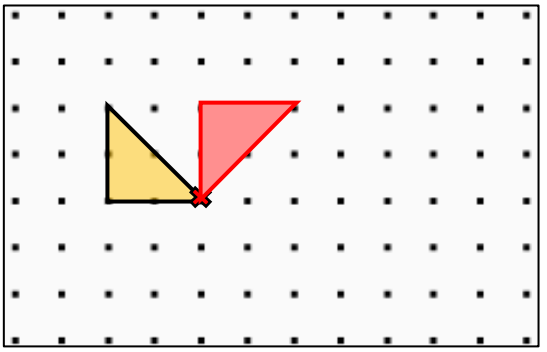
1) 	Clockwise 90° rotation	
2) 	Counterclockwise 90° rotation	
3) 	Clockwise 180° rotation	
4) 	Counterclockwise 180° rotation	
5) 	Clockwise 360° rotation	
6) 	Counterclockwise 360° rotation	

Name: Answers 98

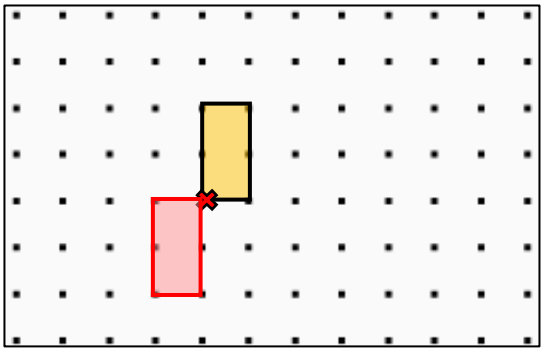
Curriculum Connection
E1.4

Drawing Rotations

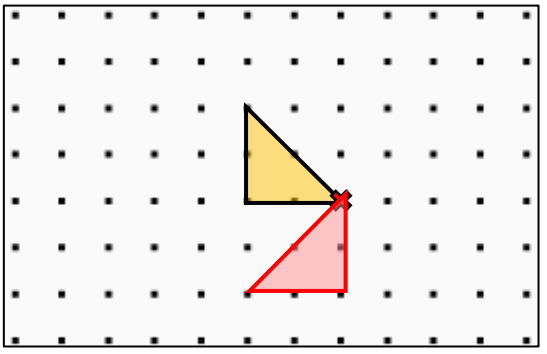
Questions Rotate the shapes around the point marked ✖



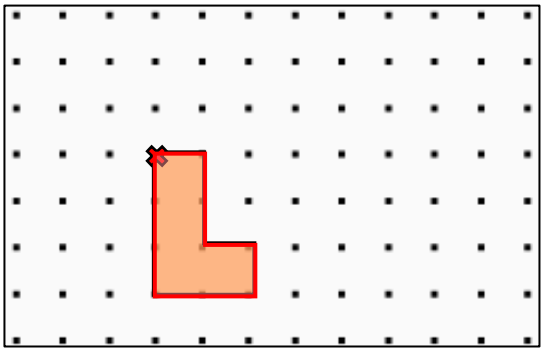
1) 90° clockwise rotation



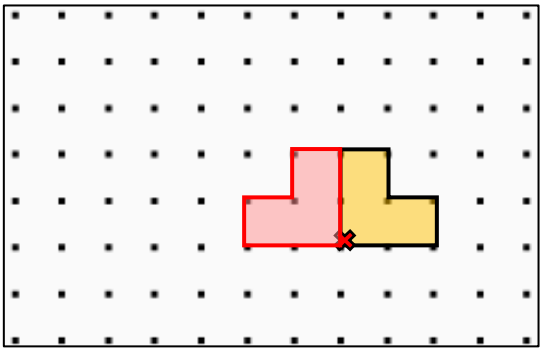
2) 180° clockwise rotation



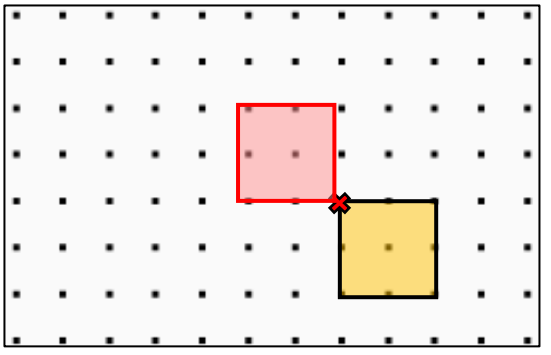
3) 90° counter-clockwise rotation



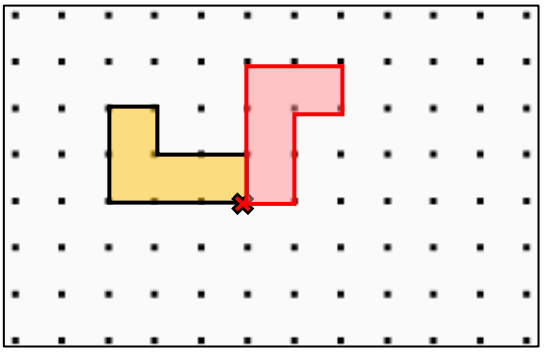
4) 360° clockwise rotation



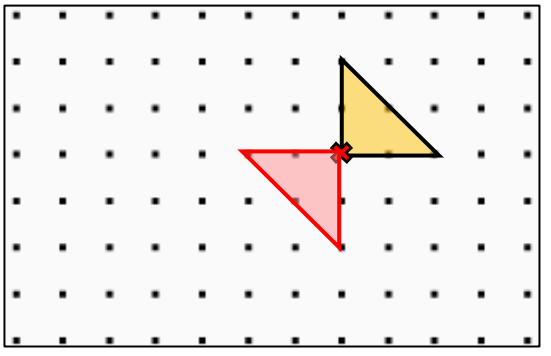
5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



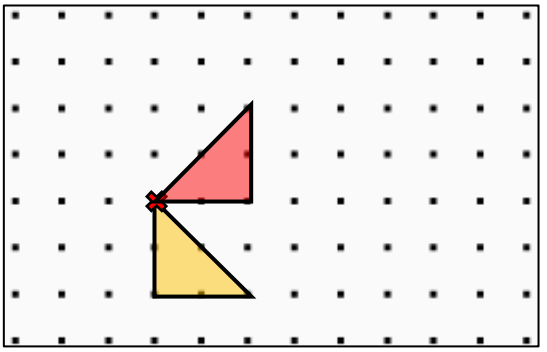
8) 180° counter-clockwise rotation

Name: Answers 99

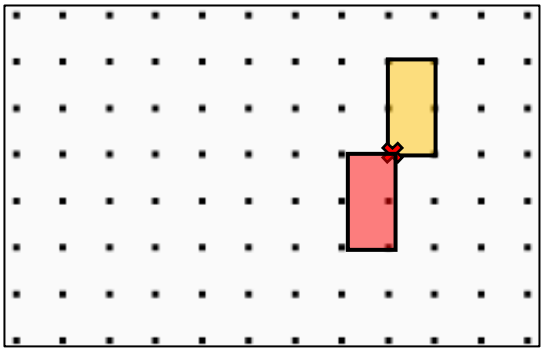
Curriculum Connection
E1.4

Drawing Rotations

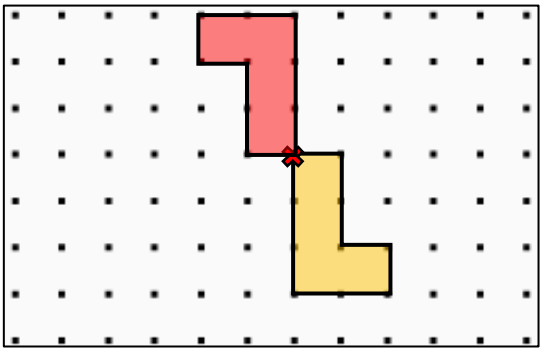
Questions Rotate the shapes around the point marked ✖



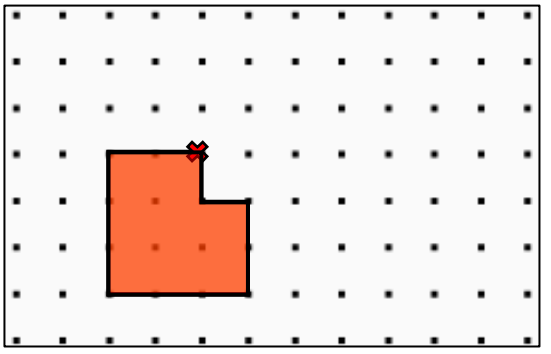
1) 90° counter-clockwise rotation



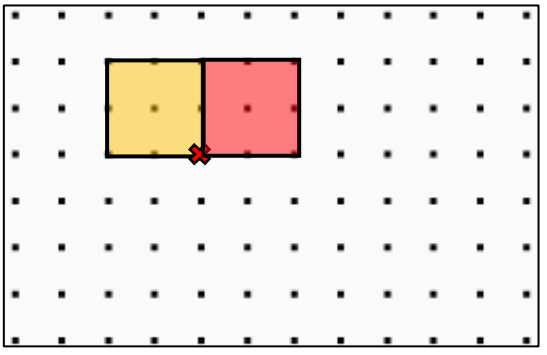
2) 180° counter-clockwise rotation



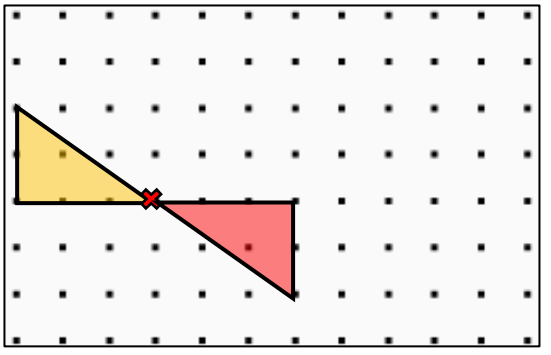
3) 180° clockwise rotation



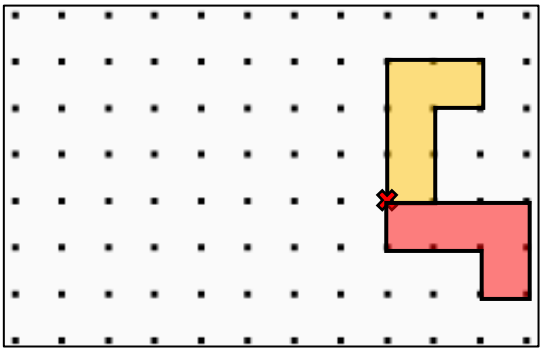
4) 360° clockwise rotation



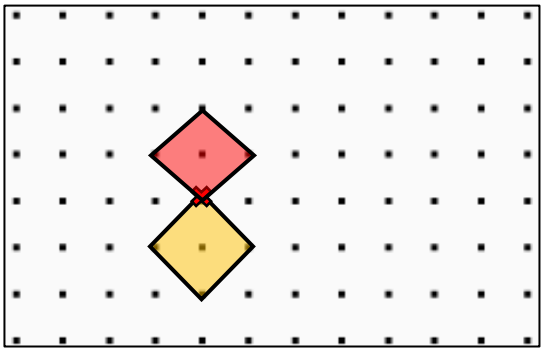
5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



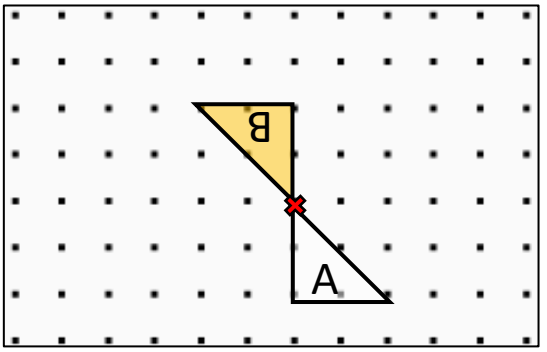
8) 180° counter-clockwise rotation

Name: Answers 100

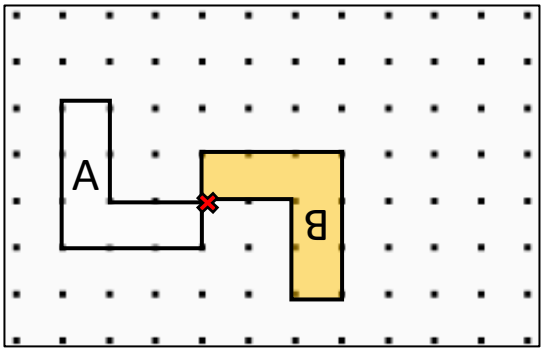
Curriculum Connection
E1.4

Describing Rotations

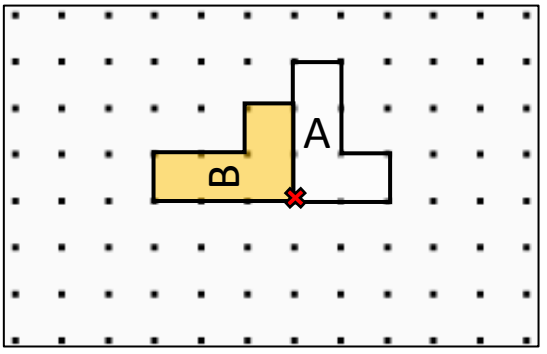
Questions Describe the rotations. Shape A is the original shape



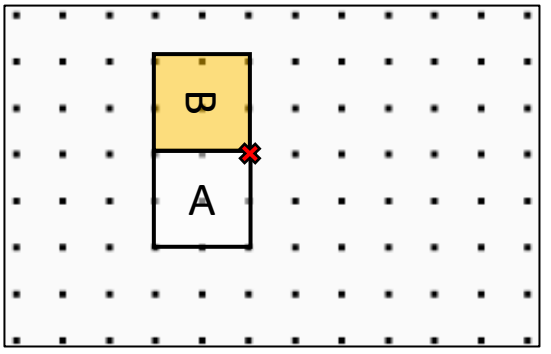
1) 180° rotation



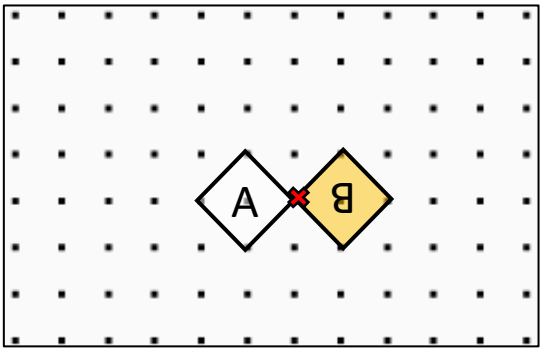
2) 180° rotation



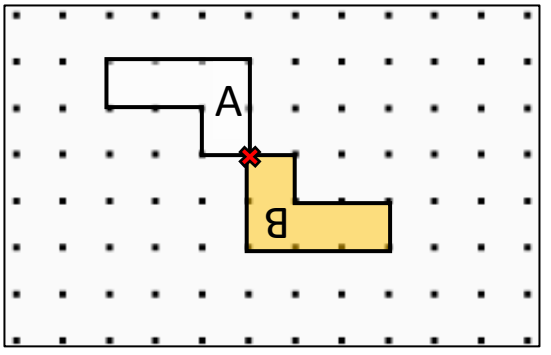
3) 90° counter-clockwise rotation



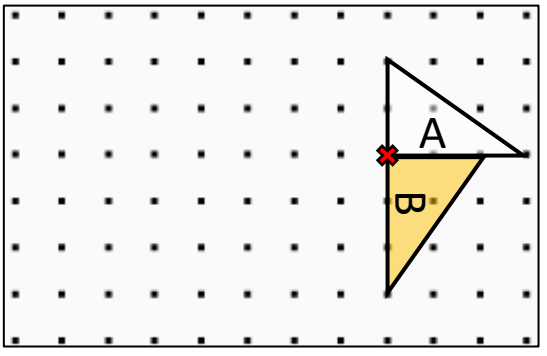
4) 90° clockwise rotation



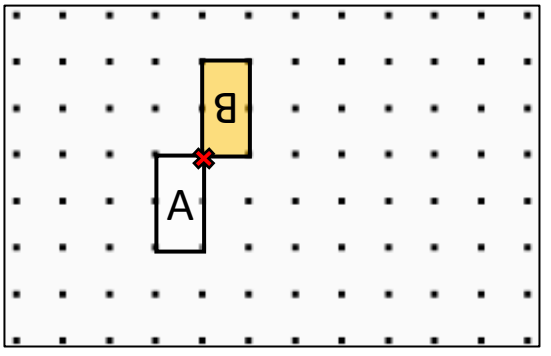
5) 180° rotation



6) 180° rotation



7) 90° clockwise rotation



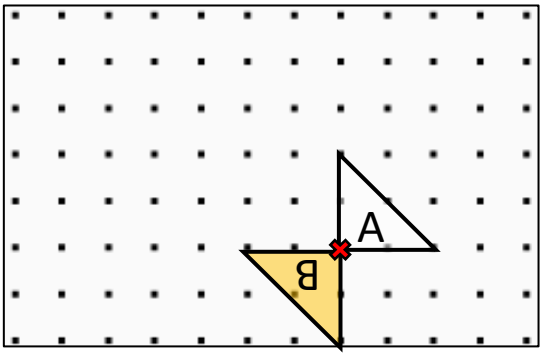
8) 180° rotation

Name: Answers 101

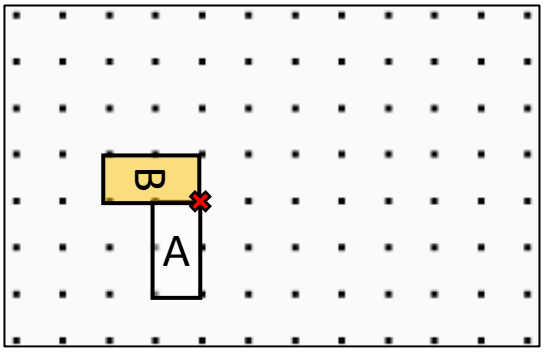
Curriculum Connection
E1.4

Describing Rotations

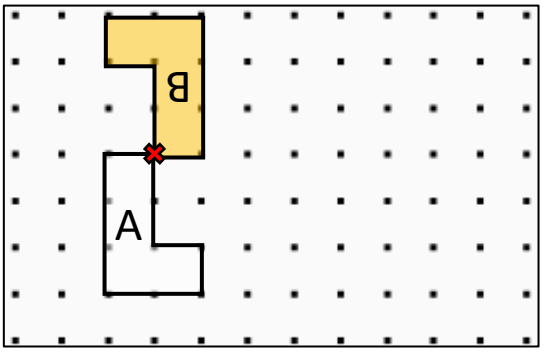
Questions Describe the rotations. Shape A is the original shape



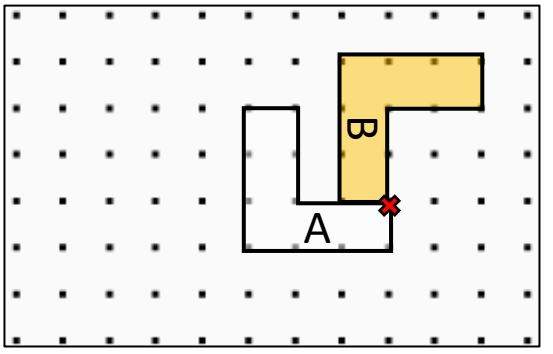
1) 180° rotation



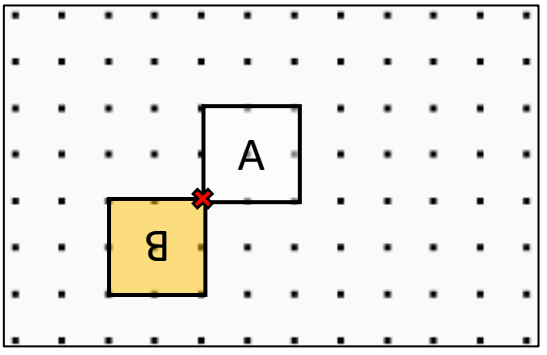
2) 90° clockwise rotation



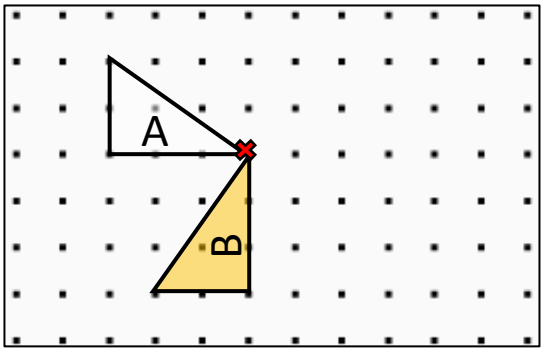
3) 180° rotation



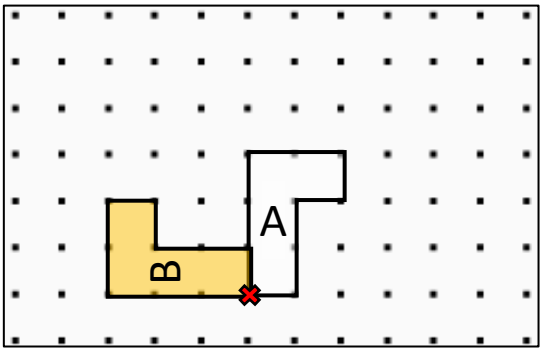
4) 90° counterclockwise rotation



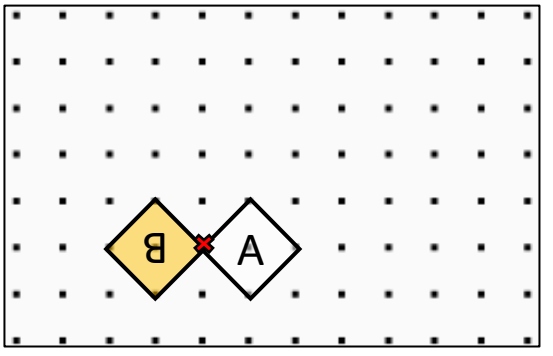
5) 180° rotation



6) 90° counterclockwise rotation



7) 90° counterclockwise rotation



8) 180° rotation

Name: Answers 102

Curriculum Connection
E1.4

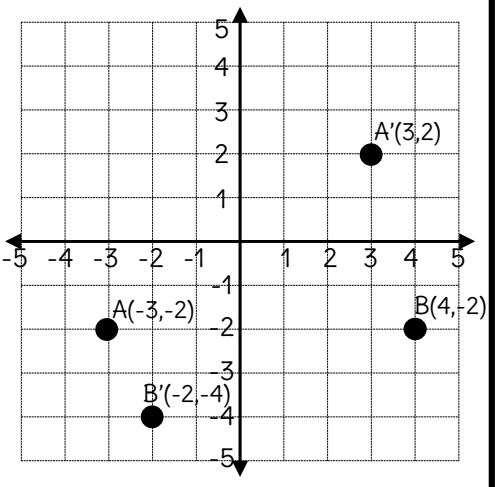
Rotating a Point

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) → (−y, x).
- a shape rotated 180° counterclockwise has a mapping rule of: (x, y) → (−x, −y).
- a shape rotated 270° counterclockwise has a mapping rule of: (x, y) → (y, −x).

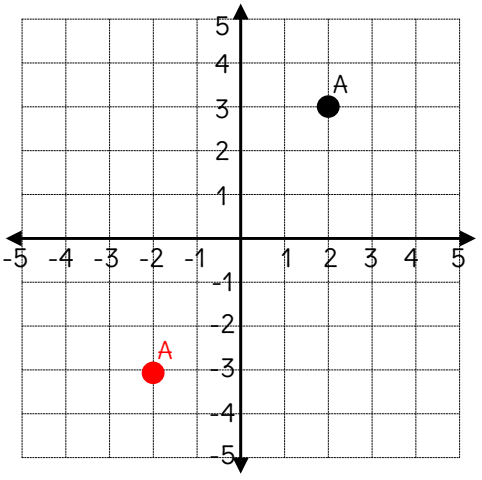
In the example, Point A was rotated 180° counter-clockwise
In the example, Point B was rotated 90° clockwise



Questions

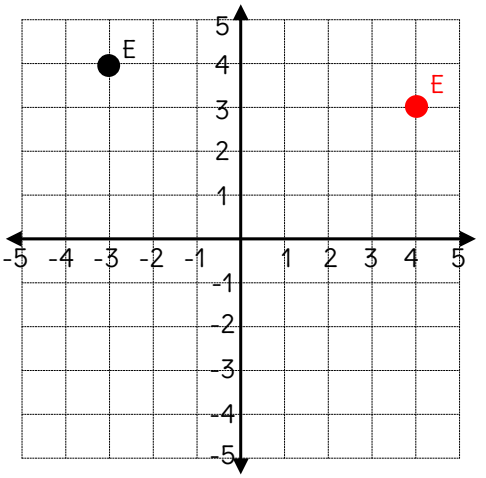
Graph the new position after rotating around the origin

1) 180° rotation



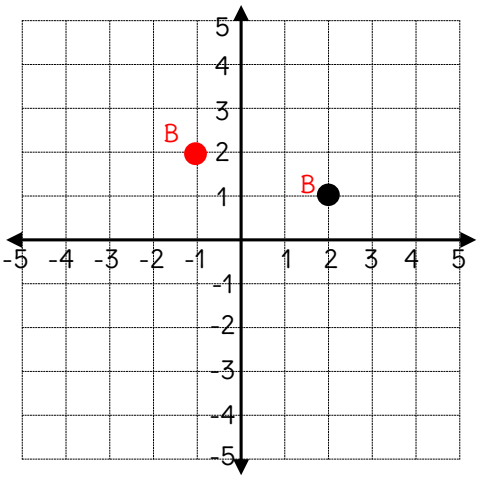
Original Coordinates
A(2, 3)
Rotated Coordinates
A(-2, -3)

2) 90° clockwise rotation



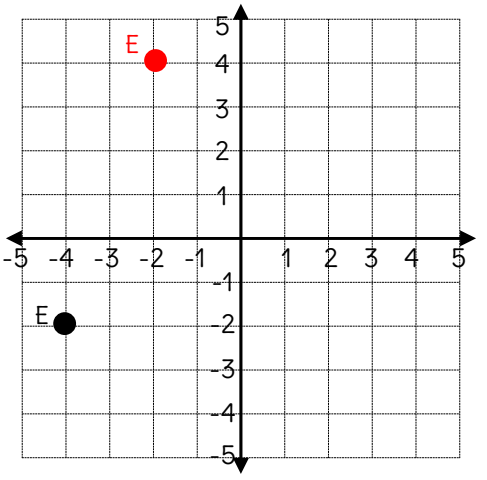
Original Coordinates
E(4, 3)
Rotated Coordinates
E(-3, 4)

3) 90° counterclockwise rotation



Original Coordinates
B(2, 1)
Rotated Coordinates
B(-1, 2)

4) 90° clockwise rotation



Original Coordinates
E(-4, -2)
Rotated Coordinates
E(-2, 4)

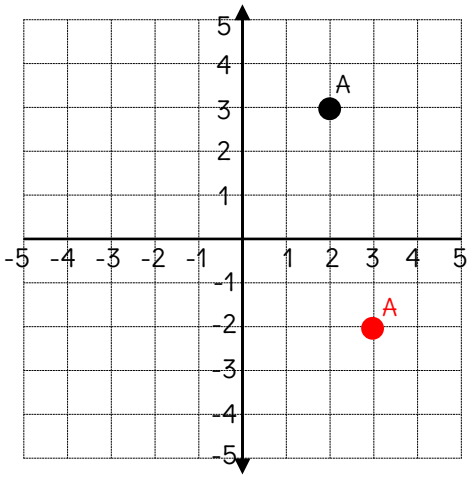
Name: Answers 103

Curriculum Connection
E1.4

Rotating a Point

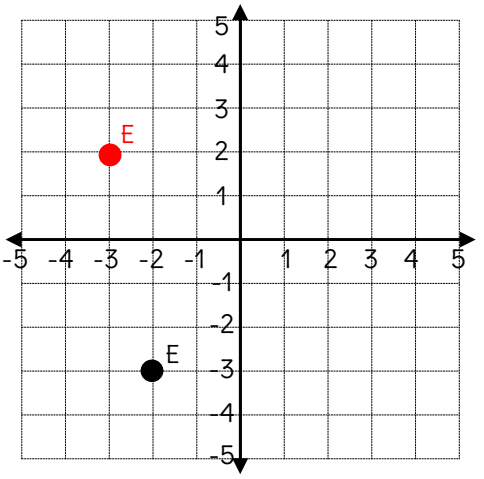
Questions Graph the new position after rotating around the origin

1) 90° clockwise rotation



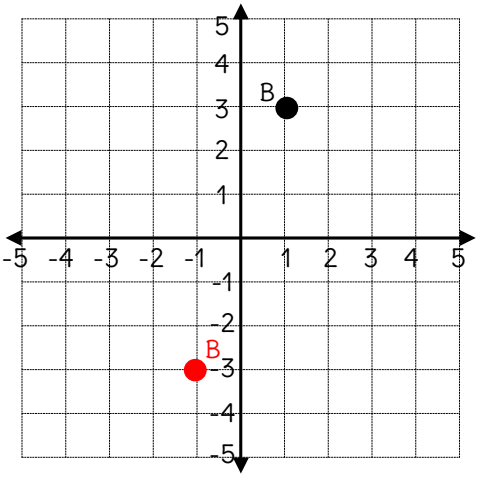
Original Coordinates
A(2,3)
Rotated Coordinates
A(3,-2)

2) 90° counterclockwise rotation



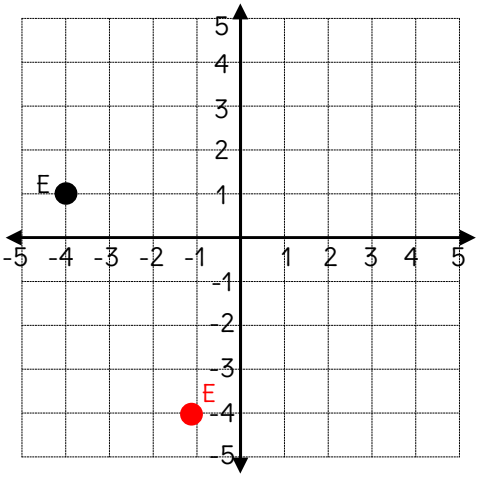
Original Coordinates
E(-3, 2)
Rotated Coordinates
E(-2, -3)

3) 180° rotation



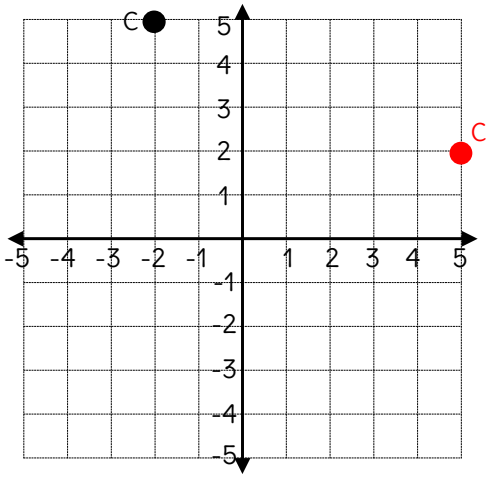
Original Coordinates
B(1, 3)
Rotated Coordinates
B(-1, -3)

4) 270° clockwise rotation



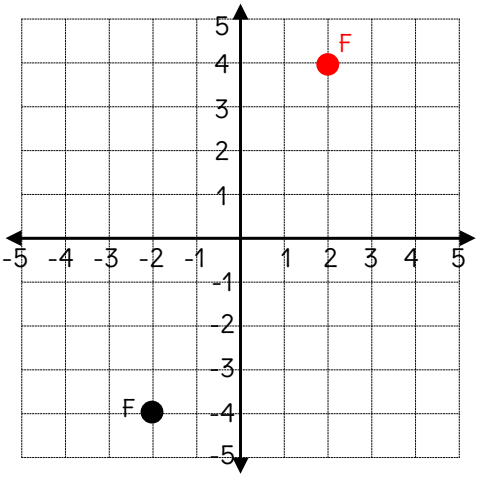
Original Coordinates
E(-4, 1)
Rotated Coordinates
E(-1, -4)

5) 270° counterclockwise rotation



Original Coordinates
C(5, 2)
Rotated Coordinates
C(-2, 5)

6) 180° rotation



Original Coordinates
F(-2, -4)
Rotated Coordinates
F(2, 4)

Name: Answers

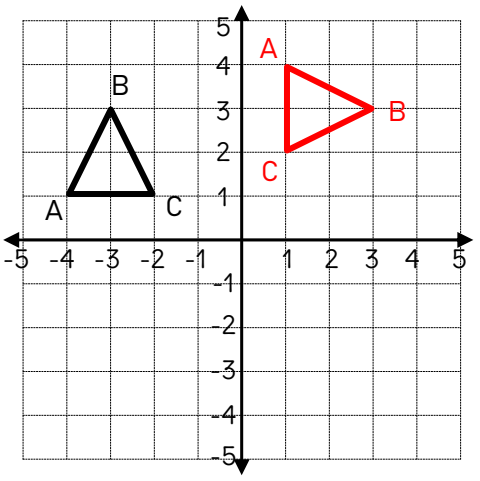
104

Curriculum Connection
E1.4

Rotating Shapes

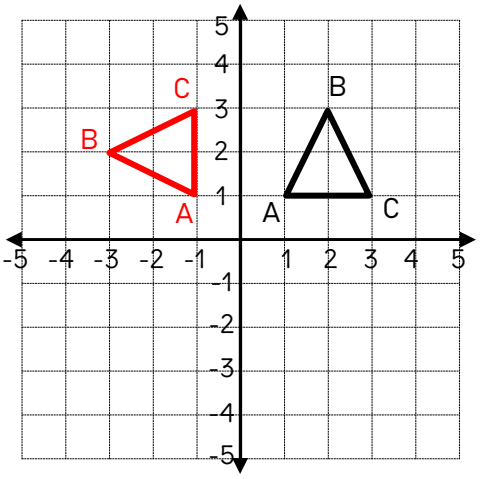
Questions Graph the new position of each shape after the given rotation

1) 90° clockwise rotation



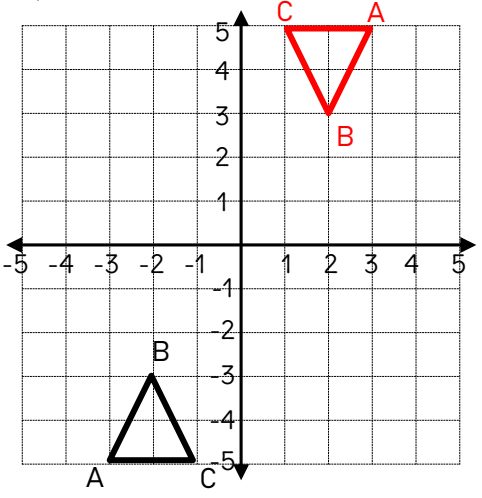
Original Coordinates
A(-4, 1)
B(-3, 3)
C(-2, 1)
Rotated Coordinates
A(1, 4)
B(3, 3)
C(1, 2)

2) 90° counterclockwise rotation



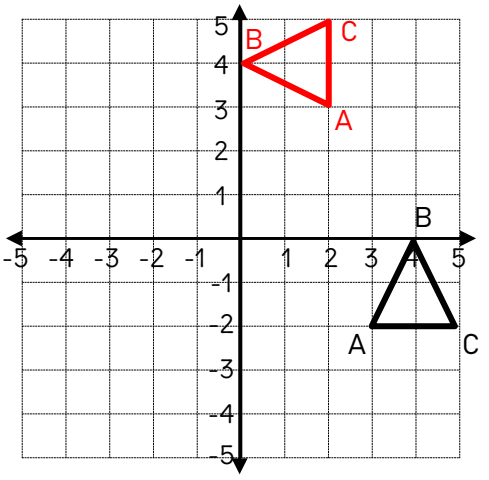
Original Coordinates
A(1, 1)
B(2, 3)
C(3, 1)
Rotated Coordinates
A(-1, 1)
B(-3, 2)
C(-1, 3)

3) 180° rotation



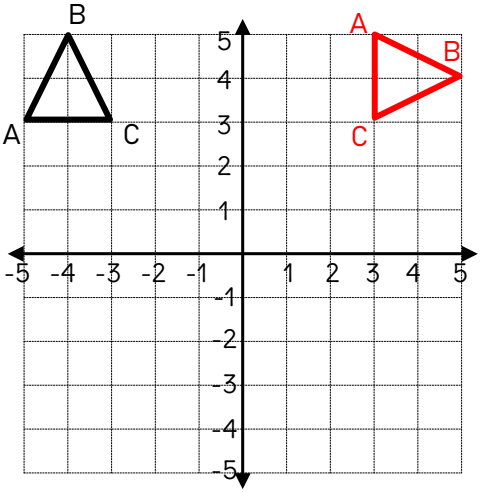
Original Coordinates
A(-3, -5)
B(-2, -3)
C(-1, -5)
Rotated Coordinates
A(3, 5)
B(2, 3)
C(1, 5)

4) 270° clockwise rotation



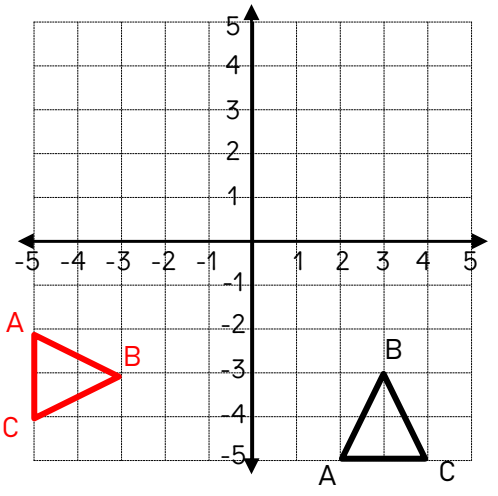
Original Coordinates
A(3, -2)
B(4, 0)
C(5, -2)
Rotated Coordinates
A(2, 3)
B(0, 4)
C(2, 5)

5) 90° clockwise rotation



Original Coordinates
A(-5, 3)
B(-4, 5)
C(-3, 3)
Rotated Coordinates
A(3, 5)
B(5, 4)
C(3, 3)

6) 90° counterclockwise rotation



Original Coordinates
A(2, -5)
B(3, -3)
C(4, -5)
Rotated Coordinates
A(-5, -2)
B(-3, -3)
C(-5, -4)

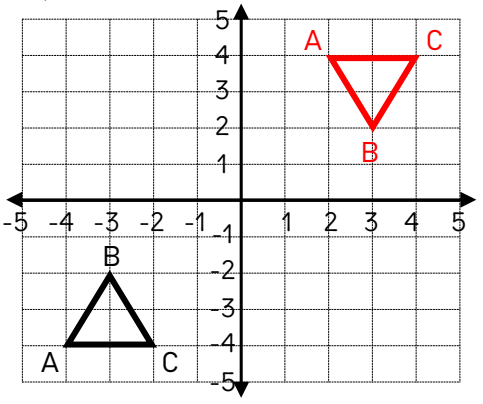
Name: Answers 105

Curriculum Connection
E1.4

Rotating Shapes

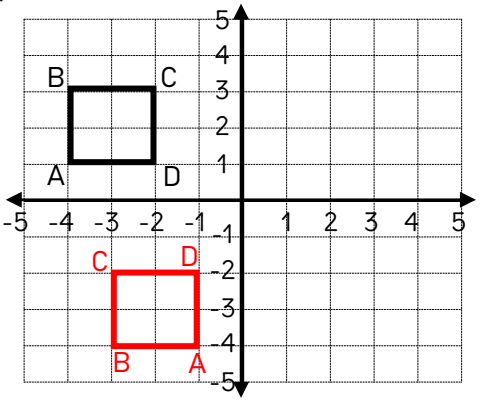
Questions Graph the new position of each shape after the given rotation

1) 180° rotation



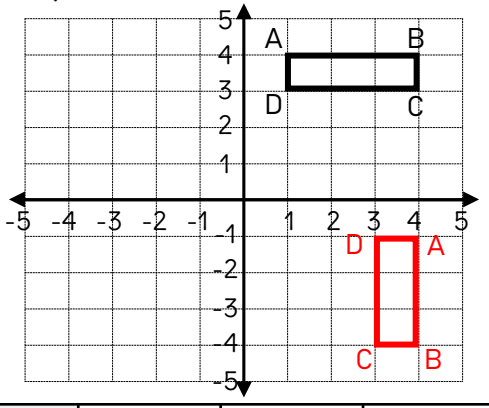
Original	A(-2,-4)	B(-3,-2)	C(-4,-4)
Rotated	A(2,4)	B(3,2)	C(4,4)

2) 90° counterclockwise rotation



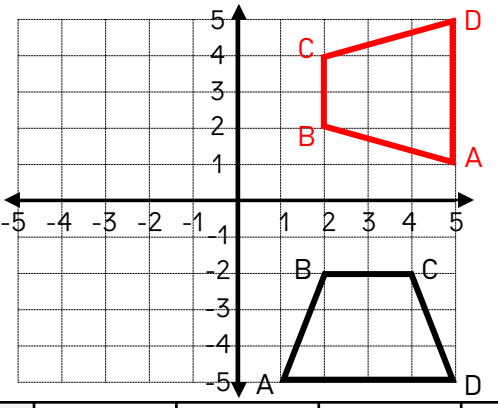
Original	A(-4,1)	B(-4,3)	C(-2,3)	D(-2,1)
Rotated	A(-1,-4)	B(-3,-4)	C(-3,-2)	D(-1,-2)

3) 90° clockwise rotation



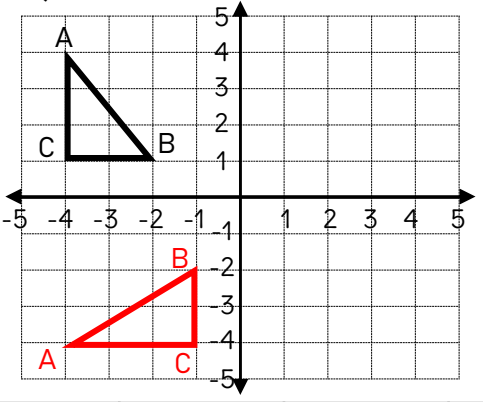
Original	A(1,4)	B(4,4)	C(4,3)	D(1,3)
Rotated	A(4,-1)	B(4,-4)	C(3,-4)	D(3,-1)

4) 90° counterclockwise rotation



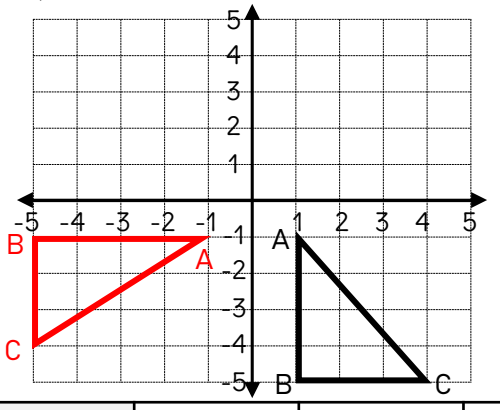
Original	A(1,-5)	B(2,-2)	C(4,-2)	D(5,-5)
Rotated	A(5,1)	B(2,2)	C(2,4)	D(5,5)

5) 270° clockwise rotation



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

6) 90° counterclockwise rotation



Original	A(1,-1)	B(1,-5)	C(4,-5)
Rotated	A(-1,-1)	B(-5,-1)	C(-5,-4)

Name: Answers 106

Curriculum Connection
E1.4

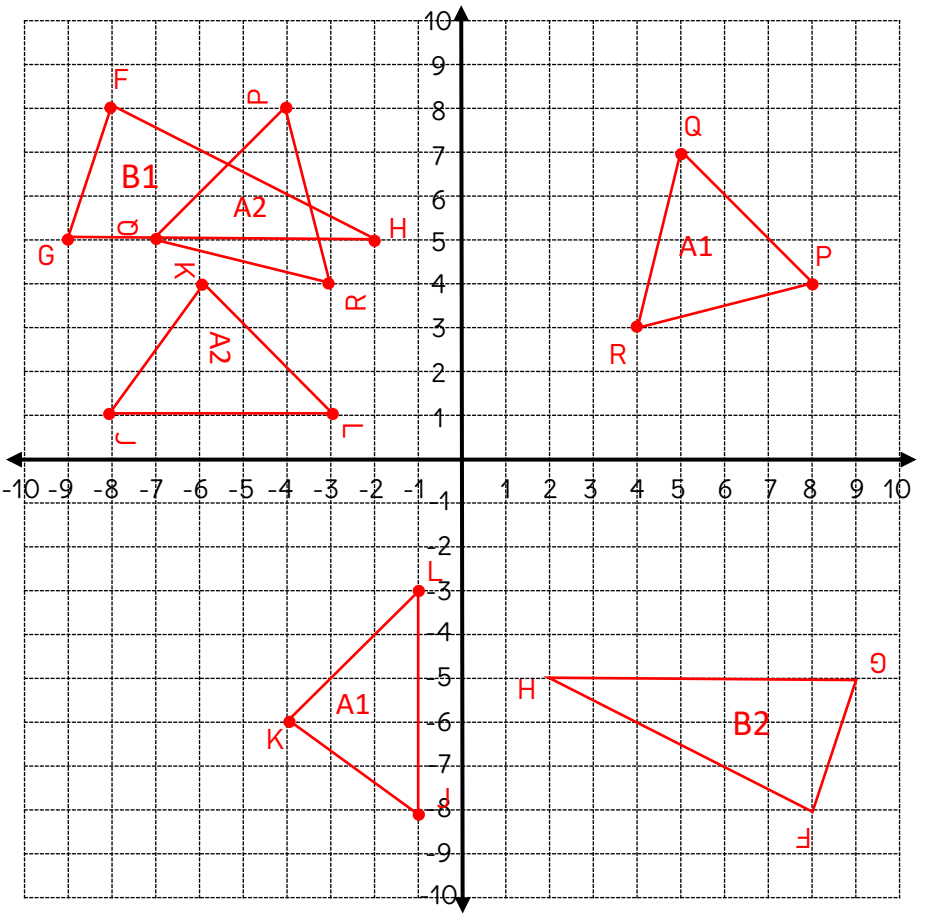
Rotations - Coordinates

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

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

Shape B
F(-8,8), G(-9,5), H(-2,5)
180° rotation
New Coordinates
F(8,-8), G(9,-5), H(2,-5)

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



Part 2 Give the coordinates of each point after the rotations

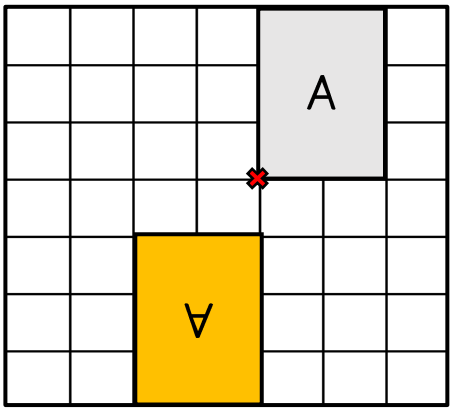
	Original Coordinate	Rotations across the line…	New Coordinates
1)	P(5, 4)	90° counterclockwise rotation	P(-4, 5)
2)	S(3, -6)	180° rotation	S(-3, 6)
3)	Q(-4, 9)	360° rotation	Q(-4, 9)
4)	P(-7, -11)	270° counterclockwise rotation	P(-11, 7)
5)	T(-5, 1) Y(-4, -7)	90° clockwise rotation	T(1, 5) Y(-7, 4)
6)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

Name: Answers 107

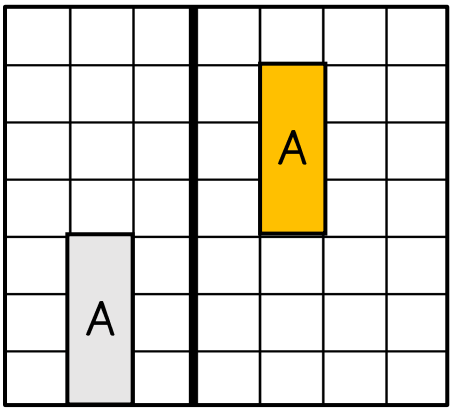
Curriculum Connection
E1.4

Performing Multiple Transformations

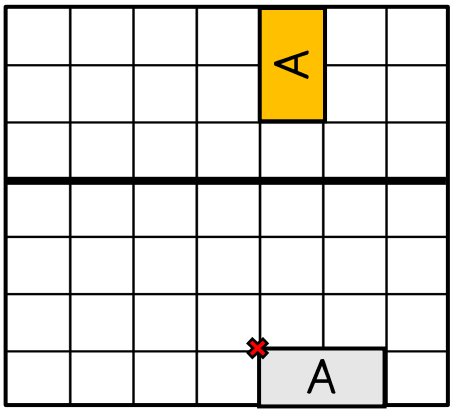
Questions Complete the following combination of transformations



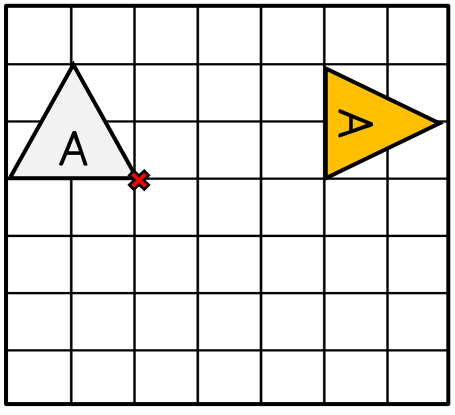
1) 180° rotation, translate down 1



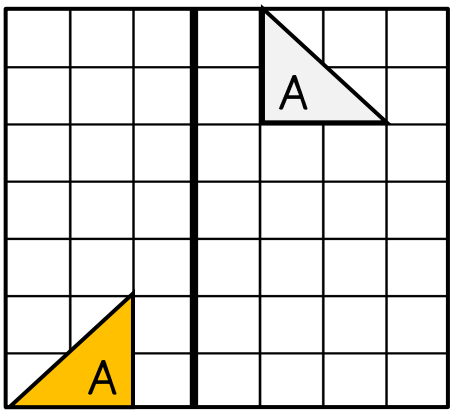
2) Reflect and translate up 3



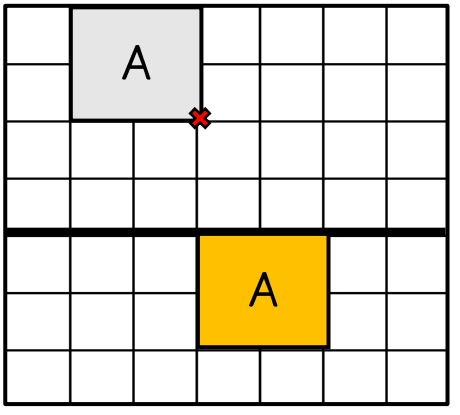
3) rotate 90° counterclockwise and reflect



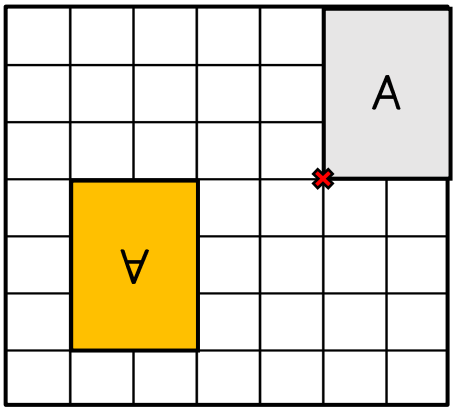
4) 90° clockwise rotation, translate right 3



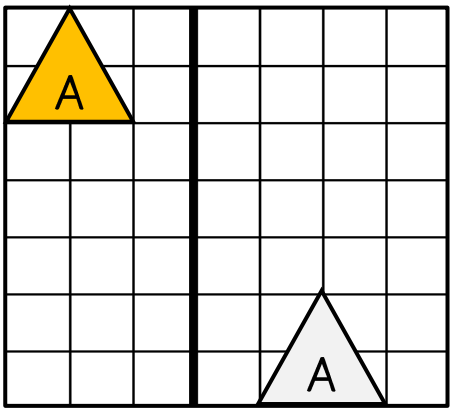
5) Translate down 5 and reflect



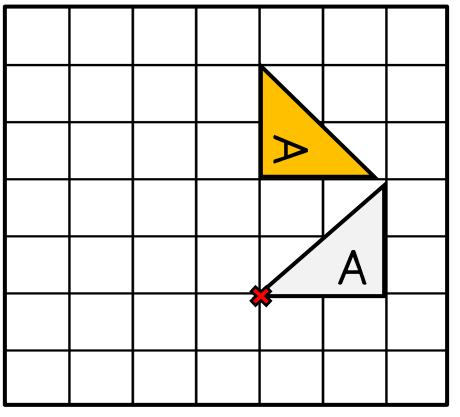
6) rotate 180° counterclockwise and reflect



7) 180° rotation, translate left 2



8) Reflect and translate up 5



9) Rotate 90° counterclockwise and translate up 4

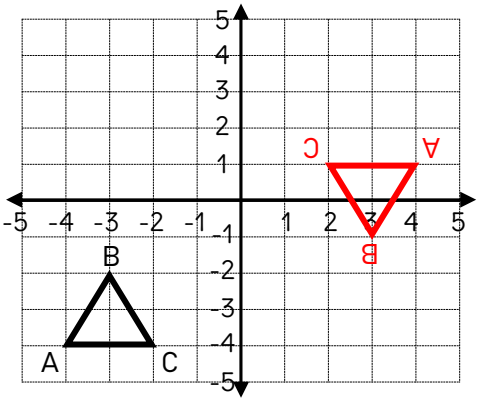
Name: Answers 108

Curriculum Connection
E1.4

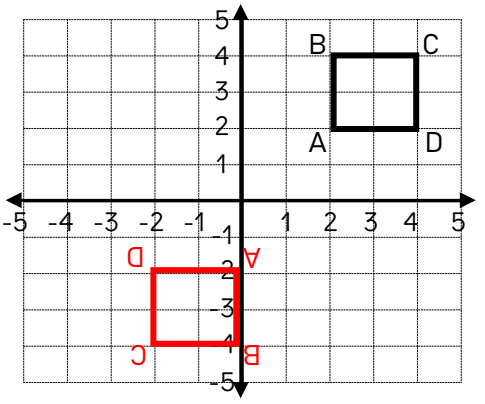
Performing Multiple Transformations

Questions

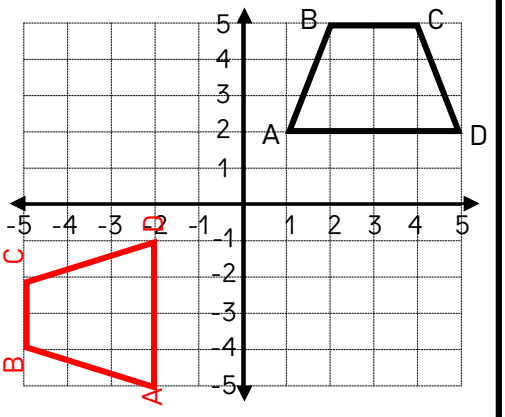
Complete the following combination of transformations



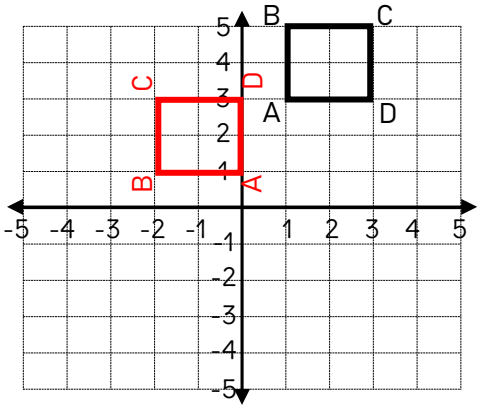
1) 180° rotation, translate down 3



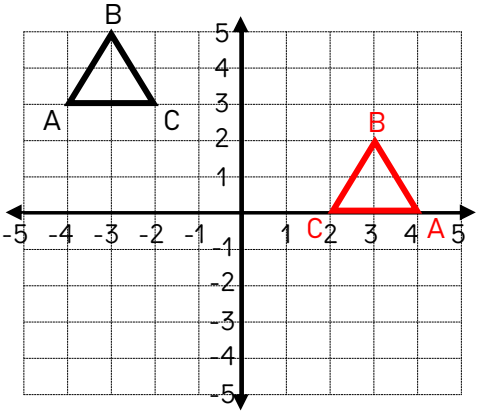
2) Reflect across the x-axis and translate left 4



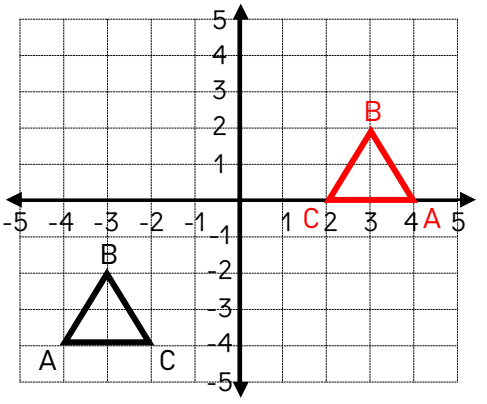
3) rotate 90° clockwise and reflect across the y-axis



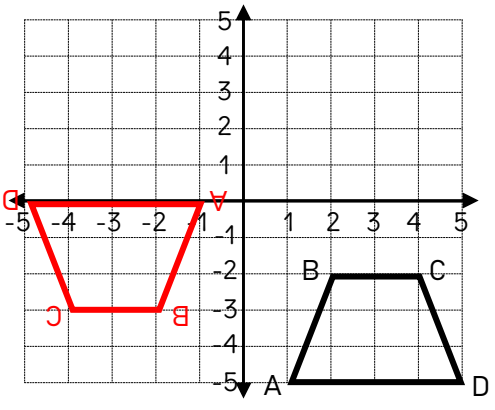
4) 90° counterclockwise rotation, translate right 3



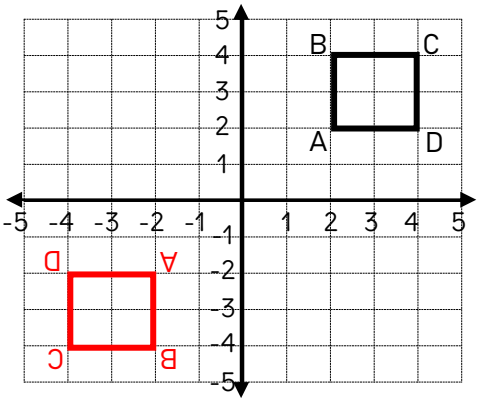
5) Translate down 3 and reflect across the y-axis



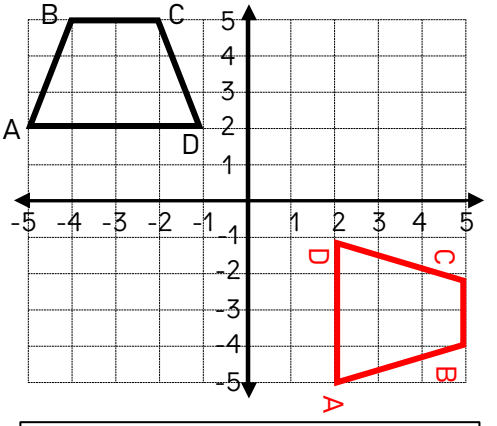
6) Reflect across the y-axis and translate up 4



7) 180° rotation, translate down 5



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

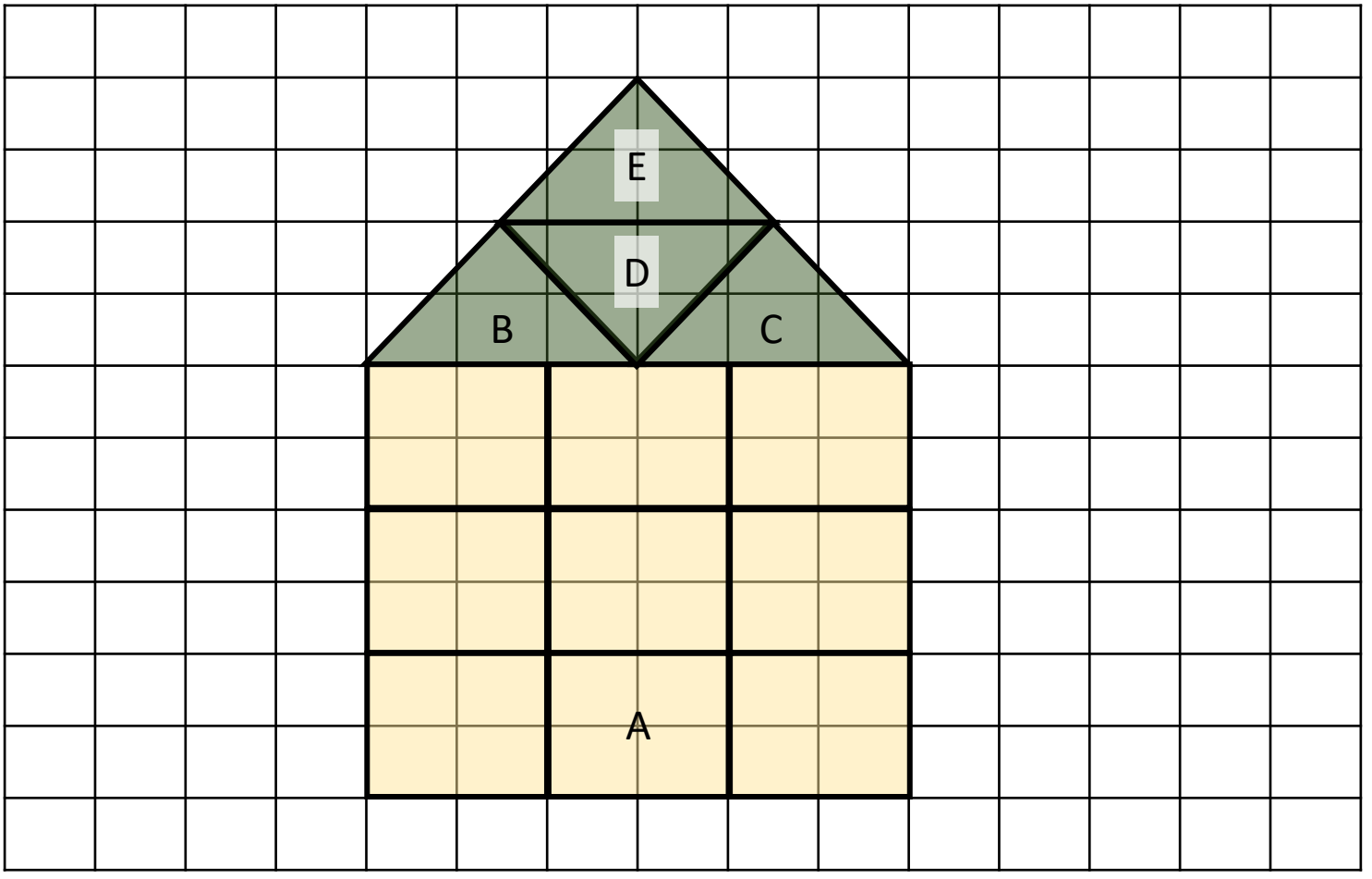


9) Rotate 90° clockwise and reflect across the x-axis

Name: Answers 109

Curriculum Connection
E1.4

Describing Transformations in a Design



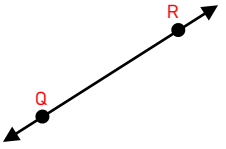
Questions Answer the questions below

1) Which shape is A?	Square
2) Which transformation was used with shape A?	Translations
3) Which shape is B, C, D, and E?	Triangle
3) Which transformation was used to move shape B to C?	Translation
4) Which two transformations were used to move shape C to D?	1) translation 2) Rotation
5) Which transformation was used to move shape D to E?	reflection

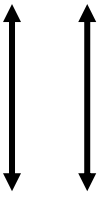
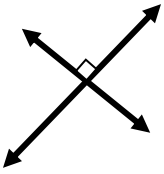
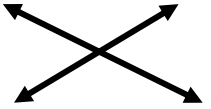
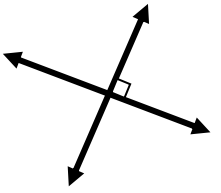
Name: Answers 112

Unit Test
Geometric Constructions & Transformations

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

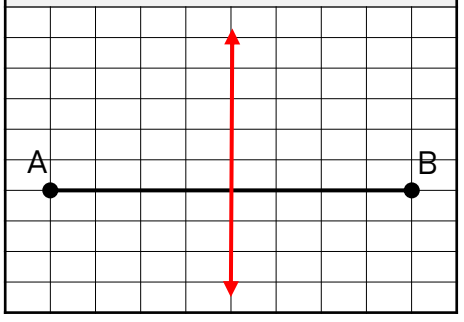
1)	2)	3)	4)
			
Line Segment – AB	Point C	Line – QR	Ray - MN

Part 2
Label the lines parallel, perpendicular, or intersecting

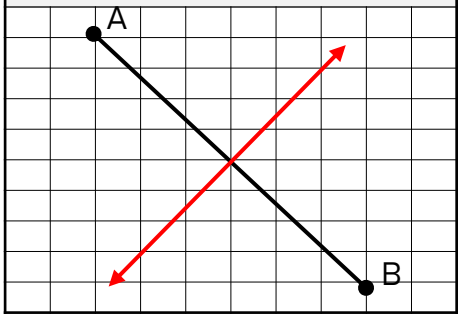
1)	2)	3)	4)
			
Parallel	Perpendicular	Intersecting	Perpendicular

Part 3
Construct perpendicular lines of the line segments $\overline{AB}$

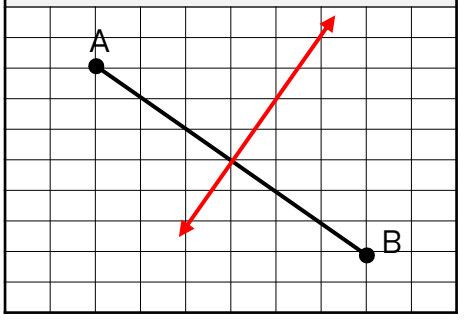
1)



2)

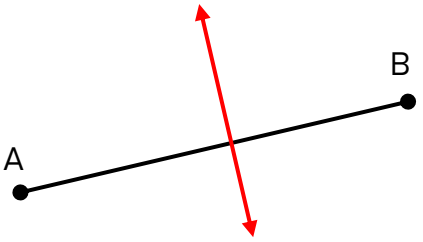


3)

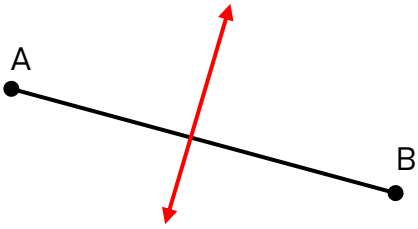


Part 4
Construct perpendicular lines of the line segments $\overline{AB}$

1)



2)

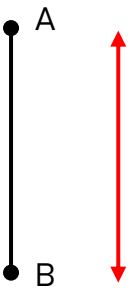


Part 5

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

1)

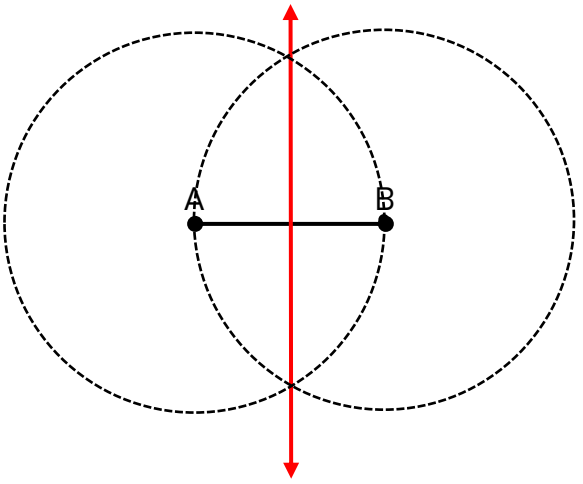
2)



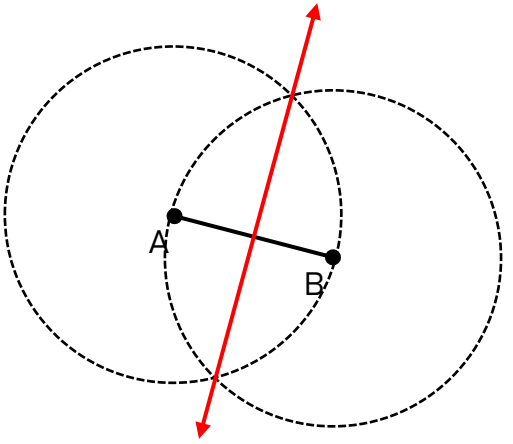
Part 6

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

1)



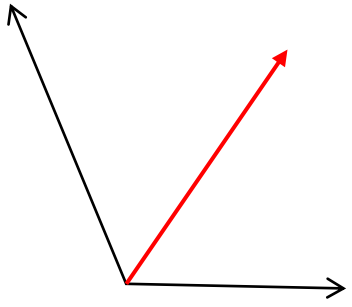
2)



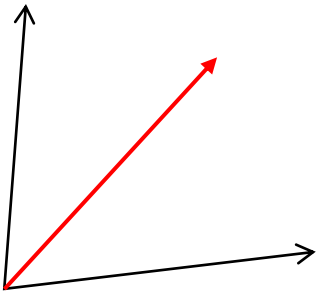
Part 7

Construct an angle bisector of the angle below using a compass

1)



2)



Part 8 Write which quadrant the points would be found in

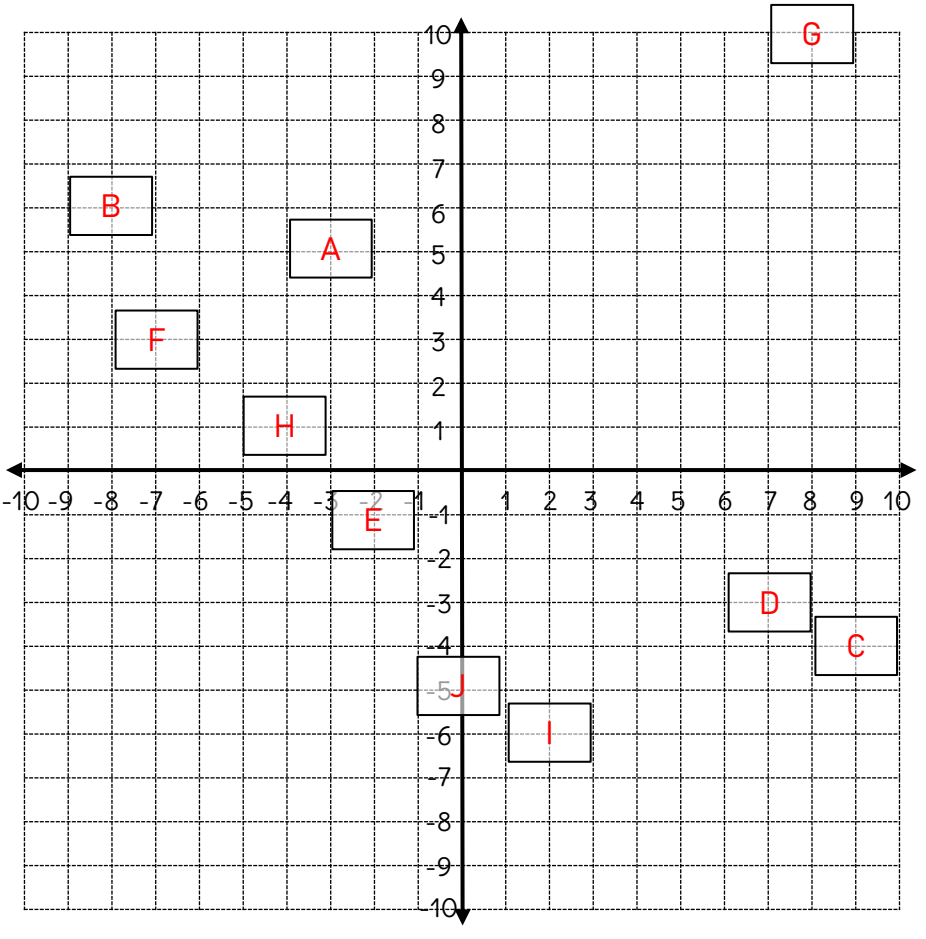
Coordinates (x, y)	**Quadrant (I, II, III, IV)**
(4, -3)	IV
(-5, -4)	III
(2, 5)	I
(-2, 3)	II

Part 9 Which quadrant number is associated with the descriptions below

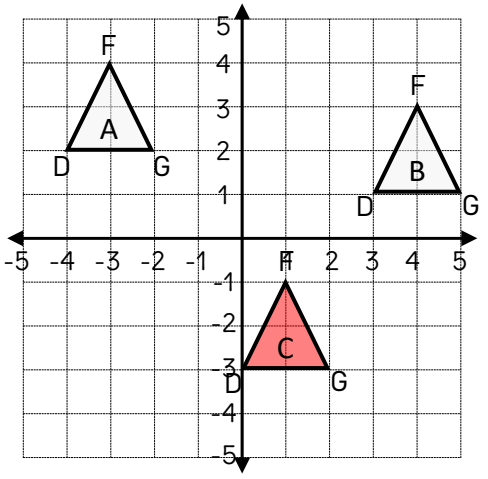
	Description	**Quadrant**
1)	Both positive values	I
2)	Both negative values	III
3)	An x positive value and y negative value	IV
4)	An x negative value and y positive value	II

Part 10 Plot the points of the coordinates on the cartesian plane

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



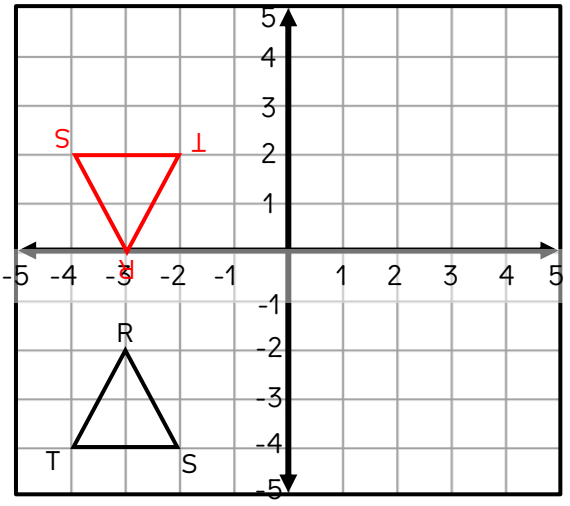
Part 11 — 1) Fill in the coordinates 2) Describe the translation 3) Translate shape C



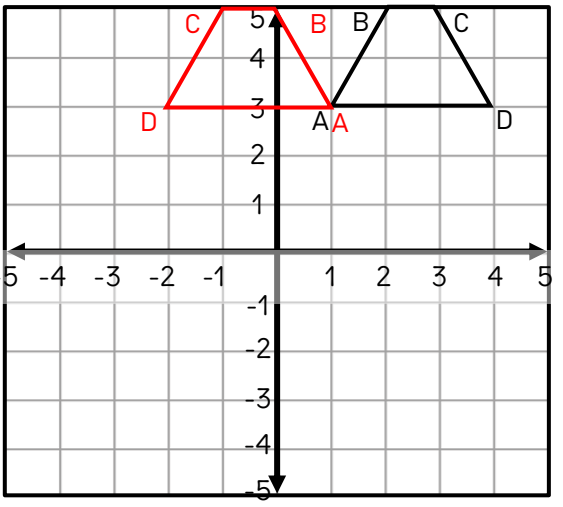
Coordinates A	Coordinates B
D(-4,2) F(-3,4) G(-2,2)	D(3,1) F(4,3) G(5,1)
Describe the translation	
(x + 7, y – 1) or right 7, down 1	
Translate Shape C from Shape B Left 3 units and down 4 units	**Coordinates C**
	D(0,-3) F(1,-1) G(2,-3)

Part 12 — Graph the new position of each shape after the given reflection

1) Reflection across the line y = -1

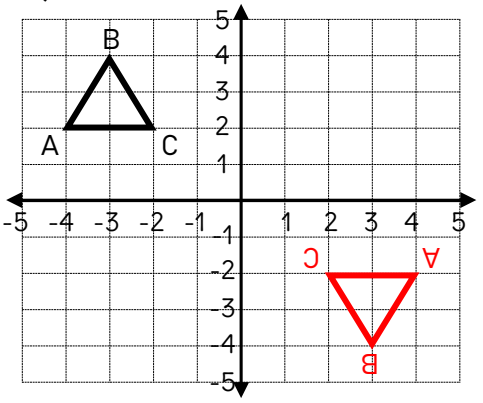


2) Reflection across the line x = 1



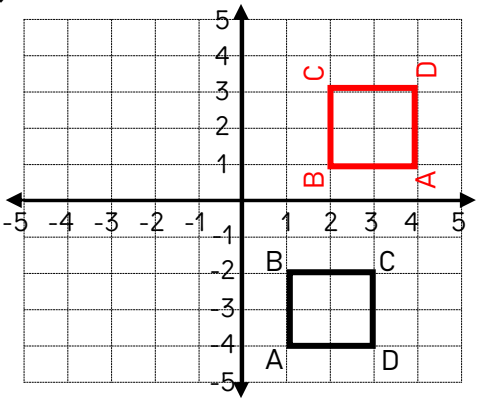
Part 13 — Graph the new position of each shape after the given rotation

1) 180° rotation



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

2) 90° counterclockwise rotation



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

Credits

All of the images in this product are from the public domain. They were found using the following website:

https://freesvg.org/

https://commons.wikimedia.org/wiki/Main_Page

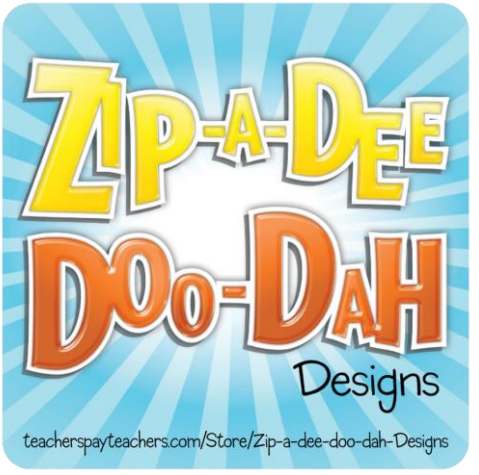
https://pixabay.com/

https://www.pexels.com/

https://www.flickr.com/

https://www.unsplash.com

www.creazilla.com



http://www.teacherspayteachers.com/Store/Zip-a-dee-doo-dah-Designs

Super Simple Sheets

Check out my Website, Instagram, and Pinterest Accounts