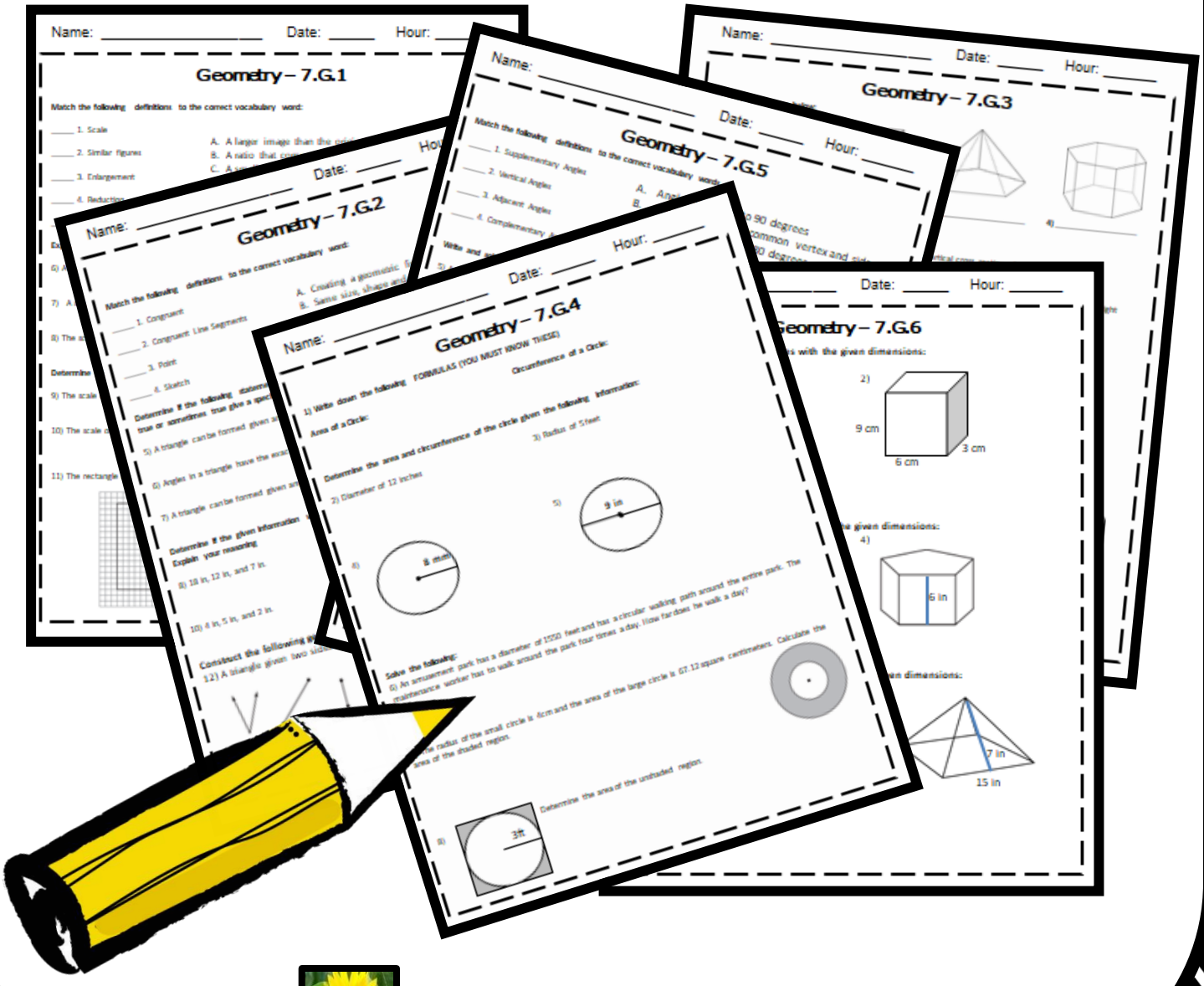
Grade 7

Geometry Worksheets



By: Math in the Midwest

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.1

Match the following definitions to the correct vocabulary word:

_____ 1. Scale

_____ 2. Similar figures

_____ 3. Enlargement

_____ 4. Reduction

_____ 5. Multiplication

A. A larger image than the original
B. A ratio that compares two measures
C. A smaller image than the original
D. In order to produce an enlarged or reduced image you must do this to the scale
E. Two figures that are proportional in size

Explain the meaning of the following:

6) A scale on a map is 1mm:20 miles.

7) A scale on a drawing is 1in:5 feet.

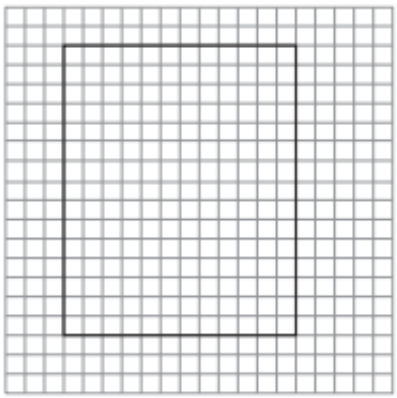
8) The scale for a model house is 1:12.

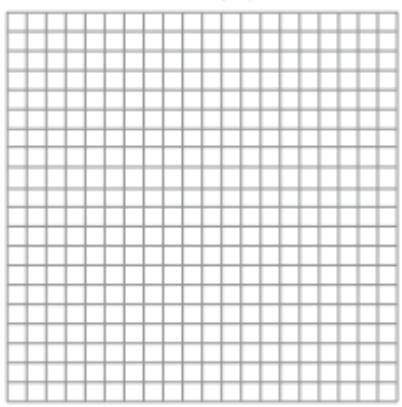
Determine whether the following drawings are bigger or smaller than the actual object. Explain your answer.

9) The scale of a drawing is 3 mm: 10 mm.

10) The scale of a drawing is 12in:4in.

11) The rectangle shown is drawn at a scale of 1 in: 2 ft. Draw the rectangle using a scale of 1 in: 3ft.





Name: _____ Date: _____ Hour: _____

Geometry – 7.G.2

Match the following definitions to the correct vocabulary word:

_____ 1. Congruent

_____ 2. Congruent Line Segments

_____ 3. Point

_____ 4. Sketch

A. Creating a geometric figure
B. Same size, shape and measure
C. Line segments that have the same length
D. Location in space, no size or shape.

Determine if the following statements are always true, sometimes true, or never true. If your answer is always true or sometimes true give a specific example.

5) A triangle can be formed given any two side lengths.

6) Angles in a triangle have the exact same measure.

7) A triangle can be formed given any three side lengths.

Determine if the given information would form a unique triangle, many different triangles, or no triangles. Explain your reasoning

8) 18 in, 12 in, and 7 in.

9) 14 mm and 12 mm

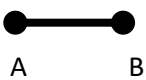
10) 4 in, 5 in, and 2 in.

11) 4 ft, 16 ft, and 1 ft.

Construct the following geometric figures:

12) A triangle given two sides lengths and an angle

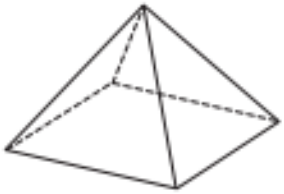
13) A circle using line segment AB as the radius and A as the center of the circle.

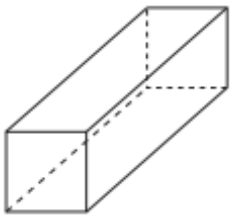


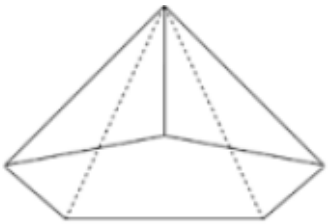
Name: _____ Date: _____ Hour: _____

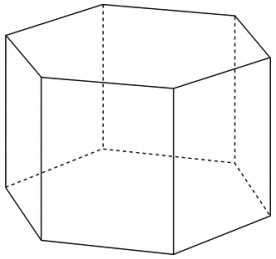
Geometry – 7.G.3

Identify the figures below:



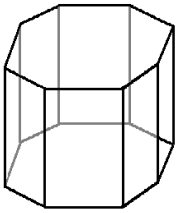






1) _____ **2)** _____ **3)** _____ **4)** _____

Answer the following questions:



5) What shape will you get if you take a vertical cross section of the following solid:

6) What shape would your cross section be if you cut the following solid horizontally, right through the center?

7) What shape would you get if you cut off one of the corners of a rectangular prism?

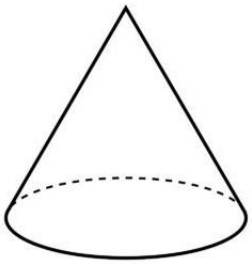
8) What shape would you get if you took a slice of a cube that's perpendicular to its bottom base?

9) What shape would you get if you took a cross section of a triangle pyramid parallel to its base?

10) What is the greatest number of sides of a cross-section of a right rectangular pyramid?

Write down TWO different dimensional shapes you can get from the following three dimension shapes

11)



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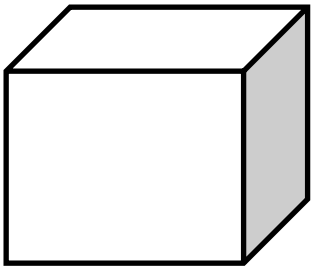

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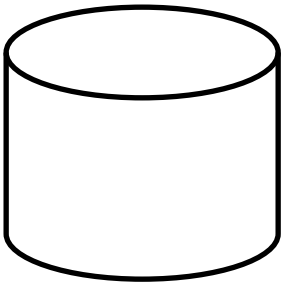


Name: _____ Date: _____ Hour: _____

Geometry – 7.G.4

1) Write down the following FORMULAS (YOU MUST KNOW THESE)

Area of a Circle:

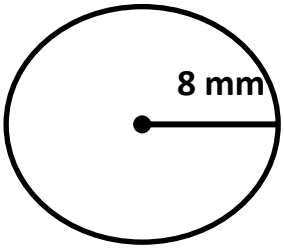
Circumference of a Circle:

Determine the area and circumference of the circle given the following information:

2) Diameter of 12 inches

3) Radius of 5 feet

4)



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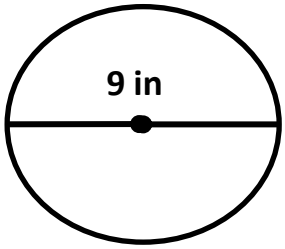
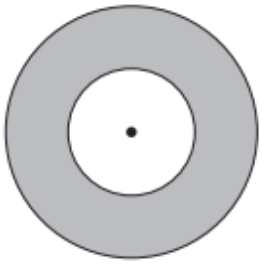


Solve the following:

6) An amusement park has a diameter of 1550 feet and has a circular walking path around the entire park. The maintenance worker has to walk around the park four times a day. How far does he walk a day?

7) The radius of the small circle is 4cm and the area of the large circle is 67.12 square centimeters. Calculate the area of the shaded region.



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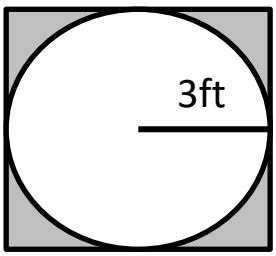


Determine the area of the unshaded region.

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.5

Match the following definitions to the correct vocabulary words.

_____ 1. Supplementary Angles

_____ 2. Vertical Angles

_____ 3. Adjacent Angles

_____ 4. Complementary Angles

A. Angles that sum to 90 degrees
B. Angles that have a common vertex and side
C. Angles that sum to 180 degrees
D. Opposite angles made by two intersecting lines

Write and solve equations for the following scenarios:

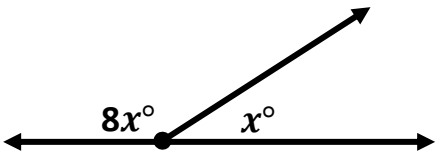
5) Angles 1 and 2 are supplementary. The measure of angle 1 is 64° larger than the measure of angle 2.

6) The complement of an angle is 20° more than the measure of the angle itself.

7) Two angles are complementary. One angle is 49°. What is the measure of the other angle?

Write and solve an equation to find x then find the measure of the unknown angles.

8)



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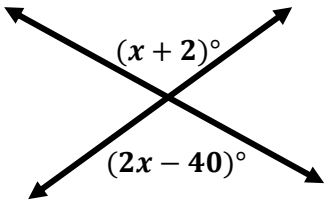

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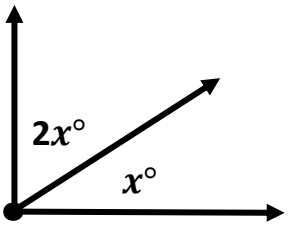

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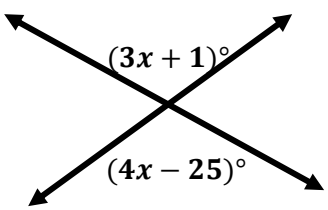
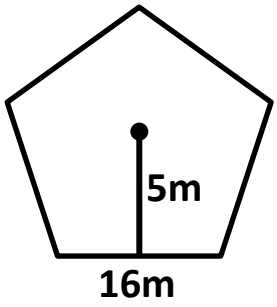


Name: _____ Date: _____ Hour: _____

Geometry – 7.G.6

Find the area of the following figures with the given dimensions:

1)



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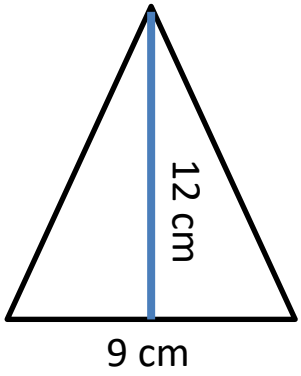
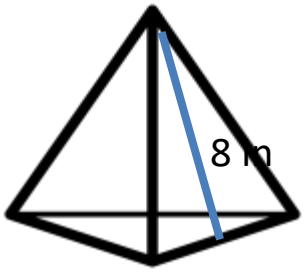
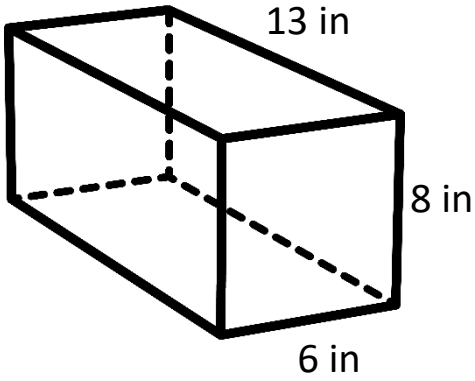


Find the volume of the following figures with the given dimensions:

3) Area of base = $24in^2$

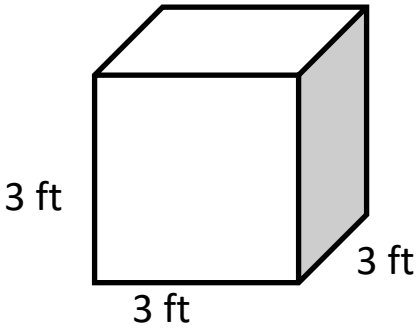


4)

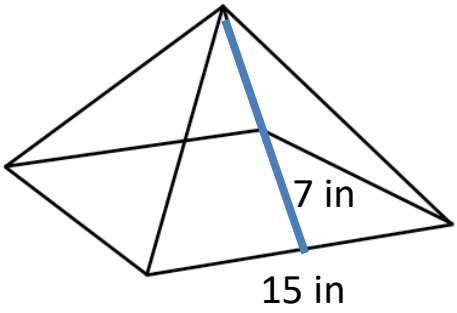


Find the surface area of the following figures with the given dimensions:

5)



6)



Name: _____ Date: _____ Hour: _____

Geometry – 7.G.1

Match the following definitions to the correct vocabulary word:

B 1. Scale

E 2. Similar figures

A 3. Enlargement

C 4. Reduction

D 5. Multiplication

A. A larger image than the original
B. A ratio that compares two measures
C. A smaller image than the original
D. In order to produce an enlarged or reduced image you must do this to the scale
E. Two figures that are proportional in size

Explain the meaning of the following:

6) A scale on a map is 1mm:20 miles.

For every 1 mm on the map there are 20 miles of actual distance

7) A scale on a drawing is 1in:5 feet.

For every 1 mm of length on the drawing there are 5 feet of length on the actual object

8) The scale for a model house is 1:12.

The model house is $\frac{1}{12}$ the size of the actual house.

Determine whether the following drawings are bigger or smaller than the actual object. Explain your answer.

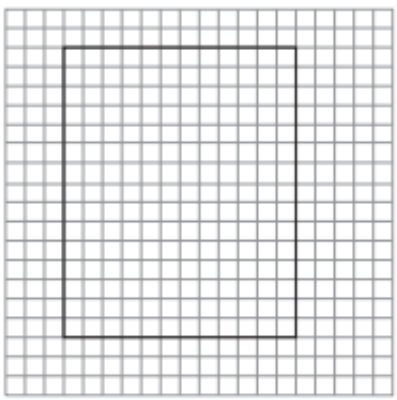
9) The scale of a drawing is 3 mm: 10 mm.

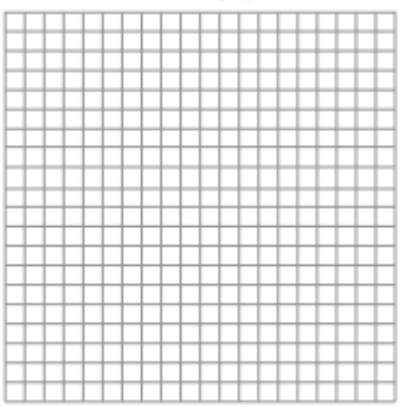
Smaller because the first value, drawing length, is smaller than the second value, actual length.

10) The scale of a drawing is 12in:4in.

Bigger because the first value, drawing length, is larger than the second value, actual length.

11) The rectangle shown is drawn at a scale of 1 in: 2 ft. Draw the rectangle using a scale of 1 in: 3ft.





Check students drawing

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.2

Match the following definitions to the correct vocabulary word:

B 1. Congruent

C 2. Congruent Line Segments

D 3. Point

A 4. Sketch

A. Creating a geometric figure
B. Same size, shape and measure
C. Line segments that have the same length
D. Location in space, no size or shape.

Determine if the following statements are always true, sometimes true, or never true. If your answer is always true or sometimes true give a specific example.

5) A triangle can be formed given any two side lengths.

Always true because you can make the third side length any size to make a triangle.

6) Angles in a triangle have the exact same measure.

Sometimes true, if its an equilateral triangle

7) A triangle can be formed given any three side lengths.

Sometimes true, depends on the three side lengths given

Determine if the given information would form a unique triangle, many different triangles, or no triangles. Explain your reasoning

8) 18 in, 12 in, and 7 in.

Unique triangle b/c $12 + 7 = 19$ and $18 < 19$

9) 14 mm and 12 mm

Many triangles b/c only two side lengths were given

10) 4 in, 5 in, and 2 in.

Unique triangle b/c $4 + 2 = 6$ and $5 < 6$

11) 4 ft, 16 ft, and 1 ft.

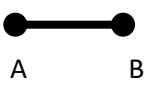
No triangle b/c $4 + 1 = 5$ and $5 < 16$

Construct the following geometric figures:

12) A triangle given two sides lengths and an angle

Check drawings

13) A circle using line segment AB as the radius and A as the center of the circle.

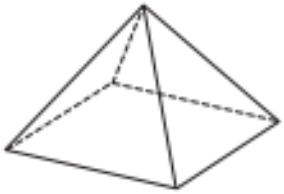


Check drawings

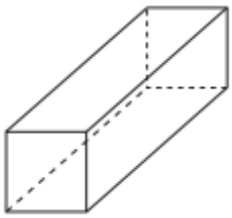
Name: _____ Date: _____ Hour: _____

Geometry – 7.G.3

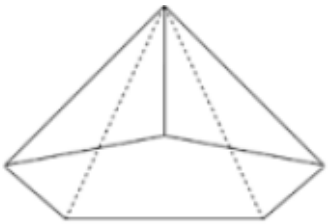
Identify the figures below:



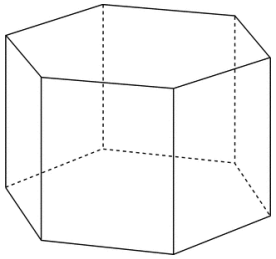
1) Square pyramid



2) Square Prism

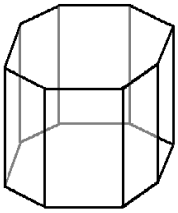


3) Pentagonal Pyramid



4) Hexagonal Prism

Answer the following questions:



5) What shape will you get if you take a vertical cross section of the following solid:

rectangle

6) What shape would your cross section be if you cut the following solid horizontally, right through the center?

octagon

7) What shape would you get if you cut off one of the corners of a rectangular prism?

triangle

8) What shape would you get if you took a slice of a cube that's perpendicular to its bottom base?

square

9) What shape would you get if you took a cross section of a triangle pyramid parallel to its base?

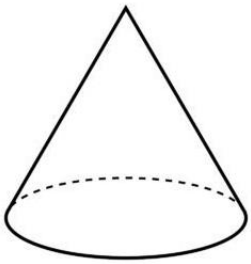
triangle

10) What is the greatest number of sides of a cross-section of a right rectangular pyramid?

four

Write down TWO different dimensional shapes you can get from the following three dimension shapes

11)



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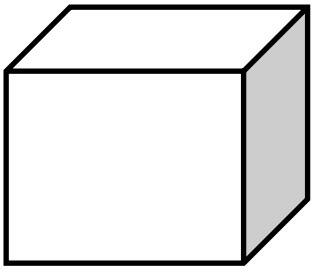

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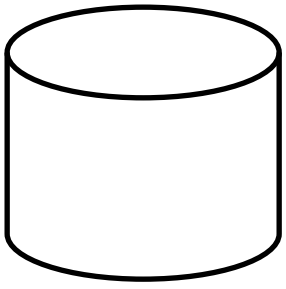


Answers will vary

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.4

1) Write down the following FORMULAS (YOU MUST KNOW THESE)

Area of a Circle:

$$A = \pi r^2$$

Circumference of a Circle:

$$C = \pi d$$

Determine the area and circumference of the circle given the following information:

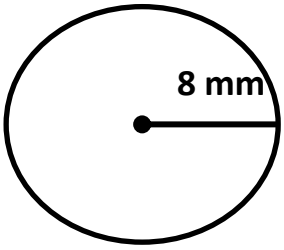
2) Diameter of 12 inches

$A = 113.04\ in^2$
$C = 37.68\ inches$

3) Radius of 5 feet

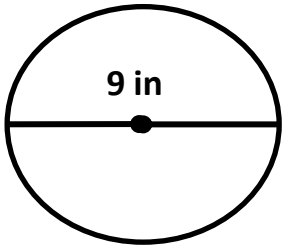
$A = 78.5\ ft^2$
$C = 31.4 feet$

4)



$A = 200.96 mm^2$
$C = 50.24\ mm$

5)



$A = 63.585\ in^2$
$C = 28.26\ inches$

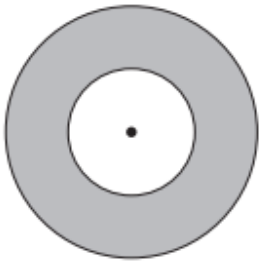
Solve the following:

6) An amusement park has a diameter of 1550 feet and has a circular walking path around the entire park. The maintenance worker has to walk around the park four times a day. How far does he walk a day?

$19{,}468\ feet\ which\ is\ equal\ to\ 3.7\ miles$

7) The radius of the small circle is 4cm and the area of the large circle is 67.12 square centimeters. Calculate the area of the shaded region.

$16.88\ cm^2$



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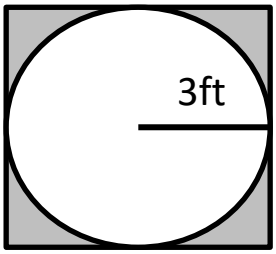


Determine the area of the unshaded region.

$28.26\ feet\ squared$

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.5

Match the following definitions to the correct vocabulary words.

C 1. Supplementary Angles

D 2. Vertical Angles

B 3. Adjacent Angles

A 4. Complementary Angles

A. Angles that sum to 90 degrees
B. Angles that have a common vertex and side
C. Angles that sum to 180 degrees
D. Opposite angles made by two intersecting lines

Write and solve equations for the following scenarios:

5) Angles 1 and 2 are supplementary. The measure of angle 1 is 64° larger than the measure of angle 2.

$x + (x + 64) = 180$ $x = 58$

6) The complement of an angle is 20° more than the measure of the angle itself.

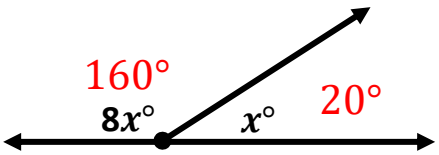
$x + (x + 20) = 90$ $x = 35$

7) Two angles are complementary. One angle is 49°. What is the measure of the other angle?

$x + 49 = 90$ $x = 41$

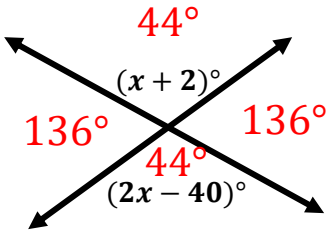
Write and solve an equation to find x then find the measure of the unknown angles.

8)



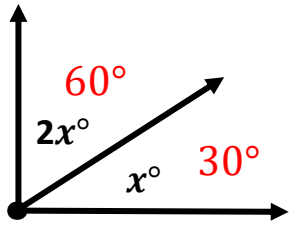
$8x + x = 180$
$9x = 180$
$x = 20$

9)



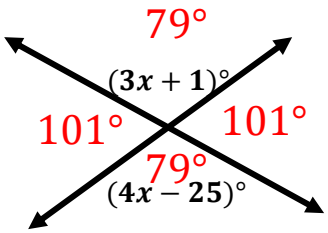
$x + 2 = 2x - 40$
$x = 42$

10)



$2x + x = 90$
$x = 30$

11)



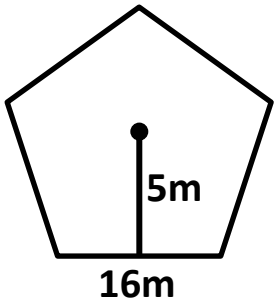
$3x + 1 = 4x - 25$
$x = 26$

Name: _____ Date: _____ Hour: _____

Geometry – 7.G.6

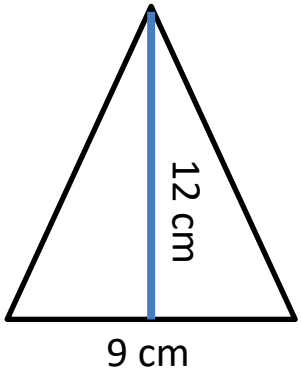
Find the area of the following figures with the given dimensions:

1)



$100\ cm^2$

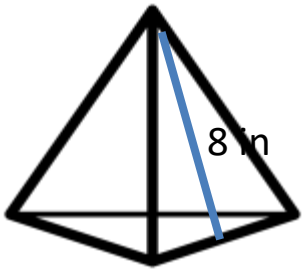
2)



$54\ cm^2$

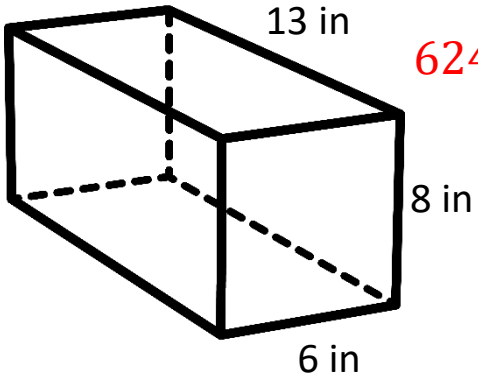
Find the volume of the following figures with the given dimensions:

3) Area of base = $24in^2$



$64\ in^3$

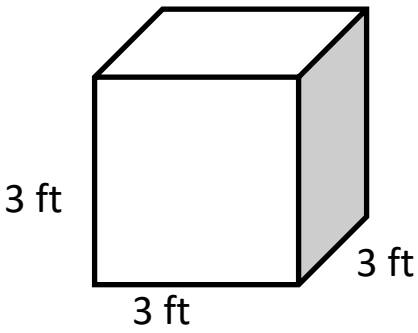
4)



$624in^3$

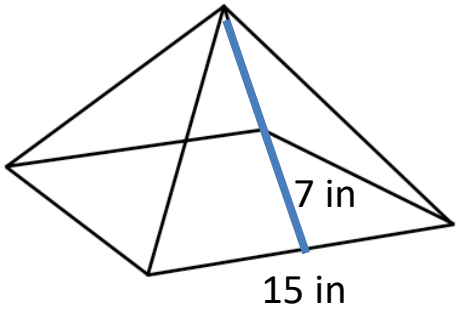
Find the surface area of the following figures with the given dimensions:

5)



$54\ ft^2$

6)



$435in^2$

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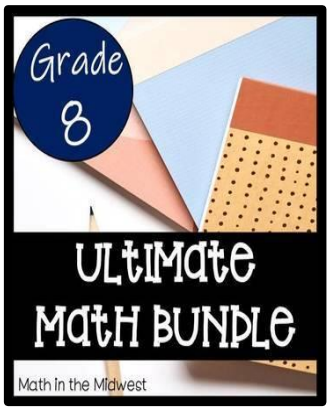

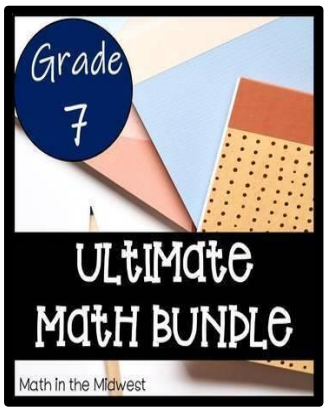

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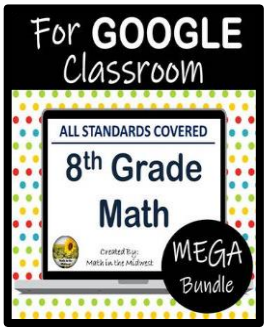

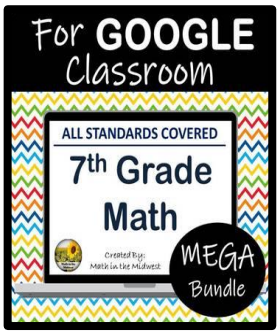

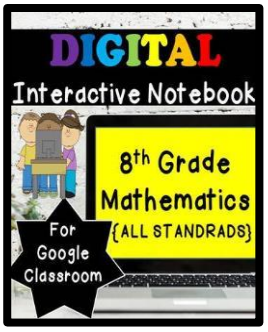

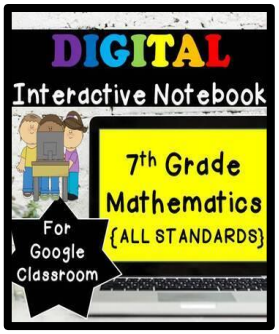

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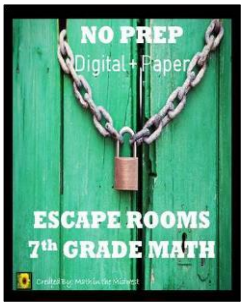

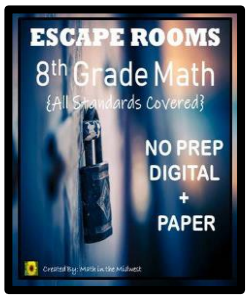

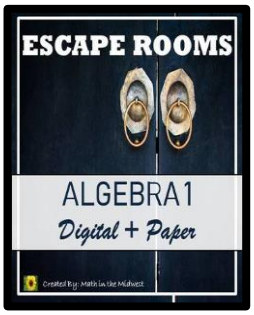

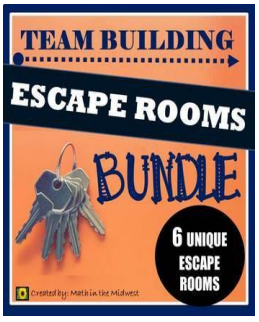

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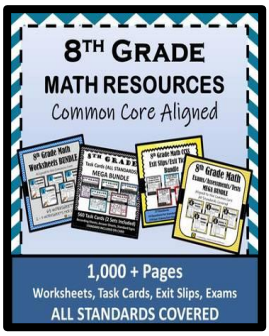

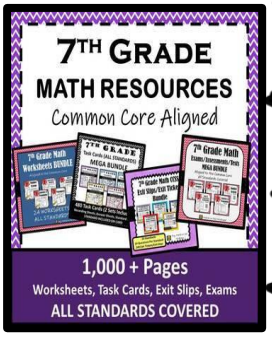

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