Review: Geometry

Area

Composite Figures

Surface Area

Volume

Fractional Edge Length

3-D Figures and Nets

Coordinate Graphing
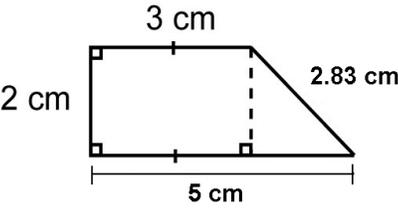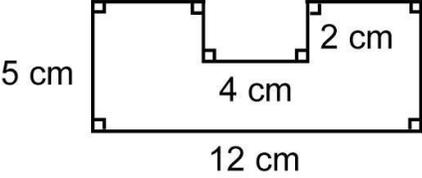
AREA & PERIMETER
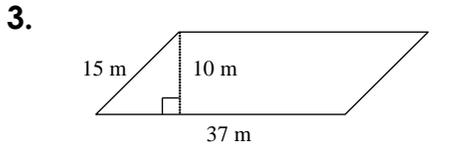
Perimeter: the distance around a polygon.

Area: the number of square units needed to cover a given surface. (units squared or u^2)

Shape	Area	Perimeter
Square s = side	$A = s^2$	$P = 4s$
Rectangle ℓ = length and w = width	$A = \ell w$	$P = 2\ell + 2w$
Triangle b = base and h = height	$A = \frac{1}{2}bh$	$P = s + s + s$
Parallelogram b = base and h = height	$A = bh$	$P = s + s + s + s$

A <u>composite Figure</u> is made up of more than one simple shape.
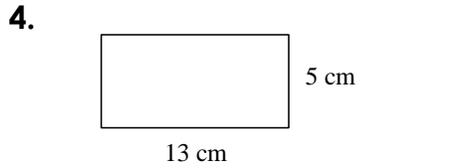
Figure	Area	Perimeter
1. 3 cm, 2.83 cm, 2 cm, 5 cm		
2. 5 cm, 2 cm, 4 cm, 12 cm		

Try Some: Find the Area AND Perimeter

3.

15 m / 10 m

37 m

A = _____

P = _____

4.

5 cm

13 cm

A = _____

P = _____

5.

3 ft

A = _____

P = _____

6.

13 ft

10 ft   12 ft

13 ft

A = _____

P = _____

7.

1.7 in   2.6 in

4 in

A = _____

P = _____

8.

6v + s   5s − 4v

2s + 5

P = _____

9.

5 in

2 in

3 in

3 in.

A = _____

P = _____

10.

7

2

18   10

8

22 m

A = _____

P = _____
.

11.

10 ft

8 ft   5 ft

8 ft
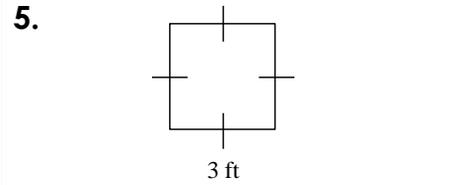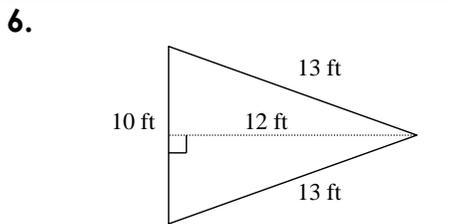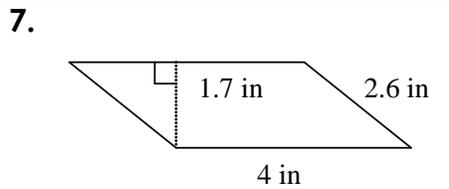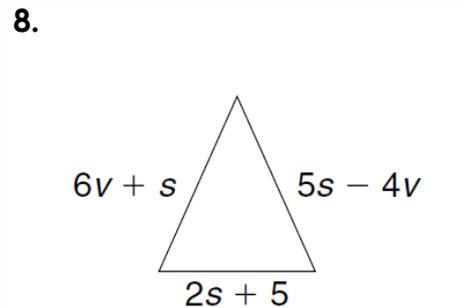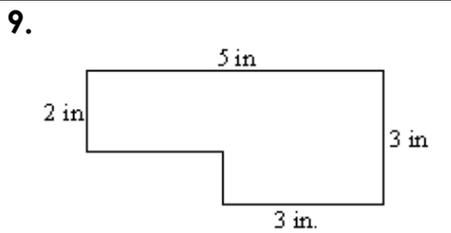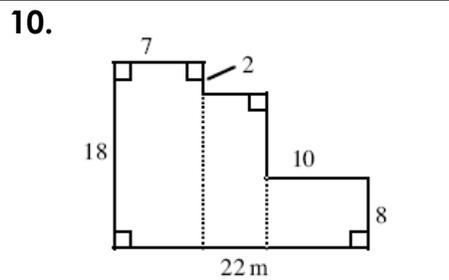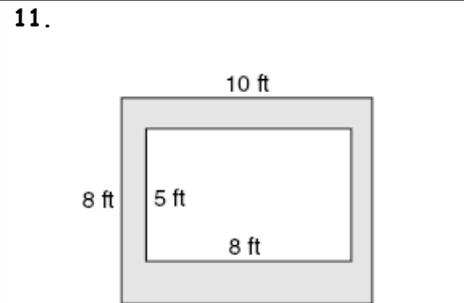
Find the AREA of the SHADED region.

A = _____

SURFACE AREA

Surface Area is the area of all of the sides of a figure. UNITS ARE SQUARED^2

P=Perimeter of Base

B=Area of Base

h=height of prism

18 cm

B=Area of Base

10 cm

10 cm

SA = 2B + Ph

B =

P =

h =

P=Perimeter of Base

h=height of prism

B=Area of Base

12 cm

7 cm   7 cm

B=Area of Base

9.8 cm

SA = 2B + Ph

B =

P =

h =

Figure	Work	Answer
1. 15 in. 9 in. 22 in. 12 in.		
2. 16.5 ft 17.8 ft 30 ft		
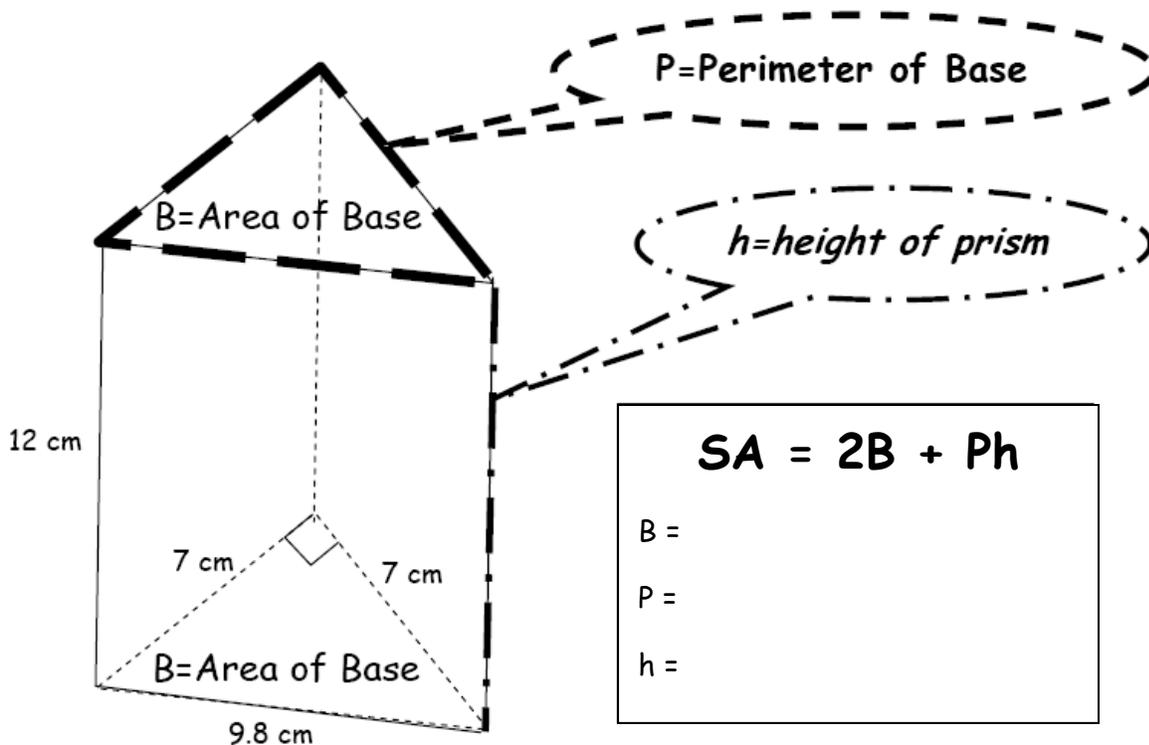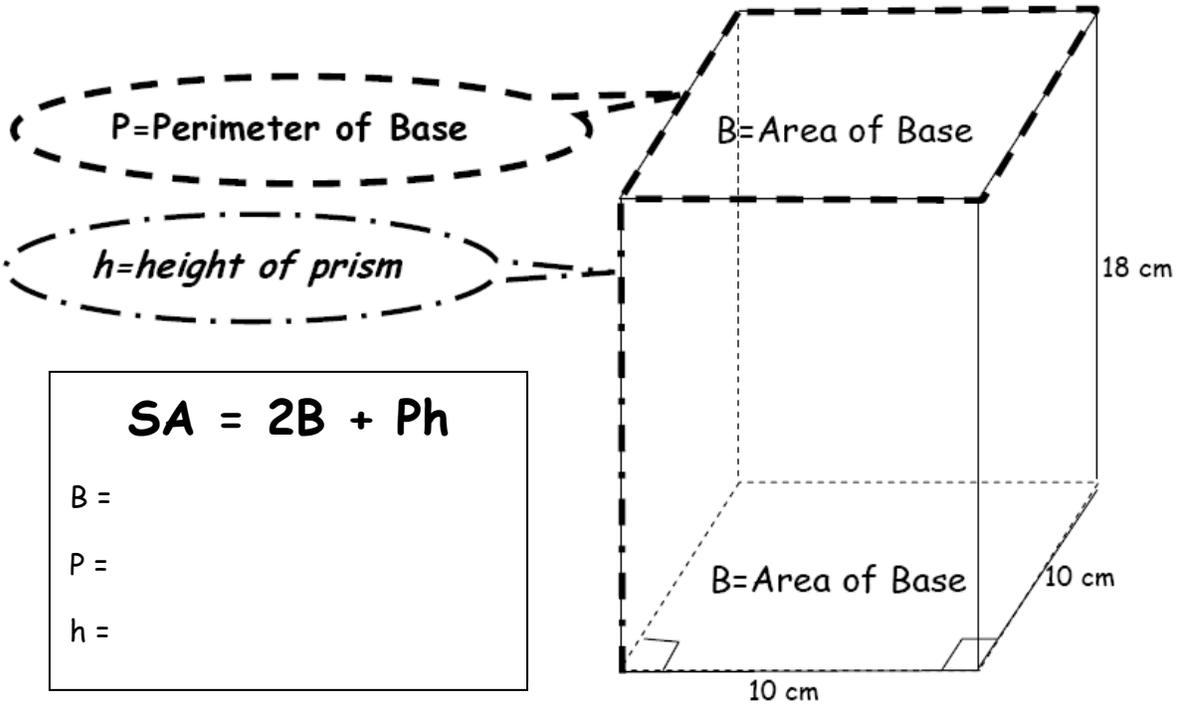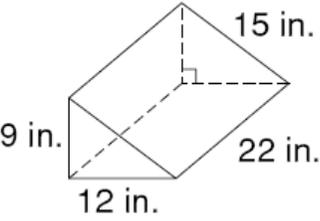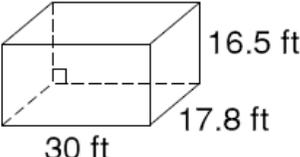
Find the surface area of each net:

3.

15 cm

7.5 cm

4.

11.5 cm

4cm

3.2cm
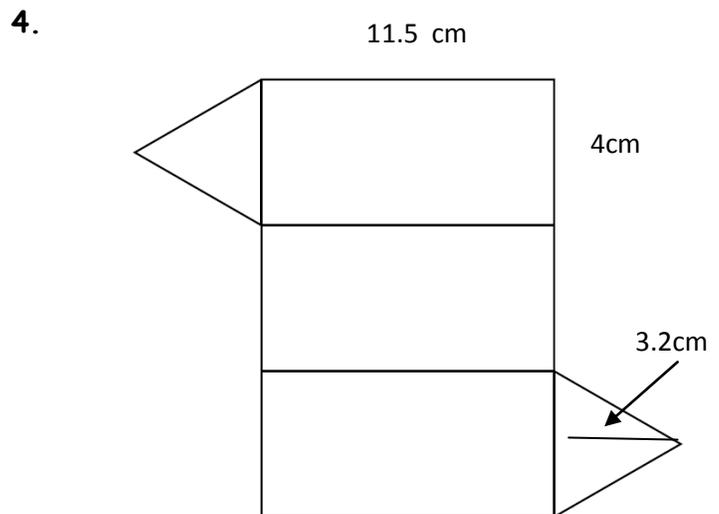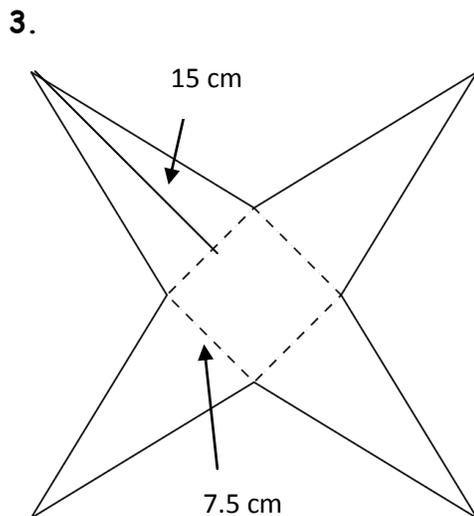
Find the surface area:

5. Henry wants to paint the **ceiling** and **walls** of his living room. One gallon of paint covers 450 ft². The room is 24 ft by 18 ft, and the walls are 9 ft high. How many FULL gallons of paint will Henry need to paint his living room?

VOLUME

Volume is the number of cubic units that it takes to fill a space.   UNITS ARE CUBED^3

B=Area of Base

18 cm

h=height of prism

B=Area of Base

10 cm

10 cm

V = Bh

B =

h =

V=

V=

B=Area of Base

h=height of prism

12 cm

7 cm   7 cm

B=Area of Base

9.8 cm

V = Bh

B =

h =

V =

V =

Figure	Work	Answer
1. 15 in. 9 in. 22 in. 12 in.		
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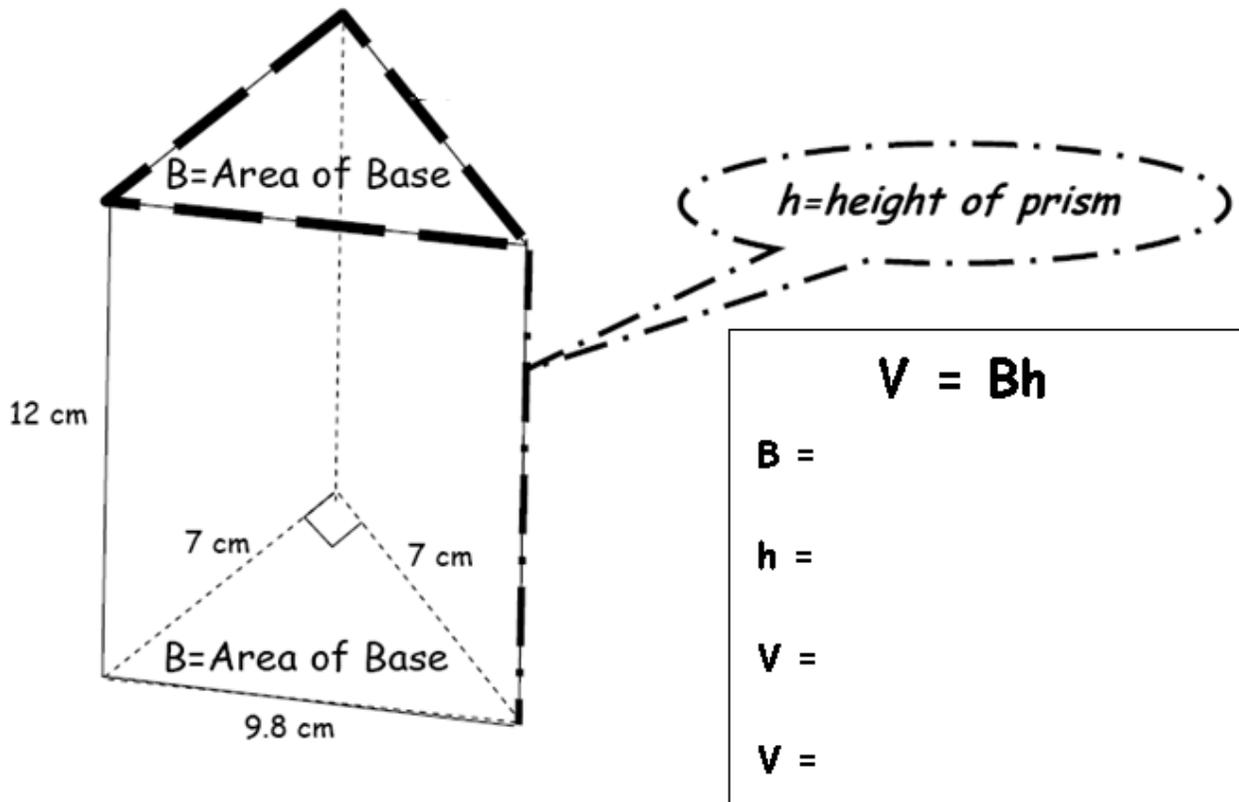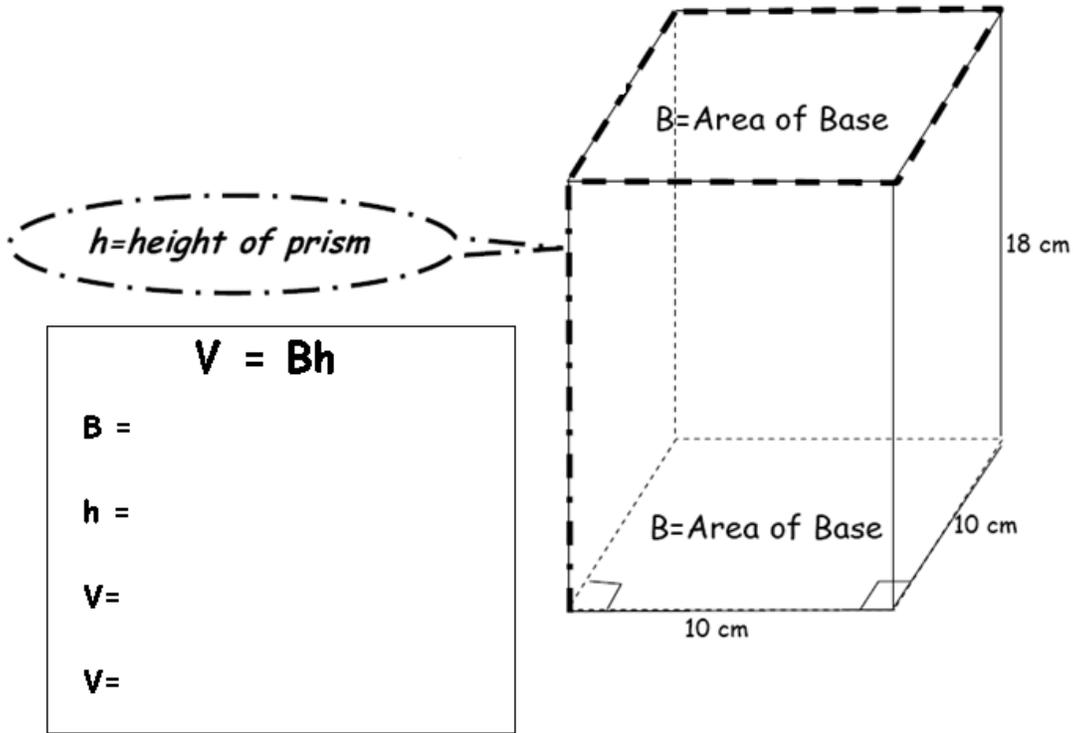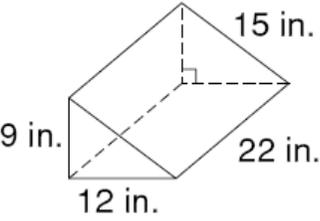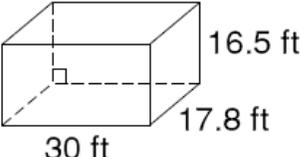
Find the volume:

3. The base of a triangular prism has an area of 12 square yards. If the volume of the prism is 192 cubic yards, how tall is the prism?

4. Concrete can be purchased by the cubic foot. How much will it cost to pour a slab 17 feet by 17 feet by 2 **inches** for a patio if the concrete costs $40.00 per cubic foot?

5. A rectangular prisim measures 2 ½ feet by 1 ¼ feet by 6 feet. What is the volume of the rectangular prism?

FRACTIONAL EDGE LENGTH

1. The right rectangular prism below is made up of some unit cubes as well as some cubes that have been cut in half. What are the dimensions of the prism? 2 ½ by _____ by _____
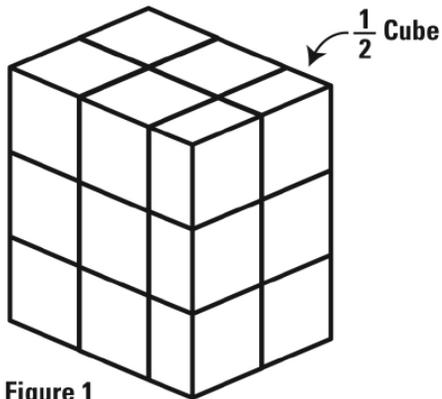
   What is the volume of this figure?

$-\frac{1}{2}$ Cube

Figure 1

2. A right rectangular prism has edges of $1\frac{1}{4}$", 1" and $1\frac{1}{2}$". How many cubes with side lengths of $\frac{1}{4}$ would be needed to fill the prism? What is the volume of the prism?

3. A right rectangular prism has edges of $3\frac{1}{4}$ in, 1 in and $2\frac{1}{2}$ in. How many cubes with lengths of $\frac{1}{4}$ in would be needed to fill the prism? What is the volume?

4. A rectangular prism with the dimensions of 2 by 3 by 4 has a volume of 24. Name at least 3 other rectangular prisms (length, width, and height) *with at least one fractional dimension* that have a volume of 24.

3D-FIGURES & NETS

Identify the base of each prism or pyramid. Then name the prism or pyramid.

1.   Name of Base: _____   4. Name of Base:

_____

   Name of Figure: _____   Name of Figure: _____
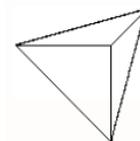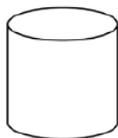
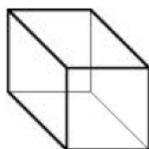2.   Name of Base: _____   5. Name of Base:

_____

   Name of Figure: _____   Name of Figure: _____

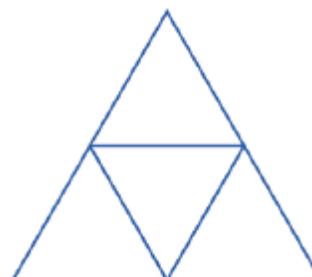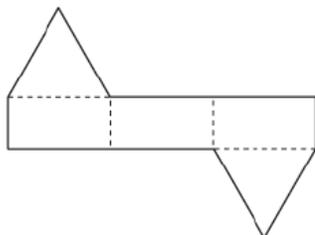3.   Name of Base: _____   6. Name of Base:

_____

   Name of Figure: _____   Name of Figure: _____

COORDINATE GRAPHING

Coordinate Plane

Complete the following diagram by labeling each box appropriately:
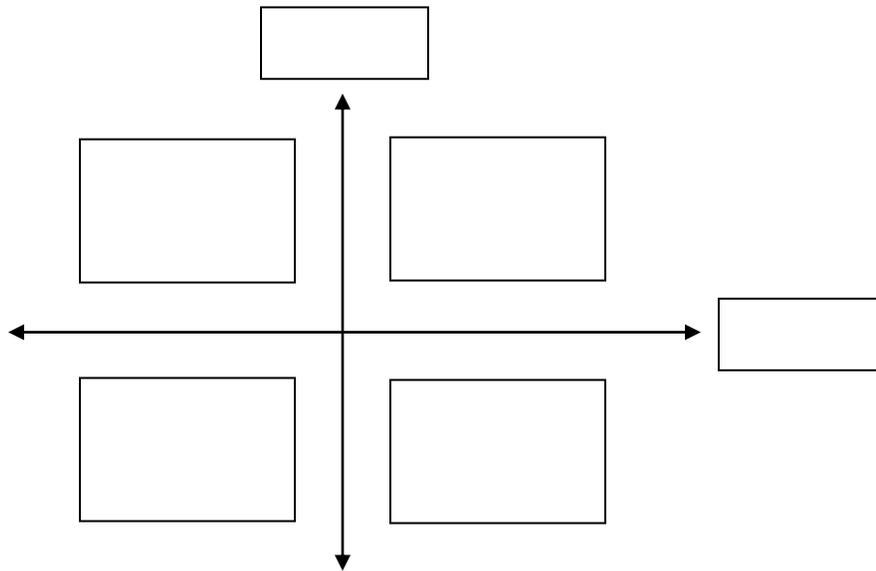
The point where the x-axis and y-axis intersect is called the _____.

How do I identify the exact location of a point?
1.) Go across the X axis until you reach the line that the point is located, record the number from the X axis.
2.) Then go up/down the Y axis until you read the line that the point is located, record the number from the Y axis.
3.) You have just found your coordinate points.
** Remember, you must find the x value first (*x* comes before *y* in the alphabet)

Points **CAN** lie exactly on the x-axis, y-axis, or even the origin (0,0)

Reflection: The flip of a figure over the x-axis or y-axis

When reflecting across X-axis, X values stay same and Y values change signs

When reflecting across Y-axis, Y values stay same and X values change signs

Distance: If two points are in different quadrants, add the absolute values of the unlike coordinates: $(-3, 1)$ and $(2, 1)$ = 3 + 2 = 5 units

If two points are in the same quadrant, subtract the absolute values of the unlike coordinates: $(-3, 3)$ and $(-3, 1)$ = 3 – 1 = 2 units

For #1 – 4, use the graph below to find the coordinates of each point.

1. M _____
2. A _____
3. T _____
4. H _____

Name the quadrant that contains the point:

5. (-12, 7) _____
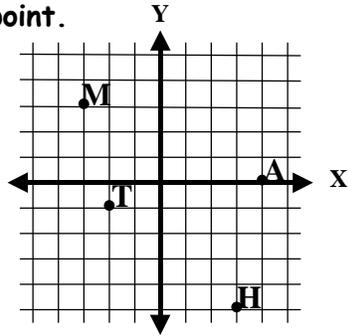6. (-14, -5) _____
7. (10, 5) _____
8. (7, -8) _____

9. Draw the image formed by reflecting ΔWAG across the x-axis.

   Be sure to label the new image.

   W = _____   A= _____   G = _____
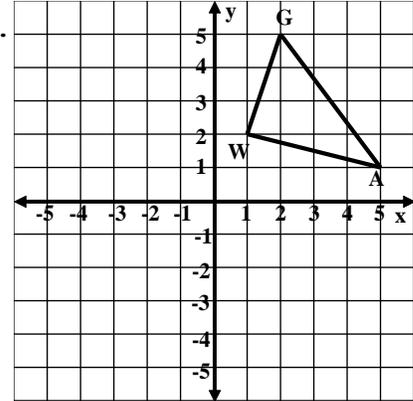
10. Reflect parallelogram ABCD across the y-axis.

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

    A' _____
    B' _____
    C' _____
    D' _____
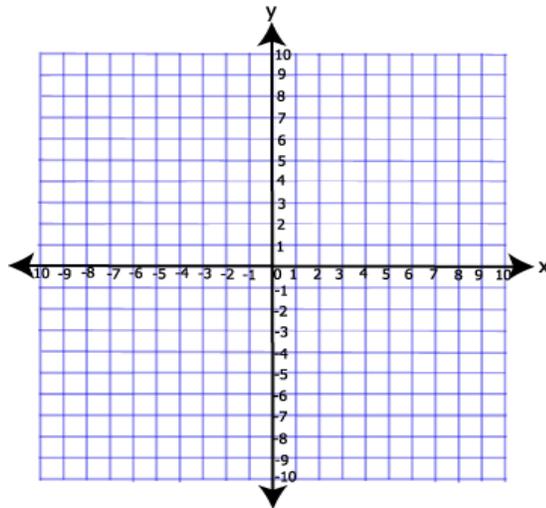
11. What is the height of parallelogram ABCD?

12. What is the distance of CD?

13. What is the area of parallelogram ABCD?

14. If a point at (-4 ½, 8) is moved 12 units down and 6 units right, what are the new coordinates of the point?

15. What is the distance between the points (4, 3 ½) and (4, -2 ¼) ?

16. In a coordinate plane, what is the distance between (-3, 4) and (-3, -5)?

17. A trapezoid in a coordinate plane has vertices (-2, 4), (-3, -2), (2, -2), and (1, 4). What is the height of the trapezoid?

18. What is the area of the quadrilateral with vertices at (-1, 0), (2, 0), (2, 5), and (-1, 5)?

EOG Style Questions

1. A figure is drawn with the given dimensions
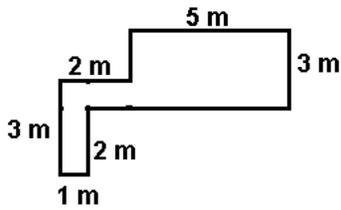
What is the area of the figure?

A) 19 m^2 B) 18 m^2

C) 17 m^2 D) 16 m^2

2. Chandler wants to put carpet in a rectangular room that is 16 feet by 14 feet. If the carpet costs $3.50 per square foot, how much will it cost Chandler to carpet the room?

A)$784   B)$210

C)$224   D)$60

3. The local youth soccer field has a measured area of 5,000 square yards. What would be the dimensions of the field?

A)500 yd. by 50 yd.

B)100 yd. by 50 yd.

C)75 yd. by 75 yd.

D)500 yd. by 500 yd.

4. The town council is preparing an area to become a dog park. The dog park must have a fence around   it.

How many yards of fencing will be needed for the dog park?

A) 29 yards   B) 28 yards

C) 26 yards   D) 25 yards
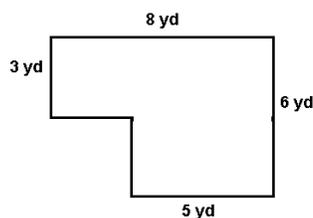
5. A figure is created using a square and a triangle.
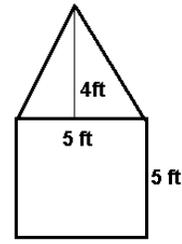
What is the area of the figure?

A) 35 ft^2 B) 45 ft^2

C) 100 ft^2 D) 125 ft^2

6. Mr. Potter's farm is a rectangle that is 100 meters wide and 300 meters long. If he separates the land into two congruent triangles, what will be the area of each triangle?

A)1,500 m^2 B)3,000 m^2

C)15,000 m^2 D)30,000 m^2

7. A parallelogram is drawn with the given dimensions.
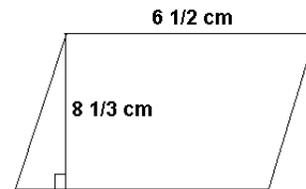
What is the area of the parallelogram?

A) 14 5/6 cm^2 B) 27 1/12 cm^2

C) 29 2/3 cm^2 D) 54 1/6 cm^2

8. Find the perimeter of the triangle by combining like terms.

4a + b   6b – 4a

3b + 4

A) 10b + 4   B) 8a +10b + 4

C) 18ab + 4   D) not possible

9. What is the perimeter of the rectangle drawn in the coordinate plane?

    A) 9 units   B) 14 units

    C) 12 units   D) 7 units

10. A rectangular parking lot has an area of $\frac{1}{6}$ of a square kilometer. The width is $\frac{1}{2}$ of a kilometer. What is the length, in kilometers, of the parking lot?

    A) $\frac{1}{12}$ km   B) $\frac{1}{6}$ km

    C) $\frac{1}{4}$ km   D) $\frac{1}{3}$ km

11. There is a rectangle with a perimeter of 28 cm and an area of 24 cm². What are the dimensions of the rectangle?

    A) 4 cm by 6 cm   B) 3 cm by 8 cm

    C) 2 cm by 12 cm   D) 2 cm by 14 cm

12. A rectangular container has a length of 6 in, a width of 2½ in., and height of 4¼ in. How much water can it hold?

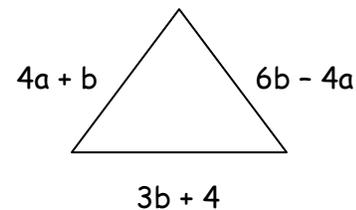   A) 12 ¾ in³   B) 96 in³

    C) 63 ¾ in³   D) 72 in³

13. Find the surface area of the figure below:

    A) 85 feet²   B) 25 feet²

    C) 60 feet²   D) 145 feet²

14. If a Rubik's Cube has a volume of 512 cm³, what is the length of one side?

    A) 8 cm   B) 256 cm

    C) 10 cm   D) 171 cm

15. The Smith's want to carpet their family room The floor is 20 ft wide and 30 ft long; how much carpet will they need?

    A) 50 sq. ft   B) 100 sq. ft

    C) 500 sq ft.   D) 600 sq. ft

16. Leyla staked out a triangular plot of soil for a garden. One side was 6 cm and another was 3 cm. The perimeter of the garden is 13 cm. How long is the third side?

    A) 4 m   B) 5 m

    C) 6 m   D) 12 m

17. A triangle has a base of 0.75 m and a height of 0.3 m. What is the area of the triangle?

    A) 225 cm²   B) 11.25 cm²

    C) 1.05 cm²   D) 0.1125 cm²

18. Many game boards, such as checkerboards and chess boards are square. Brendan's family has a checkerboard with 18-inch sides and a chess board with 14-inch sides. What is the difference between the perimeters of the boards?

    A) 176 in.   B) 72 in.

    C) 56 in.   D) 16 in.
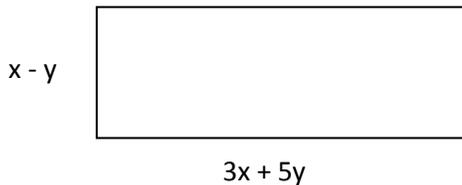
19. Ahmed used a single transformation of Figure X to create Figure Y.
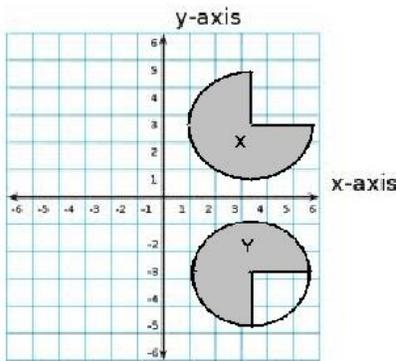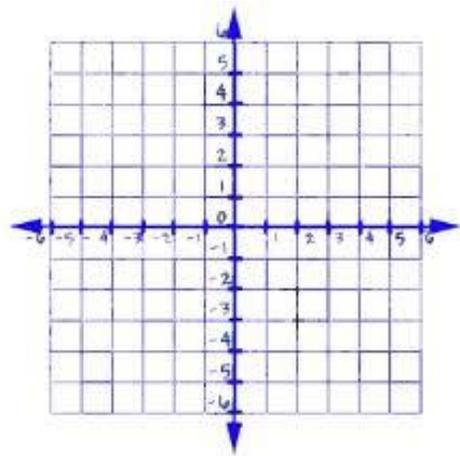

Which transformation did Ahmed use?

    A) a translation 2 units down

    B) a translation 12 units down

    C) a reflection across the x-axis

    D) a reflection across the y-axis

20. Which expression represents the perimeter of the rectangle?

x - y

3x + 5y

    A) 4x + 4y
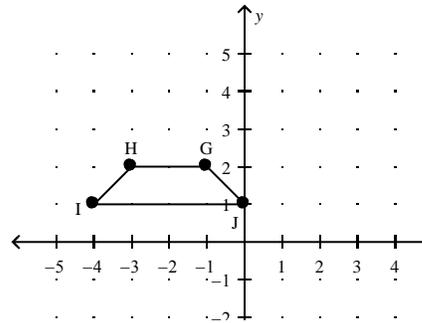
    B) 8x + 8y

    C) 8x + 12y

    D) 10xy

21. Triangle ABC is a right triangle with vertices at (2, 3) and (-2, -1).

Which ordered pair can represent the third vertex of right triangle ABC?

    A) (-2, 3)   B) (3, -2)

    C) (1, 2)   D) (2, 1)

22. Reflect GHIJ over the y-axis. List the coordinates of the vertices of the new figure.

A) G' (-1, 2), H' (-3, 2), I' (-4, 1), J' (0, 1)

B) G' (-1, -2), H' (-3, -2), I' (4, 1), J' (0, -1)

C) G' (1, -2), H' (3, -2), I' (4, -1), J' (0, -1)

D) G' (1, 2), H' (3, 2), I' (4, 1), J' (0, 1)

23. What is the distance from point A(-3, 9) to point B(-3, -3)?

    A) 12 units

    B) 6 units

    C) 3 units

    D) 15 units