

# Welcome to College Geometry 2018

Your summer assignment includes practice problems that review area, translations, and reflections. It is expected that you complete these assignments and are ready for a test after the first week of school.

## Geometry Binder Requirement:

It is required that you get a **large** binder (at least 2 inches thick) with three sections with dividers. Fill up your binder with lined paper.

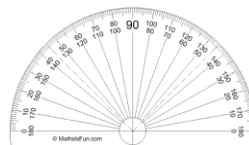
Section 1 – Notes/Homework/Handouts

Section 2 – Vocabulary list

Section 3 – Tests, Projects, and Quizzes

In addition, you will need a zippered pouch with three holes that will hold your materials in your binder. Please include the following tools:

1. At least 6 pencils
2. Box of colored pencils.
3. TI-83 or higher graphing calculator.
4. Protractor
5. Compass
6. Ruler (cm and inches, could be small)



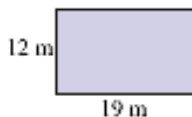
## Your summer assignment:

- Do all problems in this packet
- Make sure that you use pencil for the entire assignment. INK WILL NOT BE ACCEPTED.
- Your summer assignment will count as five homework assignments and will be collected the first day of class.
- During the first few weeks of school, you will have a test on the summer assignment material. One week of class days is not enough time to re-teach the information in the packet.
- You are also responsible for knowing the definition of the 36 words attached

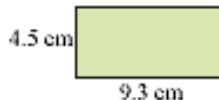
- In Exercises 1–6, each quadrilateral is a rectangle.  $A$  represents area and  $P$  represents perimeter. Use the appropriate unit in each answer.

Show your work

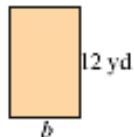
1.  $A = ?$



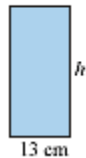
2.  $A = ?$



3.  $A = 96 \text{ yd}^2$   
 $b = ?$



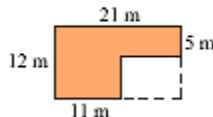
4.  $A = 273 \text{ cm}^2$   
 $h = ?$



5.  $P = 40 \text{ ft}$   
 $A = ?$



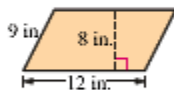
6. Shaded area = ?



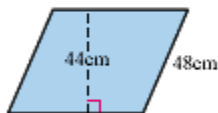
- In Exercises 7–9, each quadrilateral is a parallelogram.

Show your work

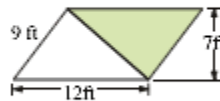
7.  $A = ?$



8.  $A = 2508 \text{ cm}^2$   
 $P = ?$



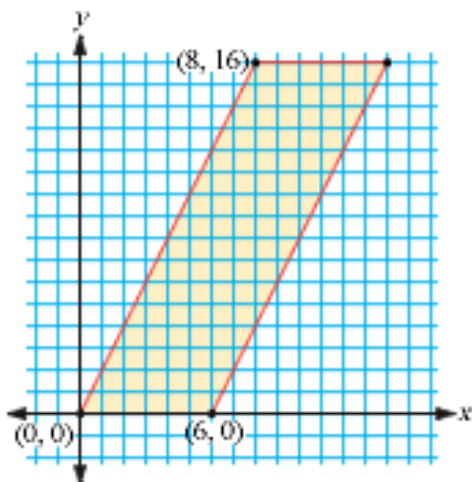
9. Find the area of the shaded region.



**APPLICATION** Sarah is tiling a wall in her bathroom. It is rectangular and measures 4 feet by 7 feet. The tiles are square and measure 6 inches on each side. How many tiles does Sarah need? [h](#)

Be careful with units

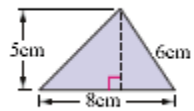
. What is the area of the parallelogram?



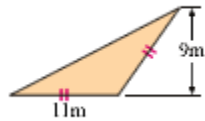
Sketch and label two different parallelograms, each with area  $64 \text{ cm}^2$ .

Find the area of the triangles and trapezoids. Show your work:

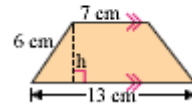
1.  $A = ?$



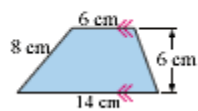
2.  $A = ?$



$A = 50 \text{ cm}^2$  (h)  
 $h = ?$



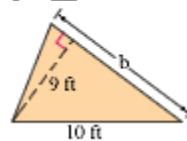
4.  $A = ?$



5.  $A = 39 \text{ cm}^2$   
 $h = ?$



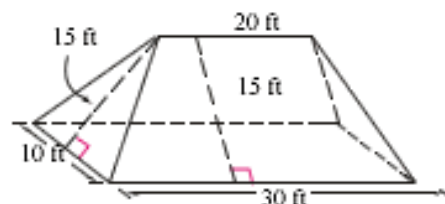
6.  $A = 31.5 \text{ ft}^2$   
 $b = ?$



Sketch and label two different triangles, each with area  $54 \text{ cm}^2$ .


Sketch and label two different trapezoids, each with area  $56 \text{ cm}^2$ .

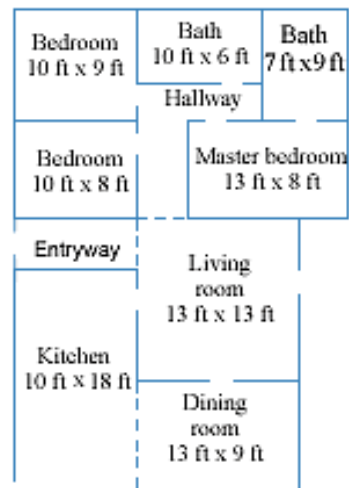
**APPLICATION** The roof on Crystal's house is formed by two congruent trapezoids and two congruent isosceles triangles, as shown. She wants to put new wood shingles on her roof. Each shingle will cover 0.25 square foot of area. (The shingles are 1 foot by 1 foot, but they overlap by 0.75 square foot.) How many shingles should Crystal buy?



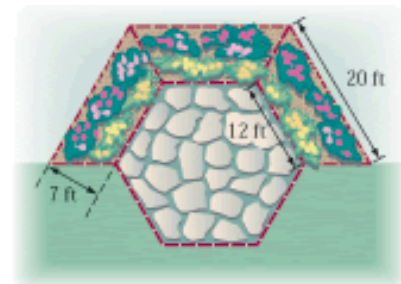
**APPLICATION** Tammy is estimating how much she should charge for painting 148 rooms in a new motel with one coat of base paint and one coat of finishing paint. The four walls and the ceiling of each room must be painted. Each room measures 14 ft by 16 ft by 10 ft high.

- Calculate the total area of all the surfaces to be painted with each coat. Ignore doors and windows.
- One gallon of base paint covers 500 square feet. One gallon of finishing paint covers 250 square feet. How many gallons of each will Tammy need for the job?

**APPLICATION** Dareen's family is ready to have wall-to-wall carpeting installed. The carpeting they chose costs \$14 per square yard, the padding \$3 per square yard, and the installation \$3 per square yard. What will it cost them to carpet the three bedrooms and the hallway shown? 



**APPLICATION** A landscape architect is designing three trapezoidal flowerbeds to wrap around three sides of a hexagonal flagstone patio, as shown. What is the area of the entire flowerbed? The landscape architect's fee is \$100 plus \$5 per square foot. What will the flowerbed cost?



Sampson's dog, Cecil, is tied to a post by a chain 7 meters long. How much play area does Cecil have? Express your answer to the nearest square meter.

Use the circle area formula to solve the following problems:

If  $r = 3$  in.,  $A = \underline{\hspace{1cm}}$ .

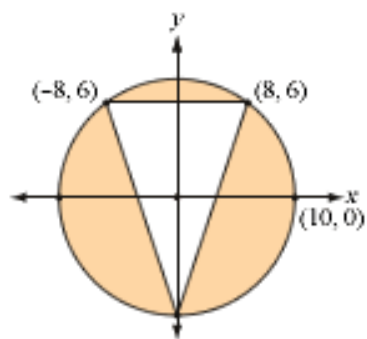
If  $r = 0.5$  m,  $A \approx \underline{\hspace{1cm}}$ .

If  $r = 7$  cm,  $A = \underline{\hspace{1cm}}$ .

If  $A = 3\pi$  in.<sup>2</sup>, then  $r = \underline{\hspace{1cm}}$ .

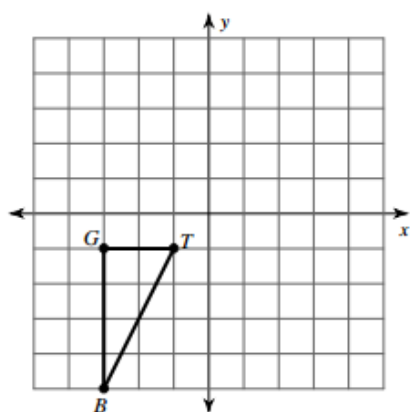
If  $A = 0.785$  m<sup>2</sup>, then  $r \approx \underline{\hspace{1cm}}$ .

What is the area of the shaded region between the circle and the triangle?

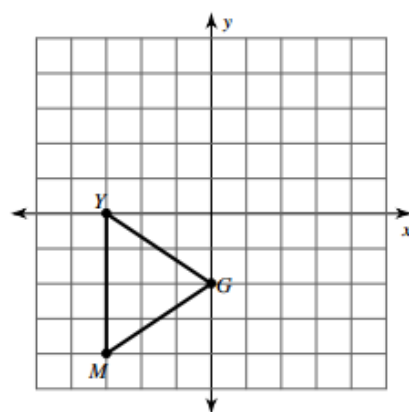


Graph the image of the figure using the transformation given.

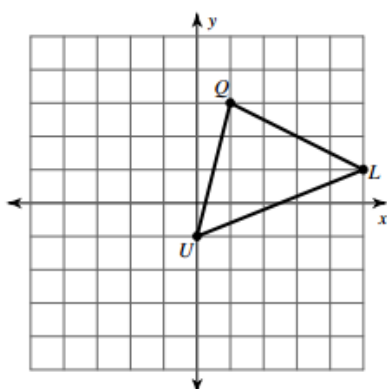
1) translation: 5 units right and 1 unit up



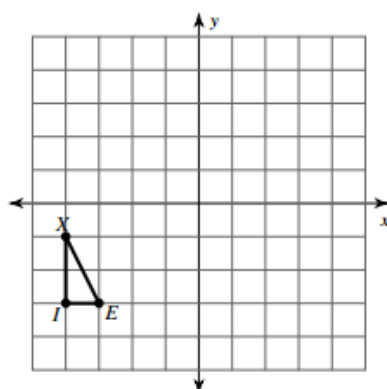
2) translation: 1 unit left and 2 units up



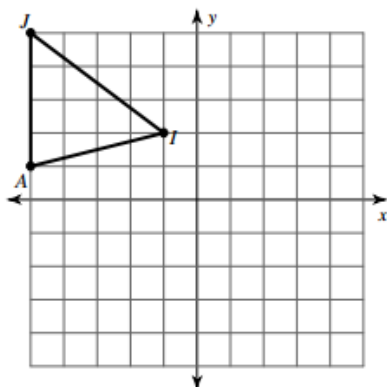
3) translation: 3 units down



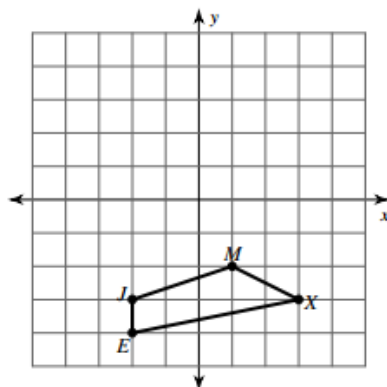
4) translation: 5 units right and 2 units up



5) translation: 4 units right and 4 units down



6) translation: 2 units right and 3 units up

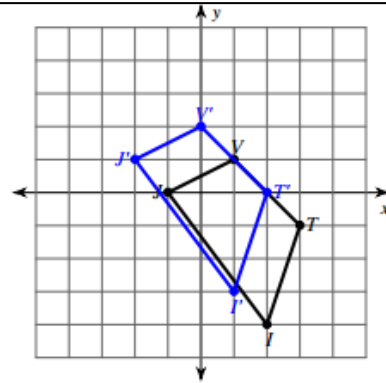
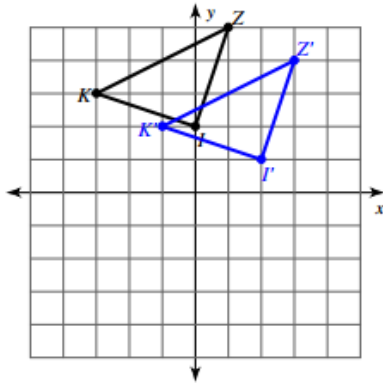




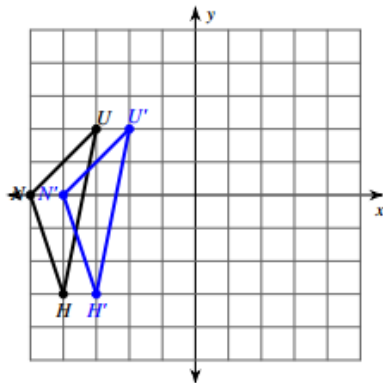
Write a rule to describe each transformation.

The figures with the letters (KZT) are the original and the ones with the primes (K'Z'T') are translated figure

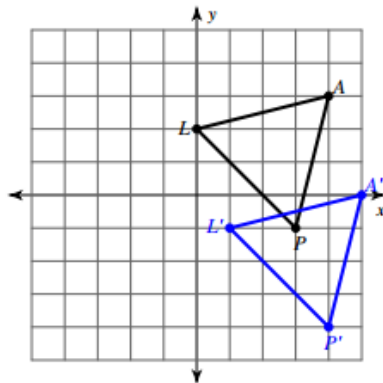
7)



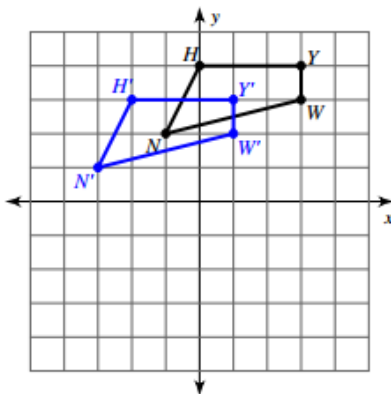
9)



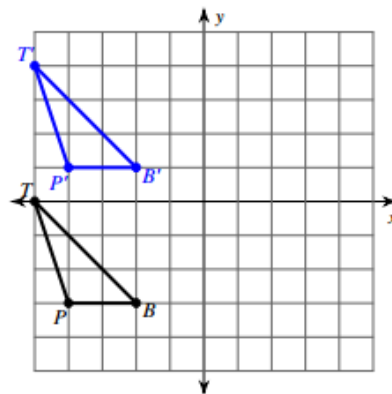
10)



11)

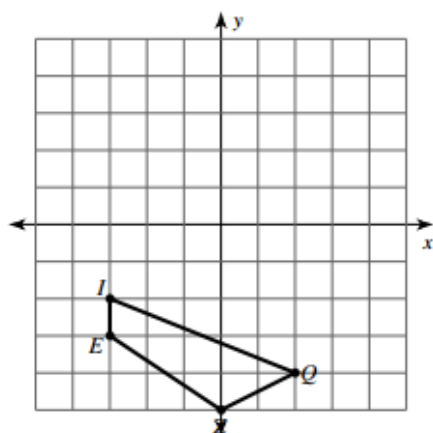


12)

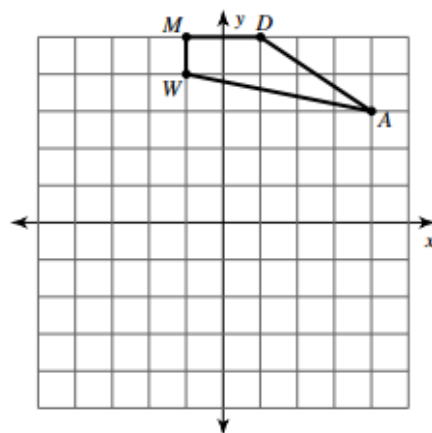


**Graph the image of the figure using the transformation given.**

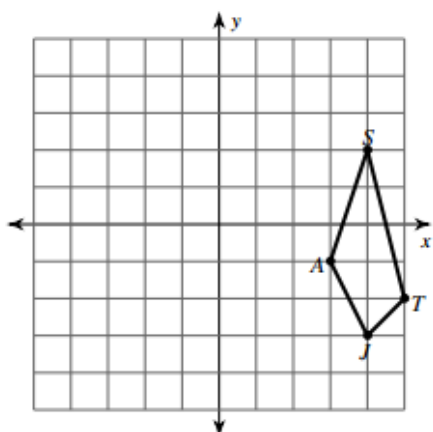
1) reflection across  $y = -2$



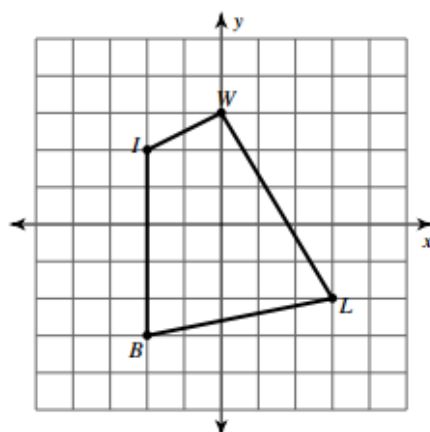
2) reflection across the x-axis



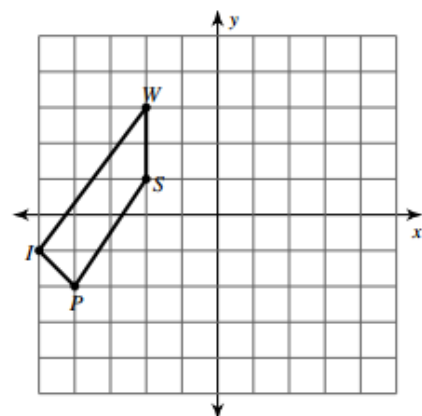
3) reflection across  $y = -x$



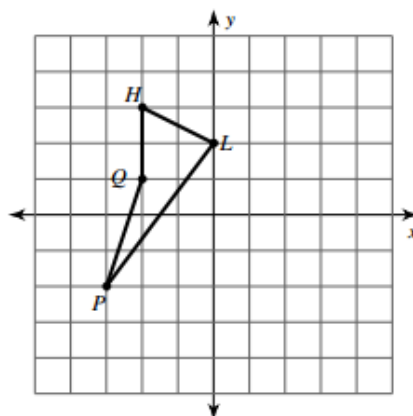
4) reflection across  $y = -1$



5) reflection across  $x = -3$

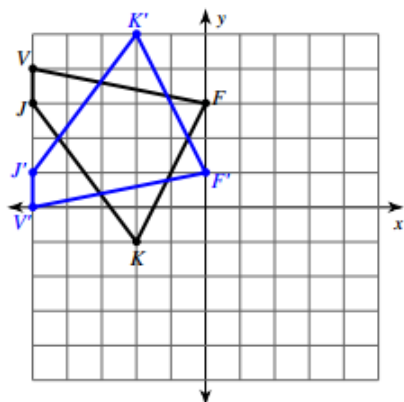


6) reflection across  $y = x$

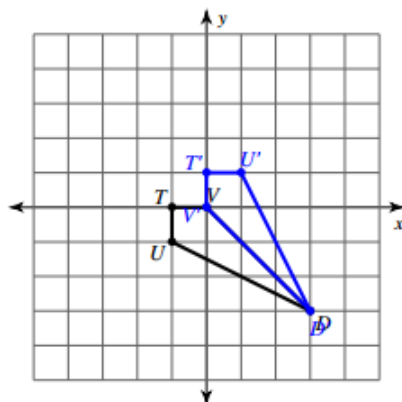


Write a rule to describe each transformation.

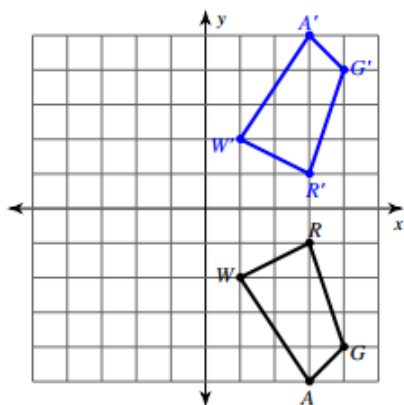
7)



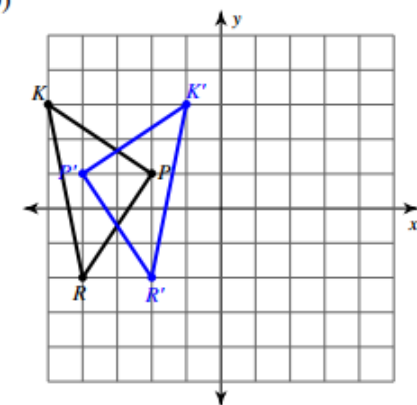
8)



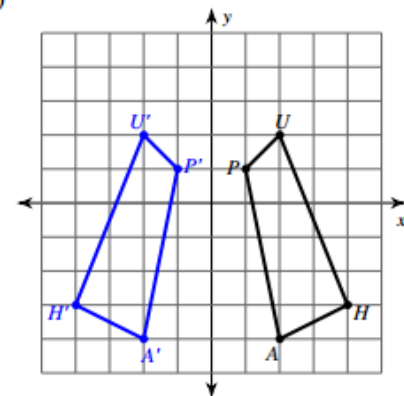
9)



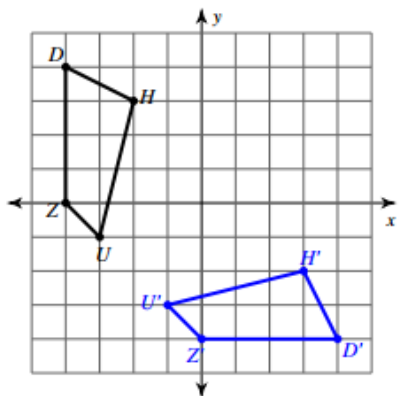
10)



11)



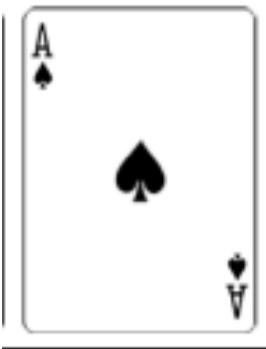
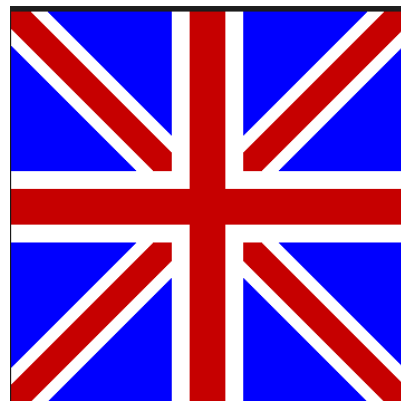
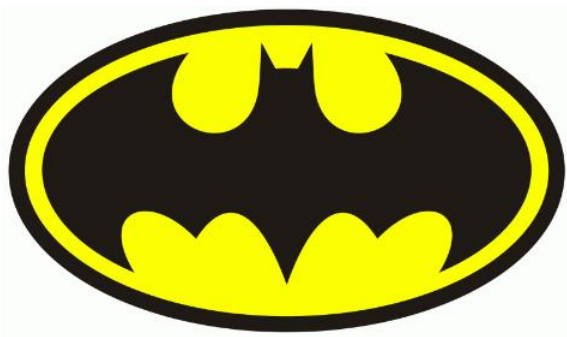
12)



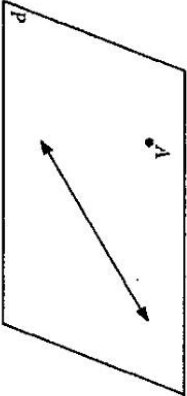
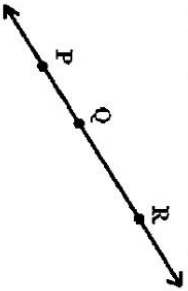
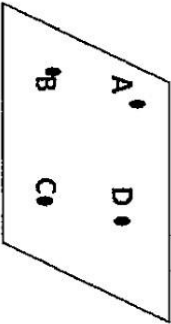
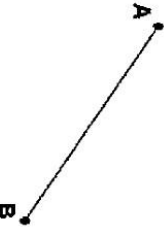
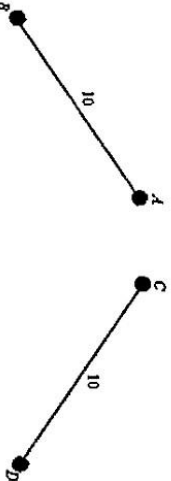
Go to <http://www.mathsisfun.com/geometry/symmetry-reflection.html> to fill in the table and answer the questions below

Figure 3 lines reflectional symmetry	Figure with 1 line of reflectional symmetry	Figure with 0 lines of reflectional symmetry

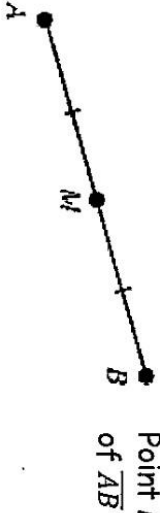
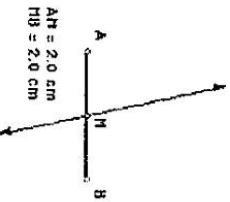
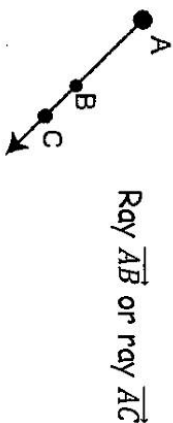
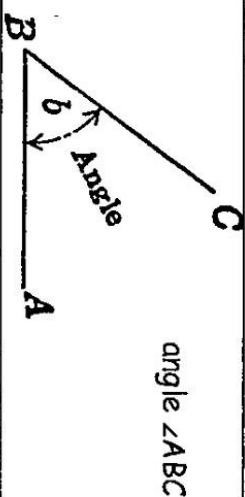
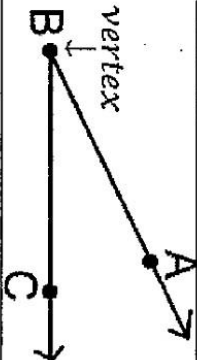
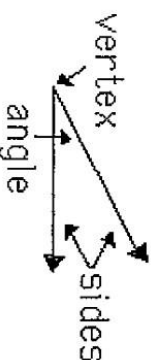
Do the following figures have reflectional symmetry? If so, how many lines? Draw them.



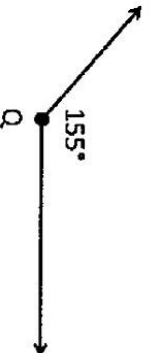
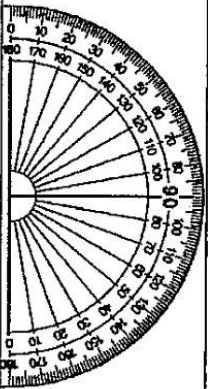
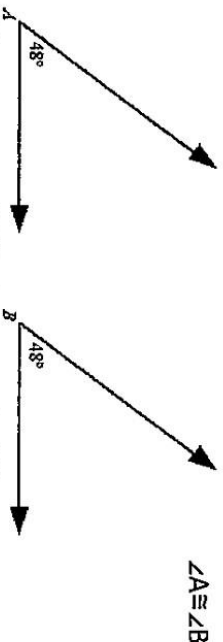
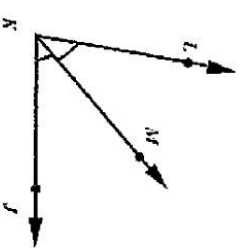
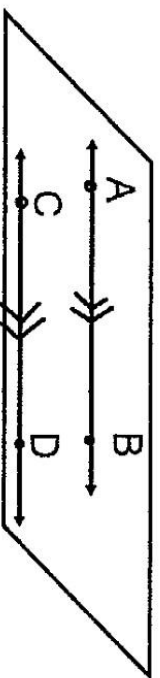
# Geometry Vocabulary

#	Name	Definition	Picture/Example
1	Three Building Blocks of Geometry "undefined terms"	Point, Line, Plane	
2	Definition	Statement that clarifies or explains the meaning of a word or phrase	
3	Collinear	Two or more points on a line	
4	Coplanar	Two or more points on the same plane	
5	Line Segment	Part of a line with two endpoints	
6	Congruent segments	Two segments with the same length/ measurement	

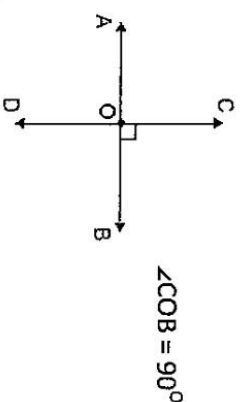
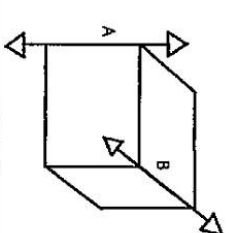
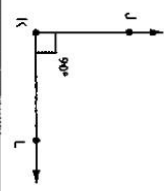
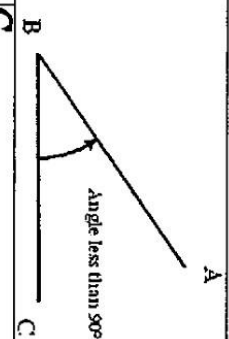
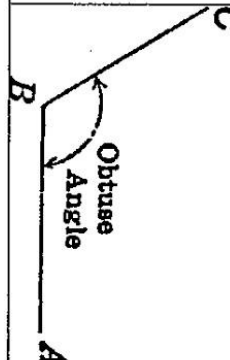
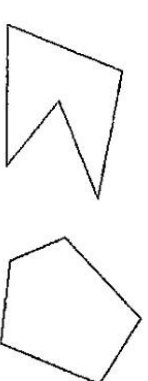
## Geometry Vocabulary

#	Name	Definition	Picture/Example
7	Midpoint	A point on a segment that is equal distance from both endpoints	 <p>Point M is the midpoint of <math>\overline{AB}</math></p>
8	Bisects	Something ( point, line, segment, ect.) that cuts a figure into two equal parts	 <p>Point M bisects <math>\overline{AB}</math></p>
9	Ray	Part of a line with one endpoint	 <p>Ray <math>\overrightarrow{AB}</math> or ray <math>\overrightarrow{AC}</math></p>
10	Angle	Two non-collinear rays that share a common endpoint	 <p>angle <math>\angle ABC</math></p>
11	Vertex of an angle	The point where the rays of the vertex meet	 <p>vertex</p>
12	Sides of an angle	The rays that make up the angle	 <p>vertex angle sides</p>

## Geometry Vocabulary

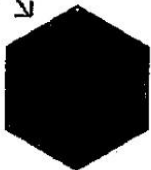

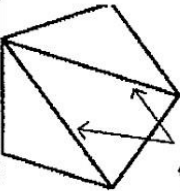
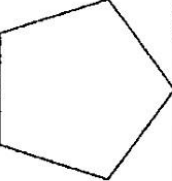
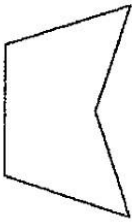
#	Name	Definition	Diagram or Example
13	Measure of the angle	Smallest rotation about the vertex from one ray to another	 <p style="text-align: center;">the smallest rotation would be <math>155^\circ</math></p>
14	Protractor	Geometry tool to measure angles	
15	Congruent angles	Two angles with the same measurement	 <p style="text-align: center;"><math>\angle A \cong \angle B</math></p>
16	Angle Bisector	A ray through the vertex of an angle that splits the angle into two congruent angles	 <p style="text-align: center;"><math>\angle LKM</math> is bisected by Ray <math>\overrightarrow{KM}</math></p>
17	Counter-example	An example that disproves the definition you are testing	
18	Three step to writing a good definition	1) Classify the item in a category 2) Differentiate the item from all others in that category	
19	Parallel lines	Two lines in the same plane that never intersect	 <p style="text-align: center;"><math>\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}</math></p>

## Geometry Vocabulary

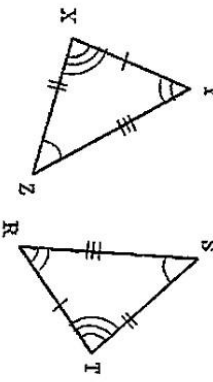
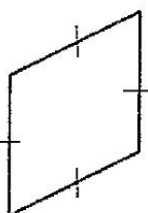
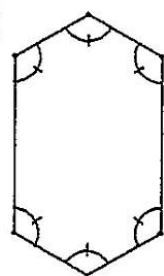
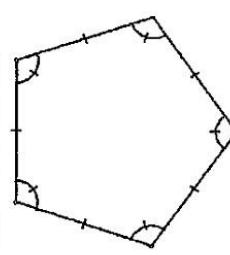
#	Name	Definition	Diagram or Example
20	Perpendicular Lines	Two lines that intersect at $90^\circ$	 <p style="text-align: center;"><math>\angle COB = 90^\circ</math></p>
21	Skew Lines	Two lines in different planes that never intersect	
22	Right angle	An angle that measures $90^\circ$	
23	Acute Angle	An angle that measures less than $90^\circ$	
24	Obtuse Angle	An angle that measures greater than $90^\circ$	
25	Polygon	A closed figure made up of line segments connected endpoint to endpoint which intersect exactly two others	



## Geometry Vocabulary

#	Name	Definition	Diagram or Example
26	Sides of a polygon	Line segments that make up the polygon	 <p>Sides of the polygon</p>
27	Vertex of a polygon	The point where two sides of the polygon intersect	 <p>vertex of the polygon</p>
28	Names of polygons by the number of sides	3- triangle      8- octagon 4- quadrilateral    9- nonagon 5- pentagon      10- decagon 6- hexagon      11 undecagon 7- heptagon      12- dodecagon	
29	Diagonal	A segment that connect two nonconsecutive vertices of a polygon	 <p>diagonals</p>
30	Convex Polygon	A polygon where all the diagonals are inside the polygon	 <p>convex polygon</p>
31	Concave Polygon	A polygon with at least one diagonal outside the polygon	 <p>concave polygon</p>

# Geometry Vocabulary

#	Name	Definition	Diagram or Example
32	Congruent polygons	Two polygons with the same size and shape	
33	Equilateral polygon	A polygon where all the sides are the same length	
34	Equiangular Polygon	A polygon where all the angles are the same measure	
35	Regular Polygon	A polygon that is equiangular and equilateral	
36	Slope Formula	$\text{Slope} = m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$	