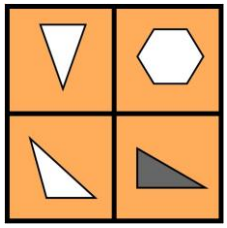
Warmup $1/\sqrt{900}$

(This is week 4!)

1) Which shape in the picture does not belong? Explain why it does not belong.

2) Pick a different shape and come up with a reason why it doesn't belong. Repeat for every shape in the picture.



RETURN OF THE QUIZZES

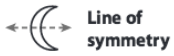
Objective

Identify and describe symmetry in geometric figures.

What is Symmetry?

Turn to pg. 871

A figure has **symmetry** if a rigid motion exists that maps the figure onto itself. A figure has **line symmetry** (or *reflectional symmetry*) if a reflection maps the figure onto itself. Each of these lines of reflection is called a **line of symmetry**.

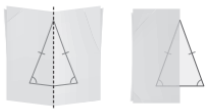


What does it mean for a figure to map onto itself?

Complete A, B, C, and D on pgs. 847 - 848

(A) Trace the figure on a piece of tracing paper.

(B) If the figure can be folded along a straight line so that one half of the figure exactly matches the other half, the figure has line symmetry. The crease is the line of symmetry. Place your shape against the original figure to check that each crease is a line of symmetry.



C Sketch any lines of symmetry on the figure.

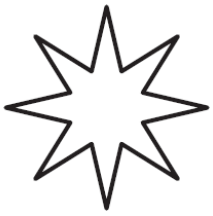
The figure has one line of symmetry.

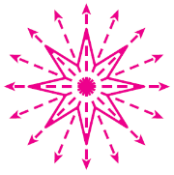
D Draw the lines of symmetry, if any, on each figure and tell the total number of lines of symmetry each figure has.

Figure			
How many lines of symmetry?	two	zero	one

I need a volunteer!

Draw the lines of symmetry!





eight lines of symmetry

Tell whether each figure has line symmetry. If so, draw all of the lines of symmetry.

a. 

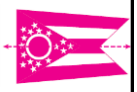
yes; two lines of symmetry

b. 

yes; one line of symmetry

c. 

yes; one line of symmetry

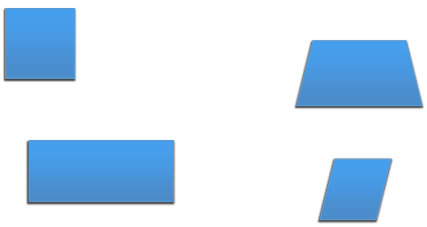


Your Turn!

- Complete Reflection Questions 1-3

1. What do you have to know about any segments and angles in a figure to decide whether the figure has line symmetry?
   Pairs of segments in the figure must have the same length and pairs of angles must have the same measure, so that one half of the figure will coincide with the other half when the figure is folded across a line of symmetry.
2. What figure has an infinite number of lines of symmetry? **A circle**
3. **Discussion** A figure undergoes a rigid motion, such as a rotation. If the figure has line symmetry, does the image of the figure have line symmetry as well? Give an example.
   Yes. The line of symmetry also undergoes the rigid motion. For example, if the L-shape in Step D is rotated into a V-shape, the line of symmetry is rotated the same way.

Quadrilateral Symmetry!



http://www.mathsisfun.com/geometry/symmetry-line-plane-shapes.html

How many degrees are in one full rotation?

Rotational Symmetry pg. 875

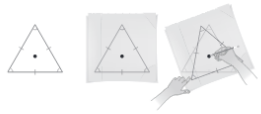
A figure has **rotational symmetry** if a rotation maps the figure onto itself. The **angle of rotational symmetry**, which is greater than 0° but less than or equal to 180°, is the smallest angle of rotation that maps a figure onto itself.

Angle of rotational symmetry: 72°

An angle of rotational symmetry is a fractional part of 360°. Notice that every time the 5-pointed star rotates $\frac{360°}{5} = 72°$, the star coincides with itself. The angles of rotation for the star are 72°, 144°, 216°, and 288°. If a copy of the figure rotates to exactly match the original, the figure has rotational symmetry.

Explore! Complete pg. 873 A and B

A Trace the figure onto tracing paper. Hold the center of the traced figure against the original figure with your pencil. Rotate the traced figure counterclockwise until it coincides again with the original figure beneath.



By how many degrees did you rotate the figure? 120°

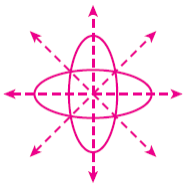
What are all the angles of rotation? 120°, 240°

B Determine whether each figure has rotational symmetry. If so, identify all the angles of rotation less than 360°.

Figure			
Angles of rotation less than 360°	90°, 180°, 270°	none	180°

I need a Volunteer!

Draw the lines of symmetry. Describe any rotational symmetry.



Line symmetry and rotational symmetry; 90°

Worksheet

Describe any line symmetry or rotational symmetry you see in each of these ***regular*** figures.

Homework

- Complete pg. 876 (1-8, 12, 13, 16)