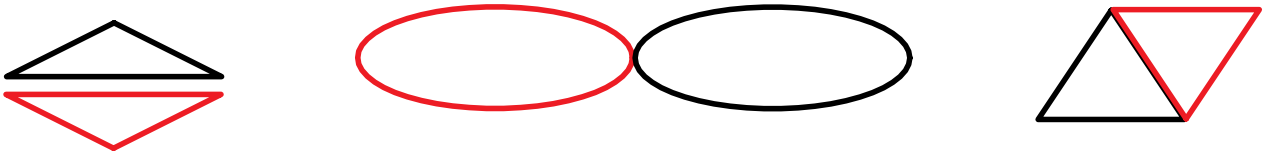
3.5 Symmetry

Monday, September 23, 2019 7:46 AM

Warm Up

What rigid transformation maps each figures preimage to its image? Preimages are black, images are red.



Essential Question

How can you tell whether a figure is symmetric?

Needed Vocab:

- **Point Symmetry**
- **Reflectional Symmetry**
- **Rotational Symmetry**

Goal: "I can. . .

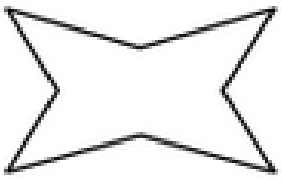
Identify different types of symmetry in two-dimensional figures."

Looking at these three images of a kaleidoscope, how are pieces A and B related to one another? Discuss your ideas with the people next to you. Also discuss your groups thoughts about how Pieces A and B relate to the larger image.

Piece A Piece B

Example 1

What transformations can be used to map the figure onto itself? Why can some figures be mapped onto themselves and some can't?

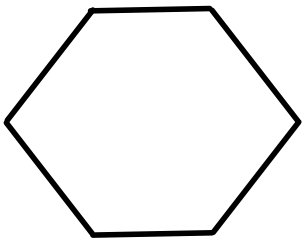


1.A) What transformations map the figure onto itself?

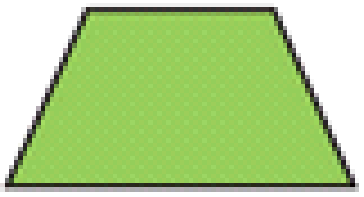
B) What transformations map the figure onto itself?

Example 2

How many lines of symmetry does a regular hexagon have?



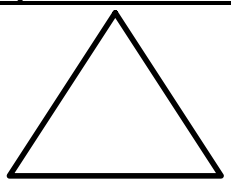
How many lines of symmetry do each of the figures have? How do you know whether you have found them all?



Example 3

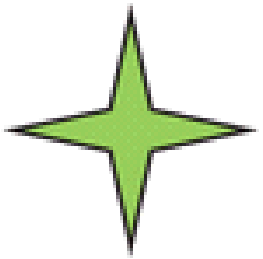
For what angles of rotation does the figure map onto itself?

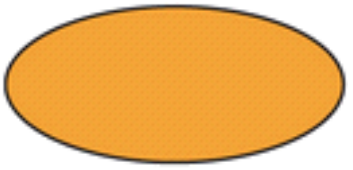
Equilateral Triangle



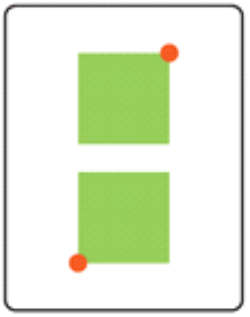
Parallelogram

What are the rotational symmetries for the figures? Do the figures have point symmetry?



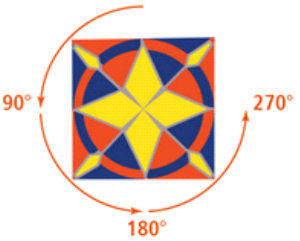


What type(s) of symmetry do the figures have?



What symmetries does a square have?

Symmetry

	Reflectional Symmetry	Rotational Symmetry
WORDS	• A figure that maps onto itself when it is reflected over a line has reflectional symmetry. • A line of symmetry is a line of reflection when a figure is reflected onto itself.	• A figure that maps onto itself when it is rotated about its center by an angle measuring less than 360° has **rotational symmetry**. • A figure with 180° rotational symmetry has **point symmetry**.
DIAGRAM		

Homework

Pg. 140
13, 15, 20, 21-25 odd, 28, 29