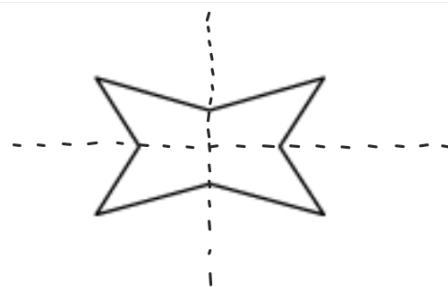
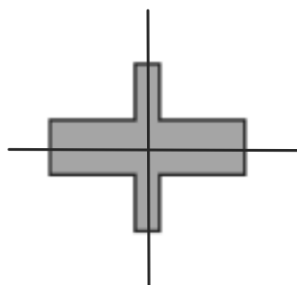


What transformations can be used to map the figure onto itself? Why can some figures be mapped onto themselves?



**SOLUTION**

1. a. What transformations map the figure onto itself?

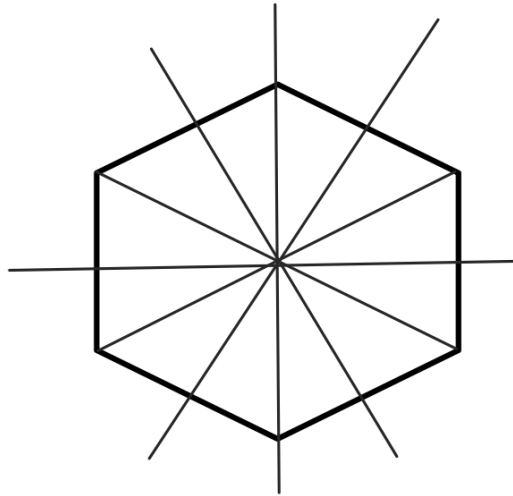


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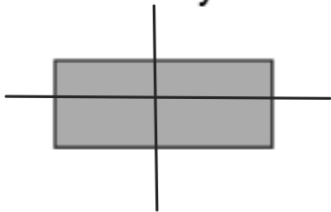
1. b. What transformations map the figure onto itself?



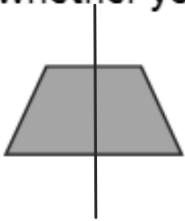
How many lines of symmetry does a regular hexagon have?



**2.a.** How many lines of symmetry does the figure have? How do you know whether you have found them all?



**2.b.** How many lines of symmetry does the figure have? How do you know whether you have found them all?

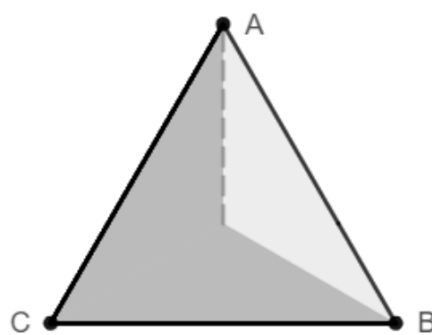


For what angles of rotation does the figure map onto itself?

A. an equilateral triangle

Rotate the figure in the tool to the right by dragging the slider.

**SOLUTION**

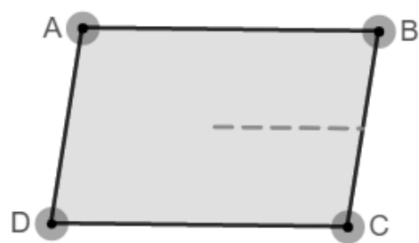


For what angles of rotation does the figure map onto itself?

B. a parallelogram

Rotate the figure in the tool to the right by dragging the slider.

**SOLUTION**



## Try It!

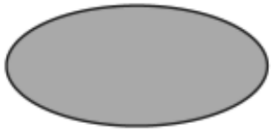
3. a. What are the rotational symmetries for the figure? Does the figure have point symmetry?





## Try It!

**3. b.** What are the rotational symmetries for the figure? Does the figure have point symmetry?



What type(s) of symmetry does the figure have?

**SOLUTION**

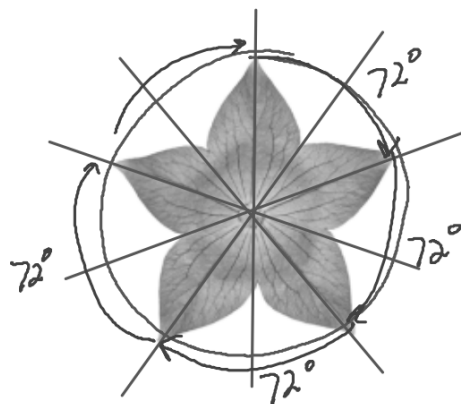
$$360^\circ \div 5$$

$$72^\circ$$

$$144^\circ$$

$$216^\circ$$

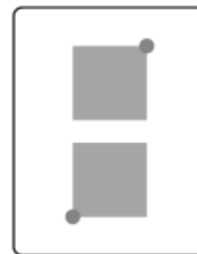
$$288^\circ$$



What type(s) of symmetry does the figure have?

**SOLUTION**

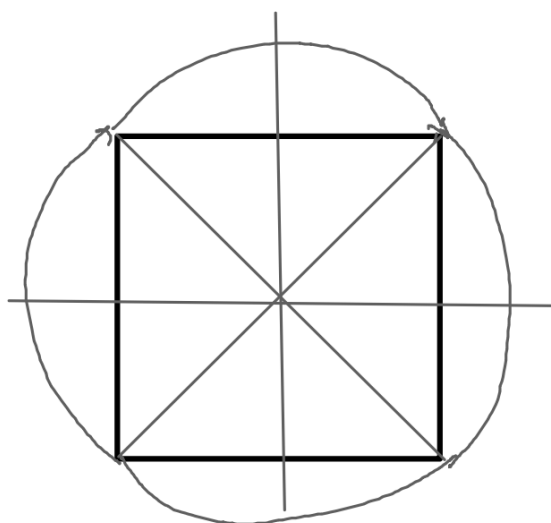
Rotational Symmetry  
 $180^\circ$



4. What symmetries does a square have?

$$360 \div 4$$

$90^\circ$   
 $180^\circ$   
 $270^\circ$   
 $360^\circ$



# Symmetry

## Reflectional 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.

### DIAGRAM



## Rotational Symmetry

- A figure that maps onto itself when it is rotated about its center by an angle measuring less than  $360^\circ$  has **rotational symmetry**.
- A figure with  $180^\circ$  rotational symmetry has **point symmetry**.

