

Transformations and Similarity

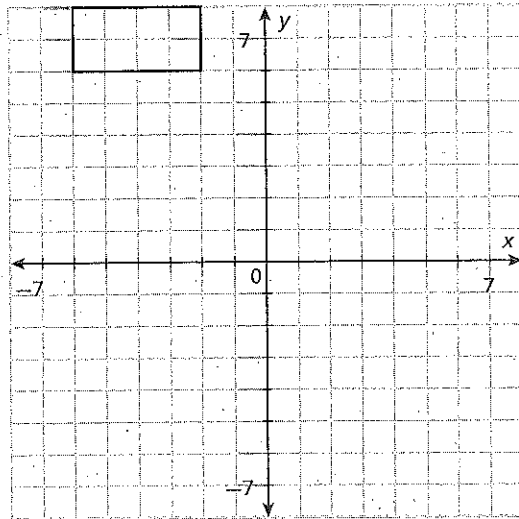
COMMON CORE

CC.8.G.4

Essential question: *What is the connection between transformations and similar figures?*

1 EXPLORE Combining Transformations with Dilations

Apply the indicated series of transformations to the rectangle. Each transformation is applied to the image of the previous transformation, not to the original figure. Label each image with the letter of the transformation applied.



- A $(x, y) \rightarrow (x + 7, y - 2)$
- B $(x, y) \rightarrow (x, -y)$
- C rotation 90° clockwise around the origin
- D $(x, y) \rightarrow (x + 5, y + 3)$
- E $(x, y) \rightarrow (3x, 3y)$
- F List the coordinates of the vertices of rectangle *E*.

- G Compare the following attributes of rectangle *E* to those of the original figure.

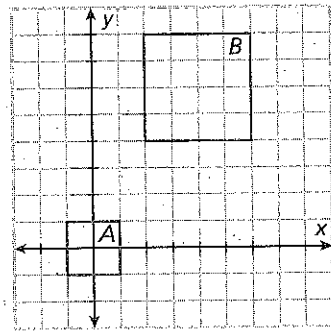
Shape	
Size	
Angle Measures	

Two figures are **similar** if one can be obtained from the other by a sequence of translations, reflections, rotations, and dilations. Similar figures have the same shape but may be different sizes.

When you are told that two figures are similar, there must be a sequence of translations, reflections, rotations, and/or dilations that can transform one to the other.

2 EXPLORE Similar Figures

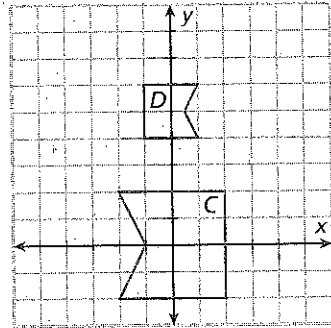
- A Identify a sequence of transformations that will transform figure *A* into figure *B*.



- B What happens if you reverse the order of the sequence you defined in A?

- C Tell whether figures *A* and *B* are congruent. Tell whether they are similar.

- D Identify a sequence of transformations that will transform figure *C* into figure *D*. Include a reflection.



- E Identify a sequence of transformations that will transform figure *C* into figure *D*. Include a rotation.

TRY THIS!

1. Circle the figures that are similar to each other.

