

Lesson 3 Reteach

Similarity and Transformations

Two figures are **similar** if the second can be obtained from the first by a sequence of transformations and dilations. Recall that a dilation changes the size of a figure by a scale factor, but does not change the shape of the figure.

Example 1

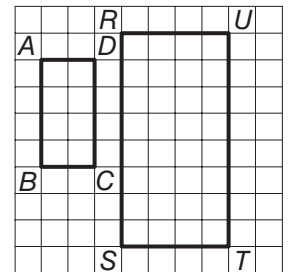
Determine if the two figures are similar by using transformations.

Since the orientation of the figures is the same, one of the transformations is a translation.

Write ratios comparing the lengths of the sides.

$$\frac{AB}{RS} = \frac{4}{8} \text{ or } \frac{1}{2}, \frac{BC}{ST} = \frac{2}{4} \text{ or } \frac{1}{2}, \frac{CD}{TU} = \frac{4}{8} \text{ or } \frac{1}{2}, \frac{DA}{UR} = \frac{2}{4} \text{ or } \frac{1}{2}$$

Since the ratios are equal, $ABCD$ is the dilated image of $RSTU$. So, the two triangles are similar because a translation and a dilation maps $ABCD$ onto $RSTU$.



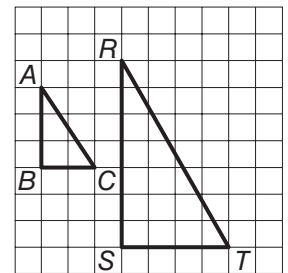
Example 2

Determine if the two figures are similar by using transformations.

Since the orientation of the figures is the same, one of the transformations.

$$\frac{AB}{RS} = \frac{3}{7}, \frac{BC}{ST} = \frac{2}{4} \text{ or } \frac{1}{2}$$

The ratios are not equal. So, the two triangles are not similar since a dilation did not occur.



Exercise

- Determine if the two figures are similar by using transformations.

