## Possible Solutions

A transformation is applied to a figure to create a new figure. Which transformation does **not** preserve congruence?

## Possible Solution 1

- Dilation is the only transformation that does not maintain congruency, as long as the scale factor is not equal to 1.
- A scale factor between 0 and 1 creates a reduction of the figure, and a scale factor that is greater than 1 creates an enlargement of the figure.
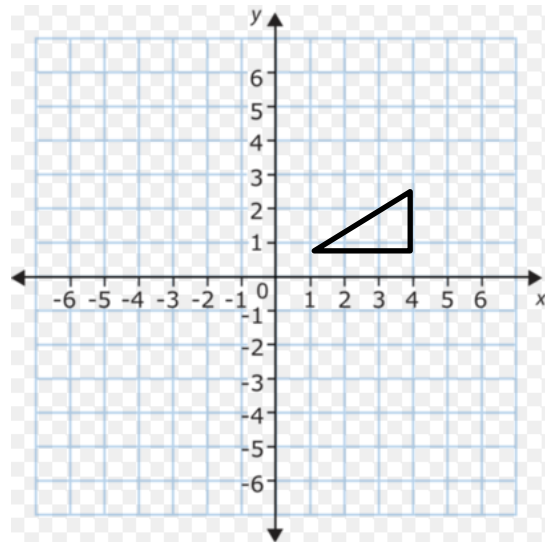
## Possible Solution 2

- Apply the following transformations to determine which changes the size of the figure.

  $(x, y) \rightarrow (-x, y)$

  $(x, y) \rightarrow (x - 2, y + 3)$

  $(x, y) \rightarrow (-y, x)$

  $(x, y) \rightarrow (2x, 2y)$



- The last transformation will double the size of the figure. Therefore, the dilation does not preserve congruence as long as the scale factor is not equal to 1.