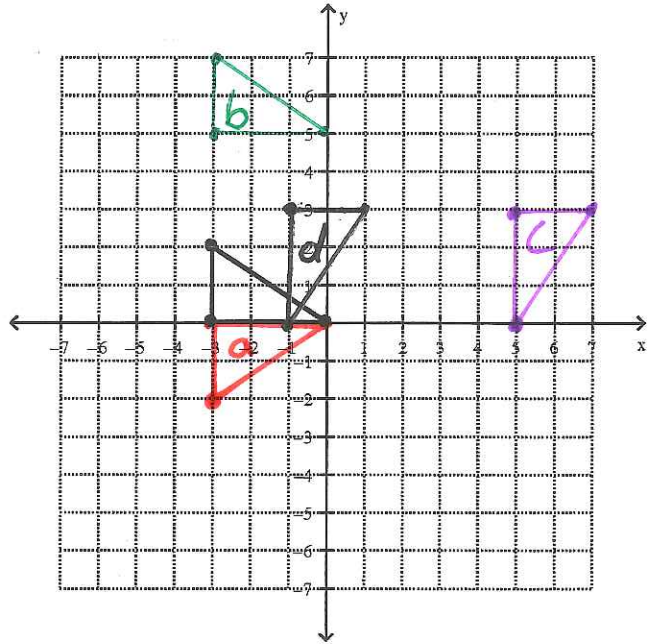


# Sequencing Transformations

*wrong answers*

1. Apply the sequence of transformation listed below, sketching a new image after each. Apply each transformation to the most recent image, not the original pre-image.

- Reflect it over the y-axis.
- $(x, y) \rightarrow (x, y - 5)$
- Rotate it  $90^\circ$  counter clockwise.
- $(x, y) \rightarrow (x - 6, y)$



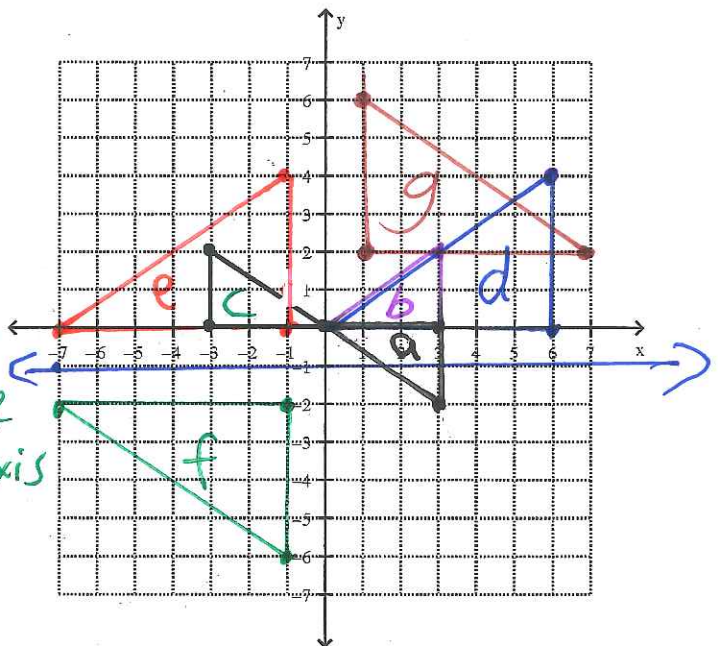
1. Apply the sequence of transformation listed below, sketching a new image after each. Apply each transformation to the most recent image, not the original pre-image.

- Rotate  $180^\circ$ .
- Reflect over the y-axis.
- Reflect over the x-axis.

What do you notice about the location of the triangle right now? *Back at the same spot.* Why might this be?

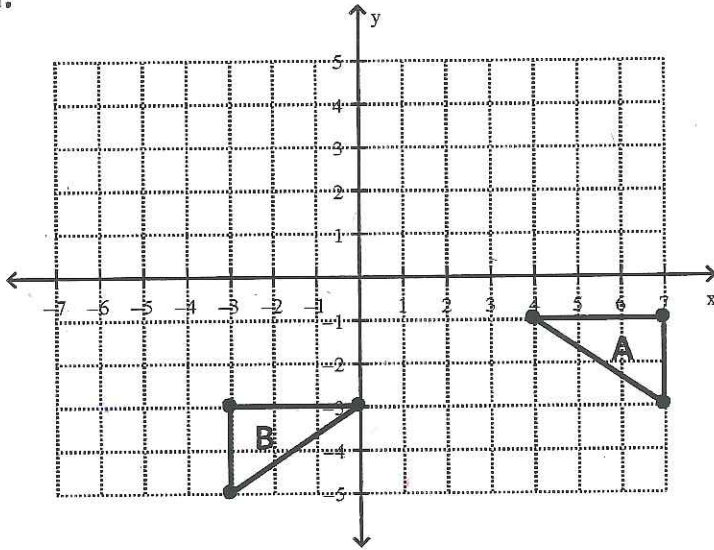
*Rotating  $180^\circ$  is the same as reflecting over the y-axis and the x-axis*

- Dilate by a scale factor of 2.
- $(x, y) \rightarrow (x + 7, y + 3)$
- Reflect over the line  $x = 1$ .
- Rotate  $180^\circ$ .



2. For each of the following identify a sequence of transformations that would translate triangle A to triangle B. The goal is to accomplish this in the least amount of steps possible.

a.

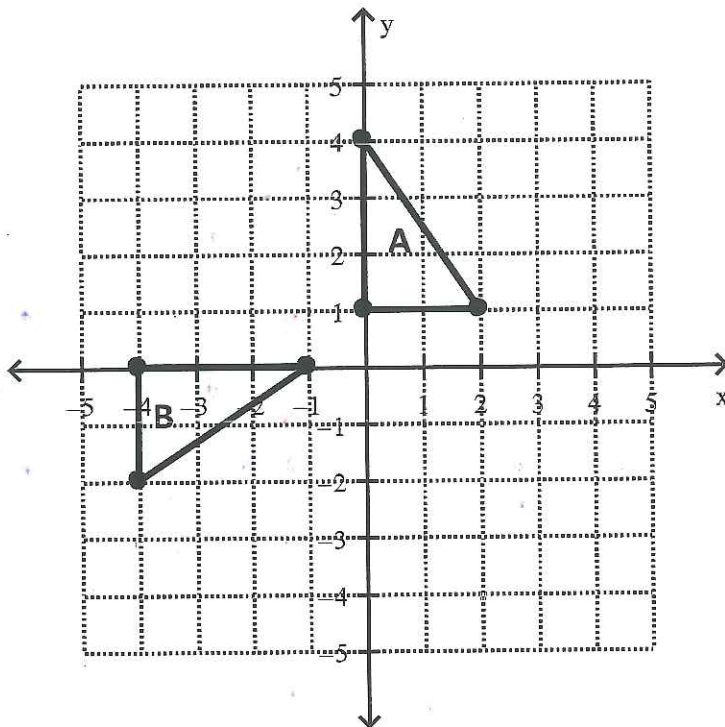


1.) Reflect over the  $y$ -axis.

2.) Shift 4 units  $\rightarrow$

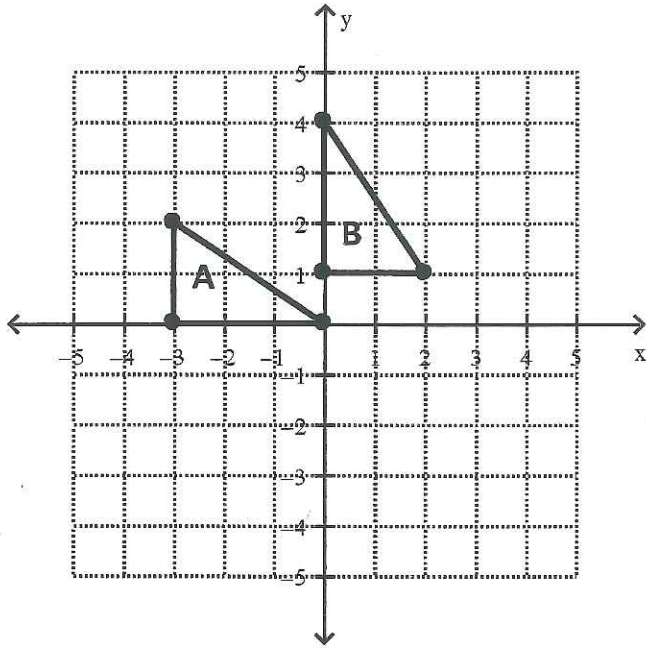
3.) Shift 2 units  $\uparrow$

b.



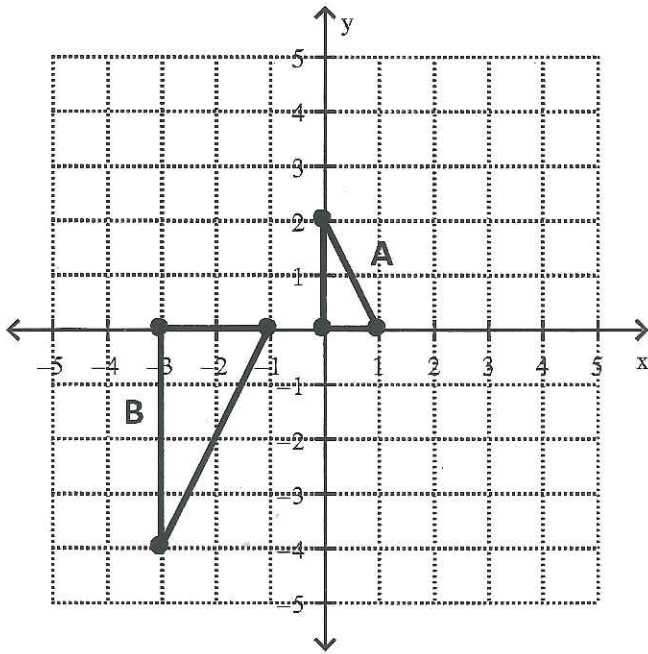
Shift 5 units  $\rightarrow$   
Rotate  $90^\circ$  CC

c.



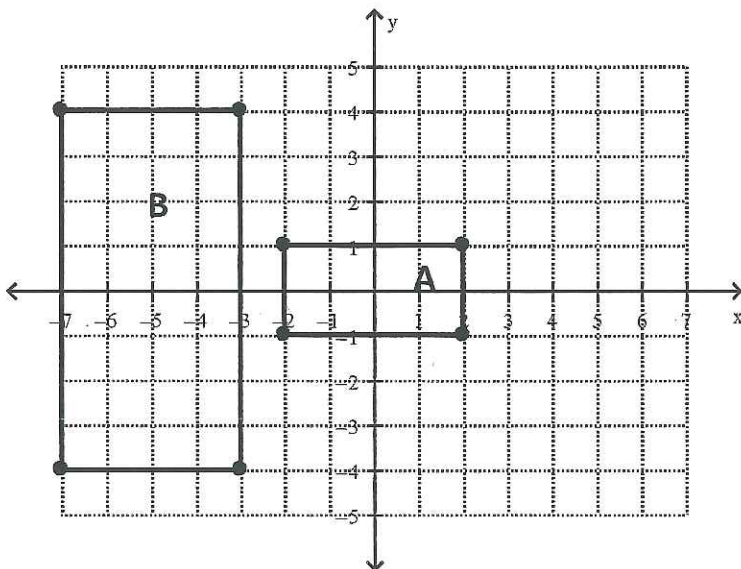
Shift 4 units  $\downarrow$   
 Rotate  $270^\circ$  CC  
 Reflect over the x-axis

d.



Dilate by a Scale factor of  $\frac{1}{2}$ .  
 Reflect over the x-axis.  
 Shift 3 units  $\rightarrow$

e.



Dilate by a Scale Factor of  $\frac{1}{2}$ .  
 Rotate  $270^\circ$  CC  
 Shift 5 units  $\rightarrow$