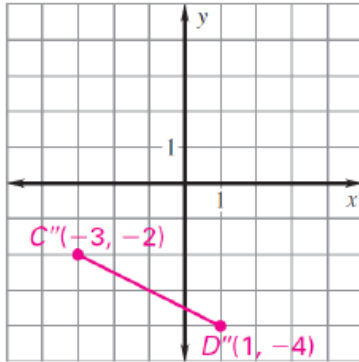


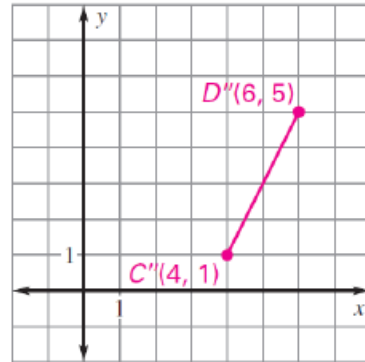
Unit 10.5 worksheet Glide Reflections and Compositions

The endpoints of \overline{CD} are $C(1, 2)$ and $D(5, 4)$. Graph the image of \overline{CD} after the glide reflection.

1. Translation: $(x, y) \rightarrow (x - 4, y)$
Reflection: in the x-axis



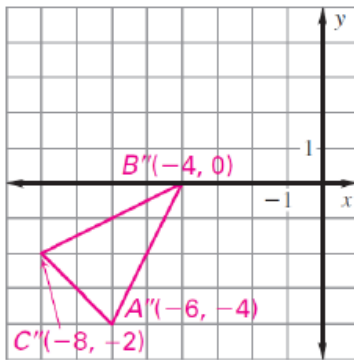
2. Translation: $(x, y) \rightarrow (x, y + 2)$
Reflection: in $y=x$



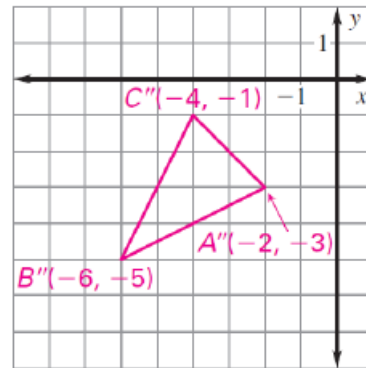
The vertices of $\triangle ABC$ are $A(3, 1)$, $B(1, 5)$, and $C(5, 3)$.

Graph the image of $\triangle ABC$ after a composition of the transformations in the order they are listed.

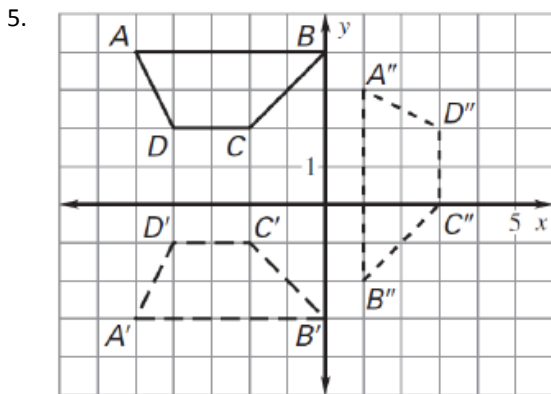
3. Translation: $(x, y) \rightarrow (x + 3, y - 5)$
Reflection: in the y-axis



4. Translation: $(x, y) \rightarrow (x - 6, y + 1)$
Rotation: 90° counterclockwise about the origin

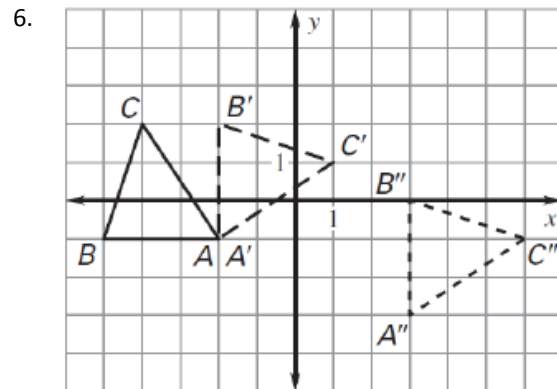


Verify that the figures are congruent by describing the composition of transformations.



1st transformation: Reflection in $y = \frac{1}{2}$

2nd transformation: Rotate 90° about $(1, -3)$ clockwise

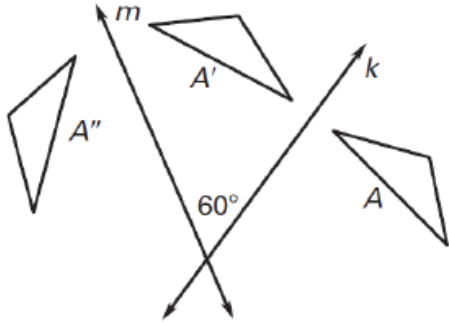


1st transformation: Rotate 90° clockwise about $(-2, -1)$

2nd transformation: Translation: $(x, y) \rightarrow (x + 5, y - 2)$

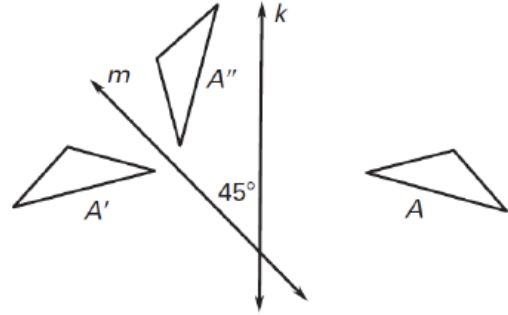
If A is first reflected across line k and then reflected across line m then there is a single rotate about the intersection of lines m and k. Find the angle of rotation that maps A onto A'' rotating about the point of intersection of lines m and k.

7.



Rotate A 120° about the intersection of lines m and k to get A''

8.

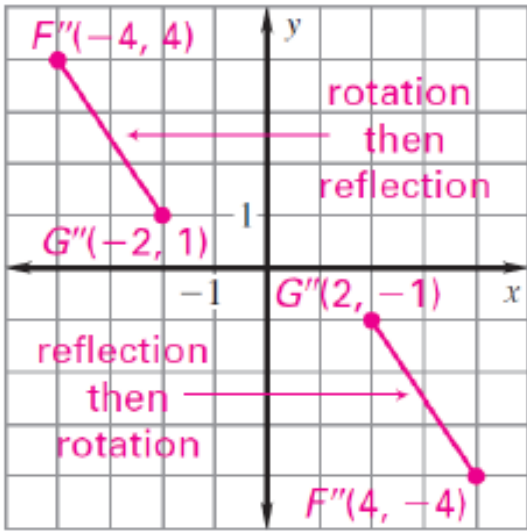


Rotate A 90° about the intersection of lines m and k to get A''

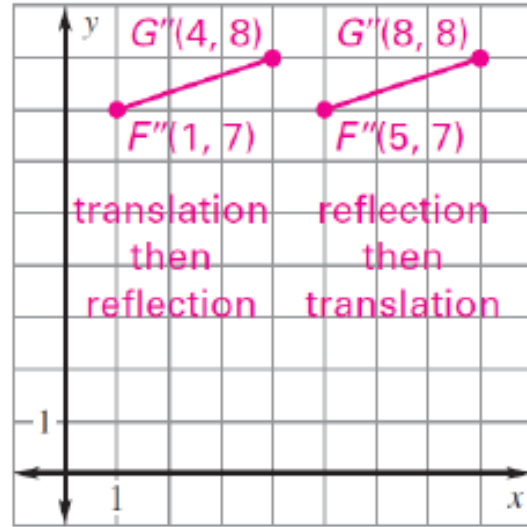
Graph $\overline{F''G''}$ after a composition of the transformations in the order they are listed. Then perform the transformations in reverse order. Does the order affect the final image $\overline{F''G''}$?

9. $F(4, -4)$, $G(1, -2)$
 Rotation: 90° about the origin
 Reflection: in the y-axis

10. $F(-1, -3)$, $G(-4, -2)$
 Reflection: in the line $x = 1$
 Translation: $(x, y) \rightarrow (x + 2, y + 10)$



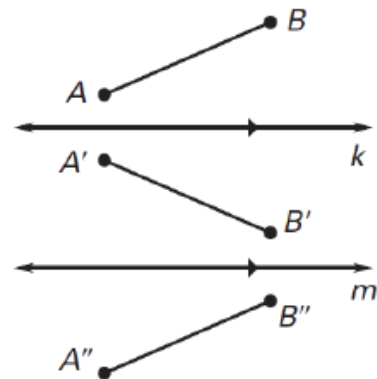
yes



yes

In the diagram, $k \parallel m$, \overline{AB} is reflected in line k, and $\overline{A'B'}$ is reflected in line m.

11. A translation maps \overline{AB} onto which segment? $\overline{A''B''}$
 12. Which lines are perpendicular to $\overline{BB''}$? Lines k and m
 13. Name two segments parallel to $\overline{AA''}$. $\overline{BB'}$ and/or $\overline{BB''}$ and/or $\overline{B'B''}$
 14. If the distance between k and m is 2.7 centimeters, what is the length of $\overline{AA''}$? 5.4 cm
 15. Is the distance from A' to m the same as the distance from A'' to m? yes



Why? Definition of reflection