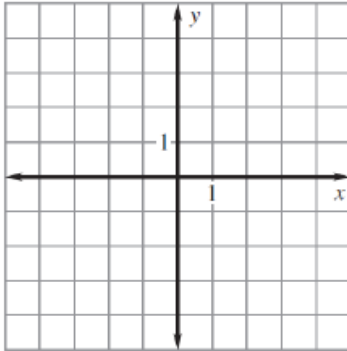


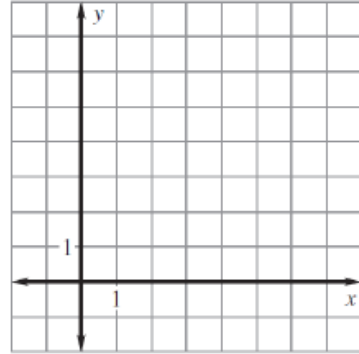
Unit 10.5 worksheet Glide Reflections and Compositions

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



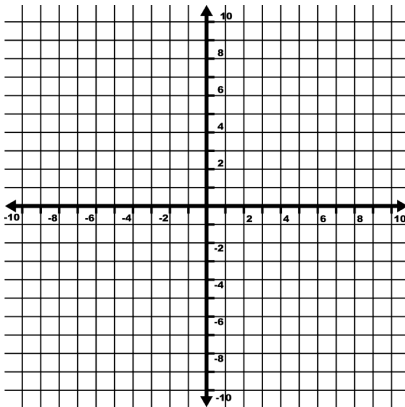
2. Translation:  $(x, y) \rightarrow (x, y + 2)$   
Reflection: in  $y=x$



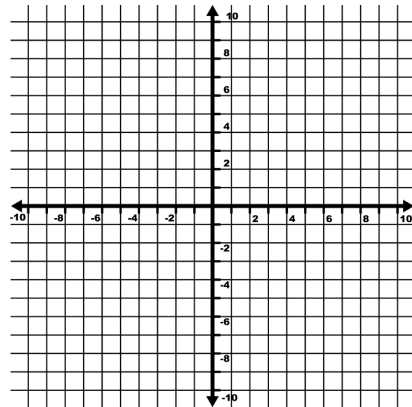
The vertices of  $\triangle ABC$  are  $A(3, 1)$ ,  $B(1, 5)$ , and  $C(5, 3)$ .

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

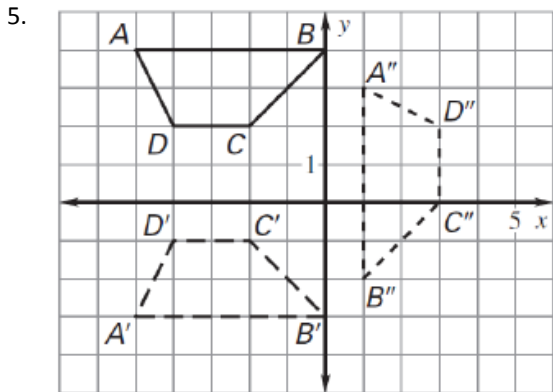
3. Translation:  $(x, y) \rightarrow (x + 3, y - 5)$   
Reflection: in the y-axis



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

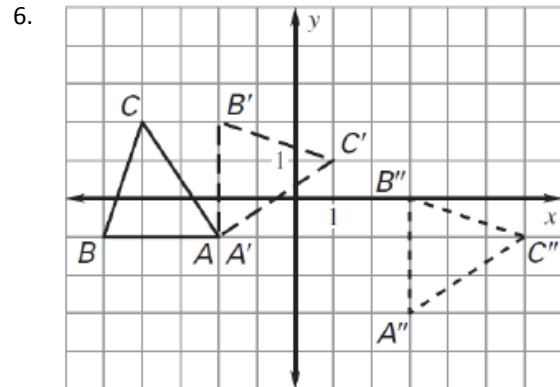


Verify that the figures are congruent by describing the composition of transformations.



1<sup>st</sup> transformation: \_\_\_\_\_

2<sup>nd</sup> transformation: \_\_\_\_\_

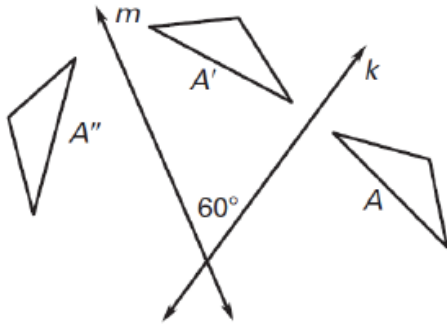


1<sup>st</sup> transformation: \_\_\_\_\_

2<sup>nd</sup> transformation: \_\_\_\_\_

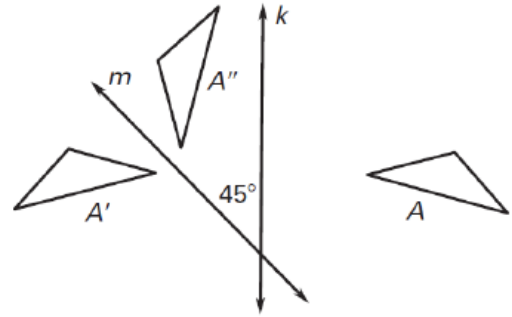
If A is first reflected across line k and then reflected across line m then there is a single rotate about the intersection of lines m and k. Find the angle of rotation that maps A onto A'' rotating about the point of intersection of lines m and k.

7.



Rotate A \_\_\_\_\_ about the intersection of lines m and k to get A''

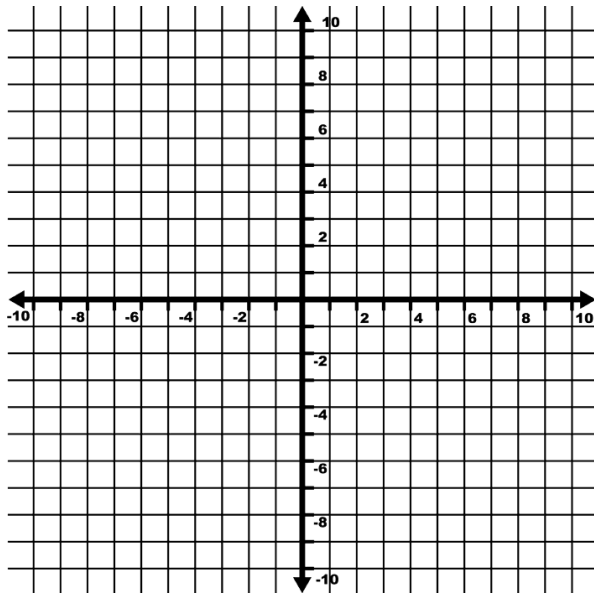
8.



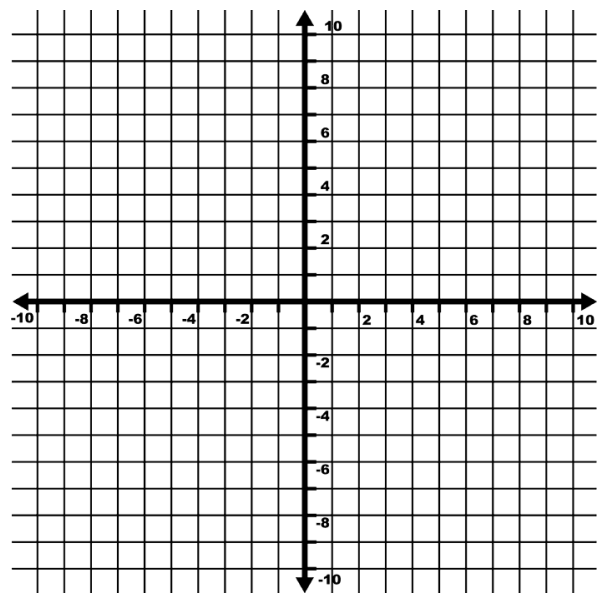
Rotate A \_\_\_\_\_ about the intersection of lines m and k to get A''

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:  $90^\circ$  about the origin  
 Reflection: in the y-axis



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



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? \_\_\_\_\_
12. Which lines are perpendicular to  $\overline{BB''}$ ? \_\_\_\_\_
13. Name two segments parallel to  $\overline{AA''}$ . \_\_\_\_\_
14. If the distance between k and m is 2.7 centimeters, what is the length of  $\overline{AA''}$ ? \_\_\_\_\_
15. Is the distance from A' to m the same as the distance from A'' to m? \_\_\_\_\_  
 Why? \_\_\_\_\_

