

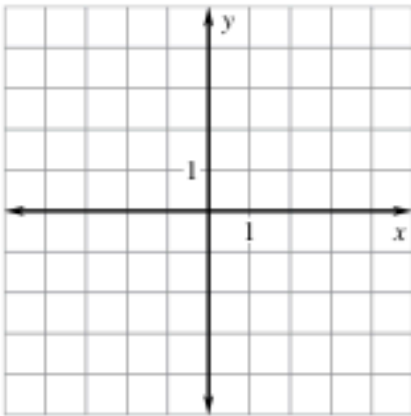
# Honors Geometry

## Worksheet 9.5

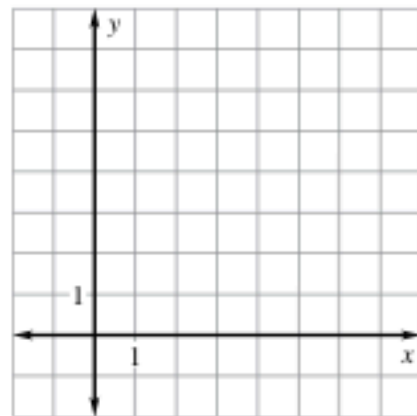
Name \_\_\_\_\_

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

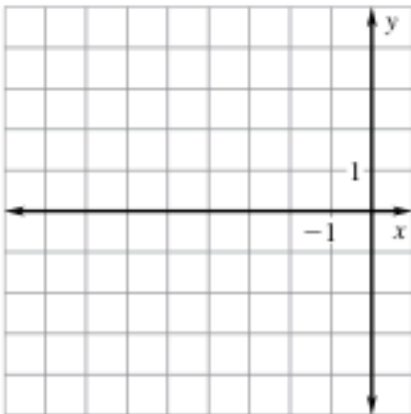


2. Translation:  $(x, y) \rightarrow (x, y + 2)$   
Reflection: in  $y = x$

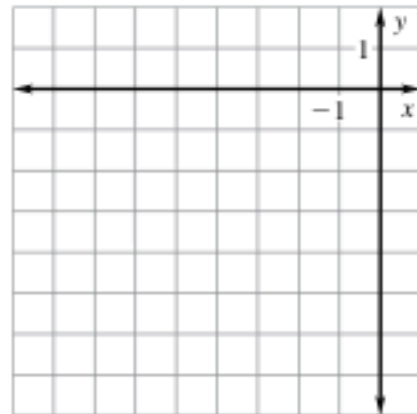


The vertices of  $\triangle ABC$  are  $A(3, 1)$ ,  $B(1, 5)$ , and  $C(5, 3)$ . Graph the image of  $\triangle ABC$  after a composition of the transformations in the order they are listed.

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



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

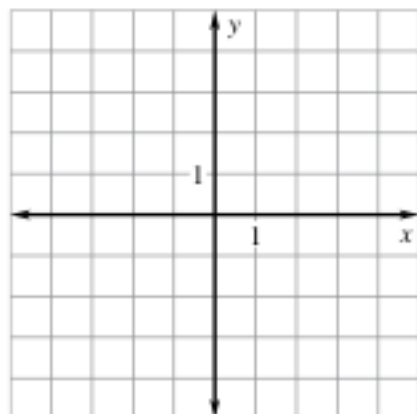


Graph  $\overline{F''G''}$  after a composition of the transformations in the order they are listed. Then perform the transformations in reverse order. Does the order affect the final image  $\overline{F''G''}$ ?

5.  $F(4, -4), G(1, -2)$

**Rotation:**  $90^\circ$  about the origin

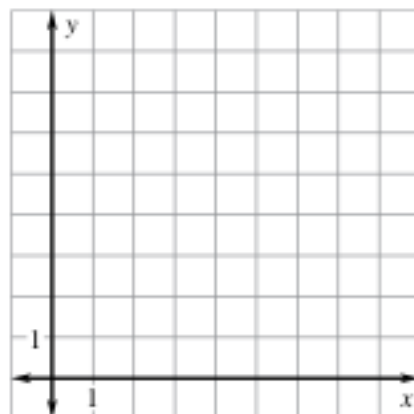
**Reflection:** in the  $y$ -axis



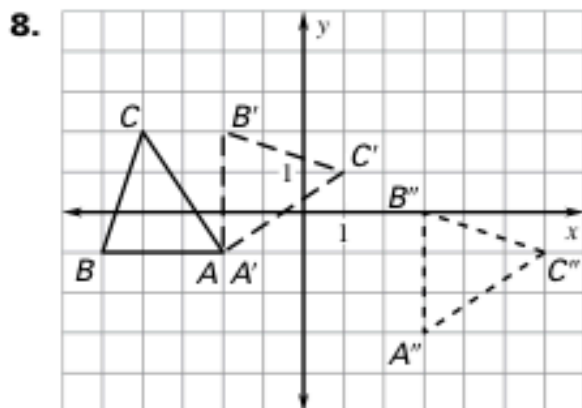
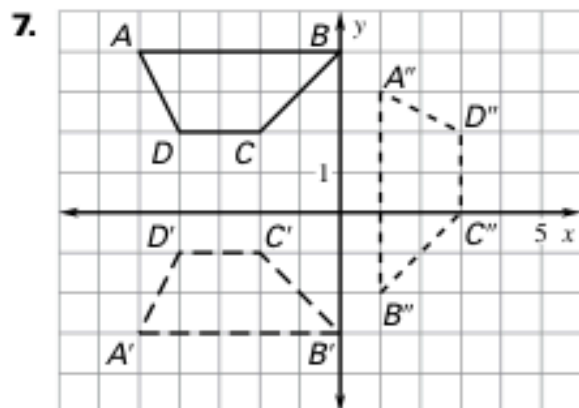
6.  $F(-1, -3), G(-4, -2)$

**Reflection:** in the line  $x = 1$

**Translation:**  $(x, y) \rightarrow (x + 2, y + 10)$

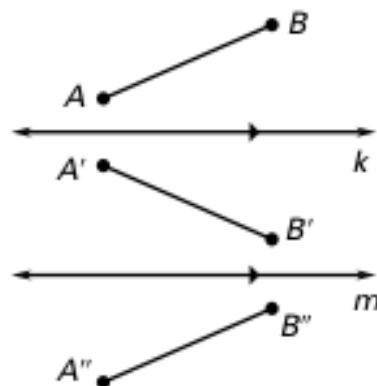


**Describe the composition of transformations.**

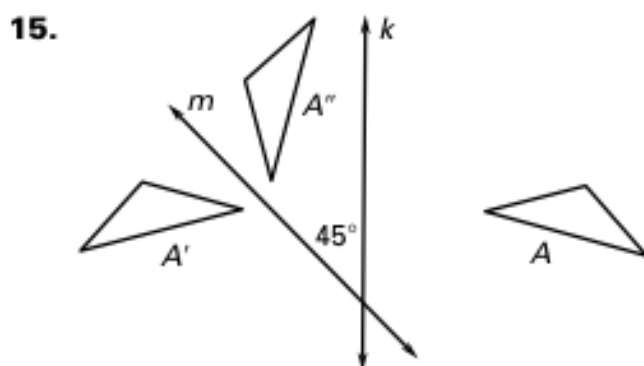
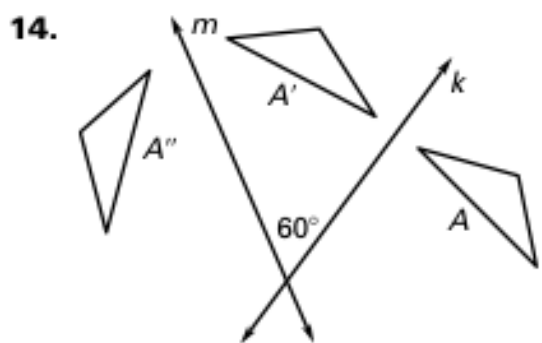


In the diagram,  $k \parallel m$ ,  $\overline{AB}$  is reflected in line  $k$ , and  $\overline{A'B'}$  is reflected in line  $m$ .

- A translation maps  $\overline{AB}$  onto which segment?
- Which lines are perpendicular to  $\overleftrightarrow{BB''}$ ?
- Name two segments parallel to  $\overline{AA''}$ .
- If the distance between  $k$  and  $m$  is 2.7 centimeters, what is the length of  $\overline{AA''}$ ?
- Is the distance from  $A'$  to  $m$  the same as the distance from  $A''$  to  $m$ ? Explain.



Find the angle of rotation that maps  $A$  onto  $A''$ .



16. **Stenciling a Border** The border pattern below was made with a stencil. Describe how the border was created using one stencil four times.

