NAME:

Period: SCORE:_____ / _____ = _____ %=_____

Sec 1 Honors

Homework 8-4
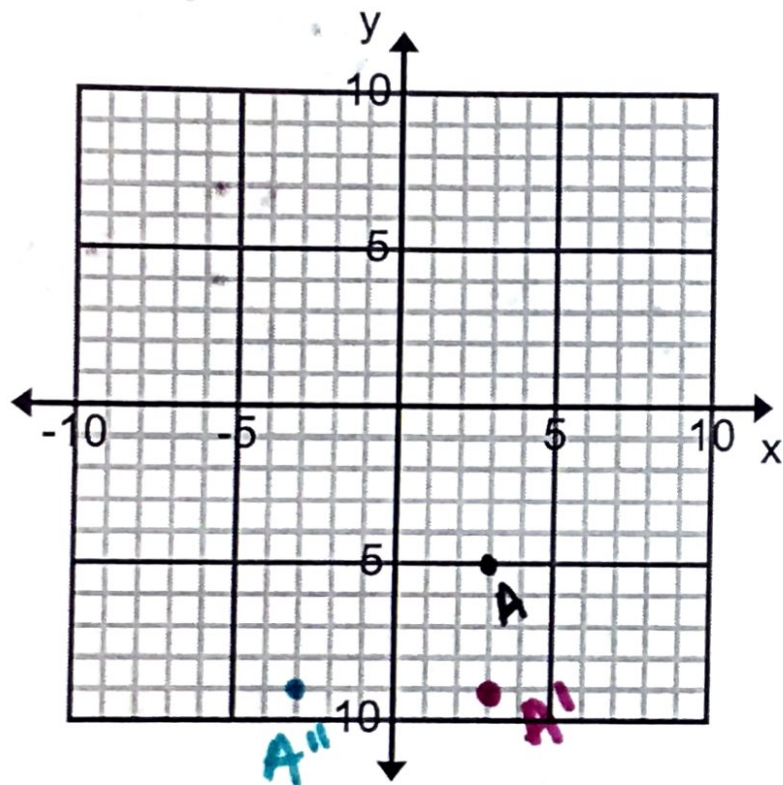**Composition of Transformations**

Unit 8

Graph and label the image of $A(3,-5)$ after the described glide reflection. Write the new coordinates.

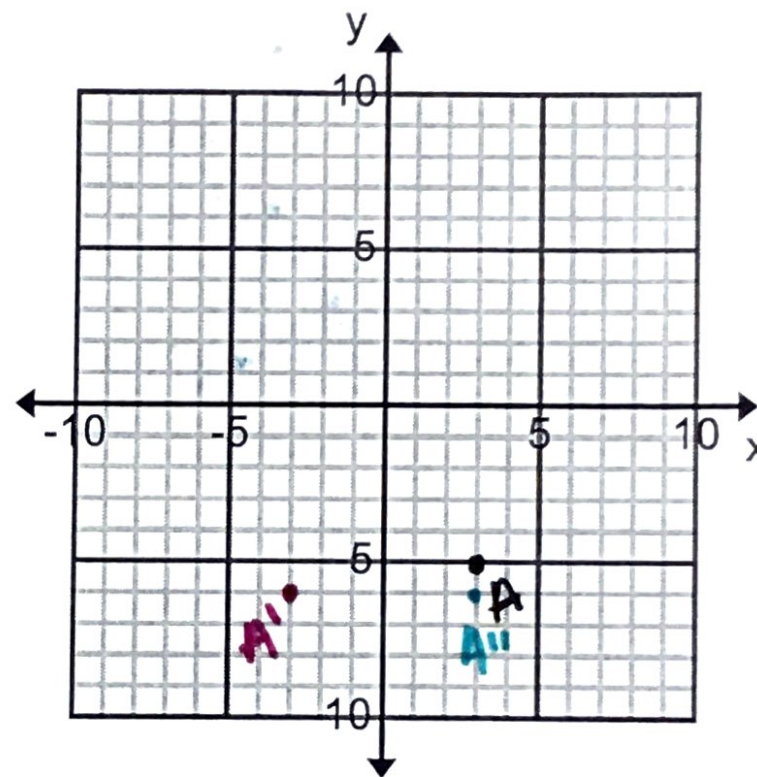1. Translation: $(x,y) \rightarrow (x, y-4)$
   Reflection: across the y-axis
   New Coordinates: $A''(-3,-9)$

3. Translation: $(x,y) \rightarrow (x-6, y-1)$
   Reflection: in the y-axis
   New Coordinates: $A''(3,-6)$
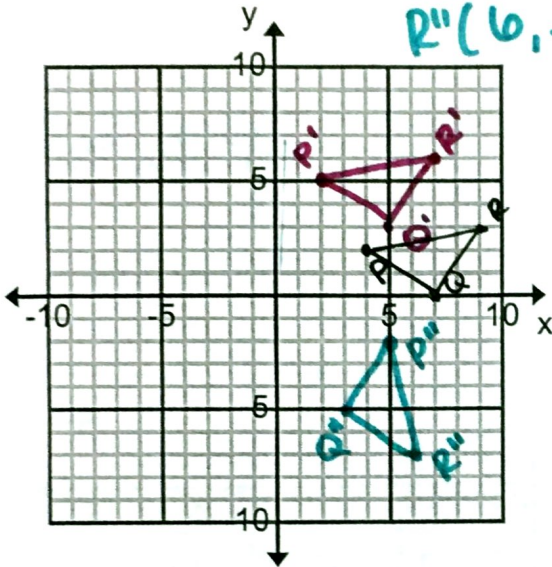
Graph and label $\triangle PQR$ and every image following the composition of transformations in the order they appear. Write the vertices of the final image.

5. $P(4,2)$, $Q(7,0)$, $R(9,3)$

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

   Rotation: $90°$ clockwise about the origin.
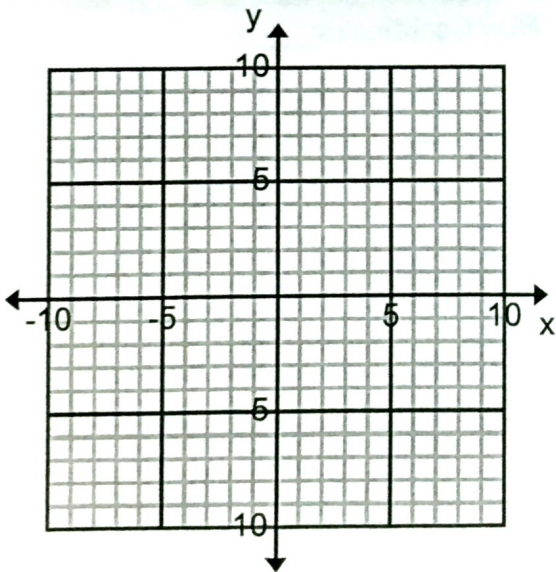
   Final Vertices: $P''(5,-2)$ $Q''(3,-5)$ $R''(6,-7)$

6. $P(4,5)$, $Q(7,1)$, $R(8,8)$

   Translation: $(x,y) \rightarrow (x, y-7)$

   Reflection: across the y-axis

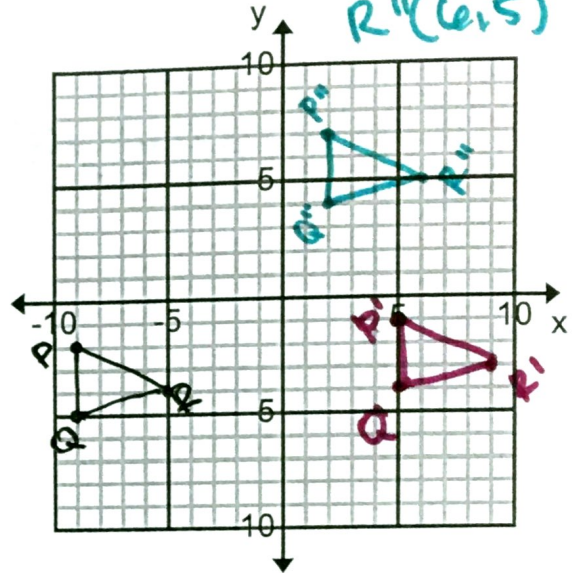   Final Vertices: _____

7. $P(-9,-2)$, $Q(-9,-5)$, $R(-5,-4)$

   Translation: $(x,y) \rightarrow (x+14, y+1)$

   Translation: $(x,y) \rightarrow (x-3, y+8)$

   Final Vertices: $P''(2,7)$ $Q''(2,4)$ $R''(6,5)$

8. What single transformation could map $\triangle PQR$ to $\triangle P''Q''R''$? Identify the transformation and give the details.
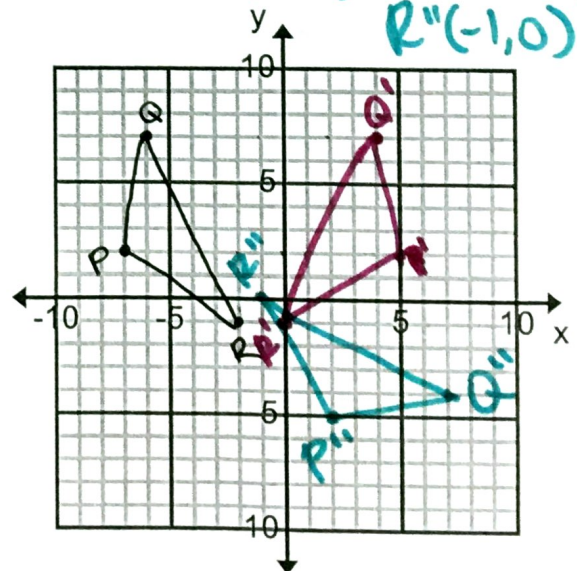
   $(x,y) \rightarrow (x+11, y+9)$

9. $P(-7,2)$, $Q(-6,7)$, $R(-2,-1)$

   Reflection: about the line $x = -1$

   Rotation: $90°$ clockwise about the origin

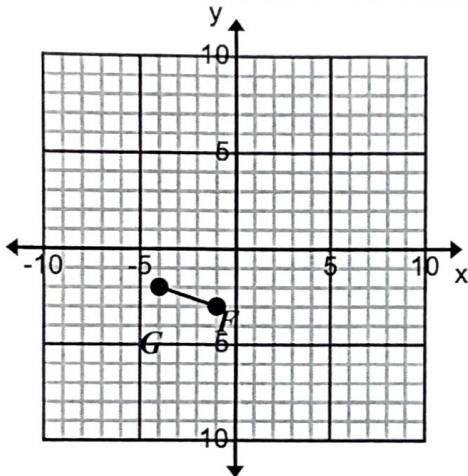   Final Vertices: $P''(2,-5)$ $Q''(7,-4)$ $R''(-1,0)$

Graph and label the image of $\overline{FG}$ after a composition using the given transformation in the order they appear. Write the vertices of the final image.

10a. $F(-1,-3)$, $G(-4,-2)$

Reflection: in the y-axis

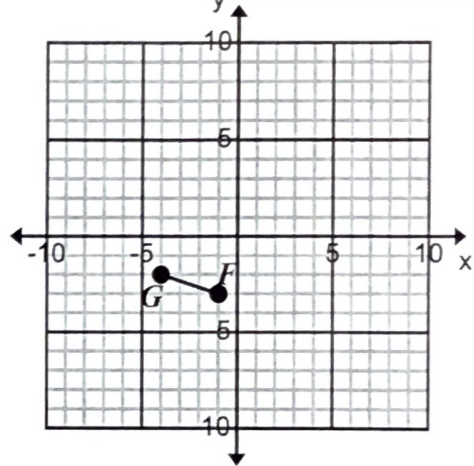Translation: $(x,y)\rightarrow(x+2,y+10)$

Final Vertices: _____

10b. $F(-1,-3)$, $G(-4,-2)$

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

Reflection: in the y-axis

Final Vertices: _____

11. Comparing problems 10a and 10b, does the order in which you perform the transformation affect the final image?
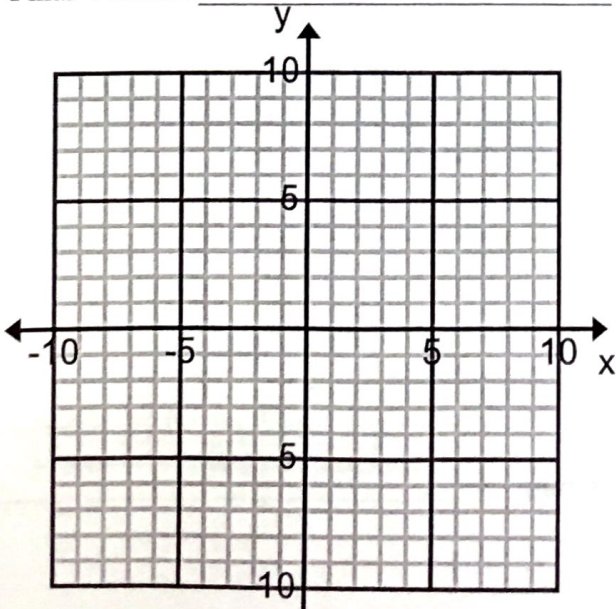
YES! They have different double prime images.

Graph and label ΔPQR and every image following the composition of transformations in the order they appear.

12. $P(3,-1)$, $Q(4,-6)$, $R(6,-7)$

Translation: $(x,y)\rightarrow(x-2,y+9)$

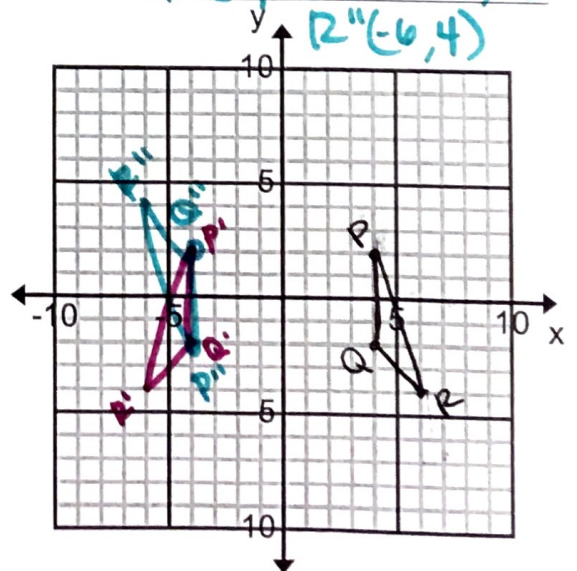Reflection: across the line $y=x$

Final Vertices: _____

13. $P(4,2)$, $Q(4,-2)$, $R(6,-4)$
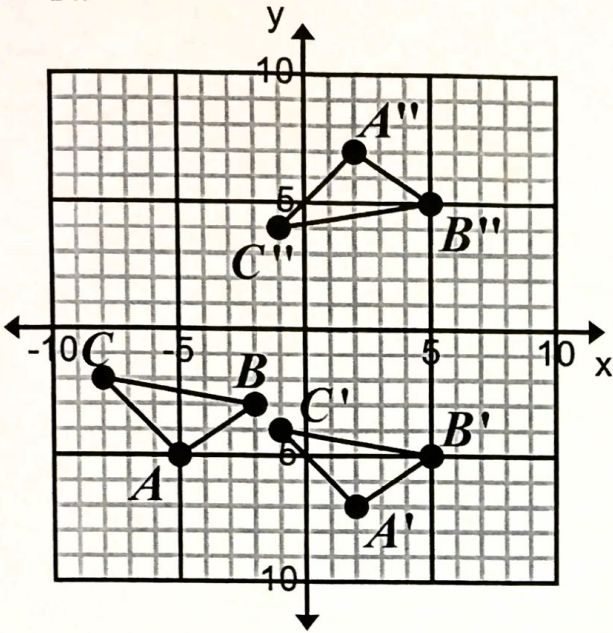
Reflection: across the y-axis

Reflection: across the x-axis

Final Vertices: $P''(-4,-2)$ $Q''(-4,2)$ $R''(-6,4)$

Identify the following composition of transformations.

14.

a. Identify what type of transformation occurred first and describe using the proper notation.
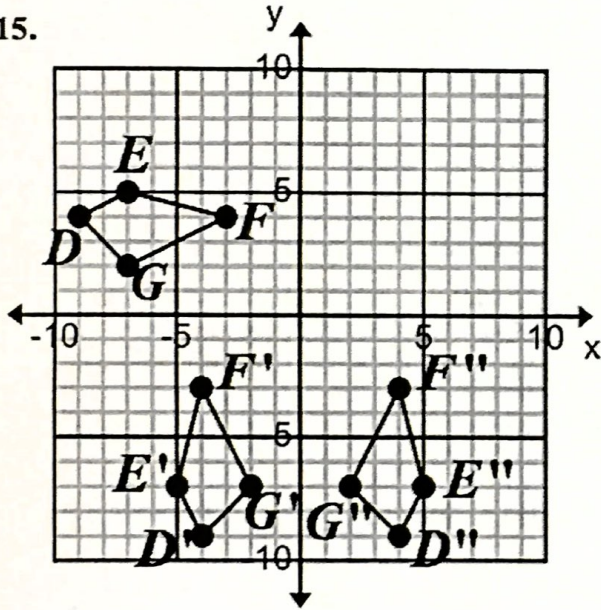
1st Transformation_____

Notation:_____

b. Identify what type of transformation occurred second and describe using the proper notation

2nd Trans: _____

Notation:_____

15.

a. Identify what type of transformation occurred first and describe using the proper notation.
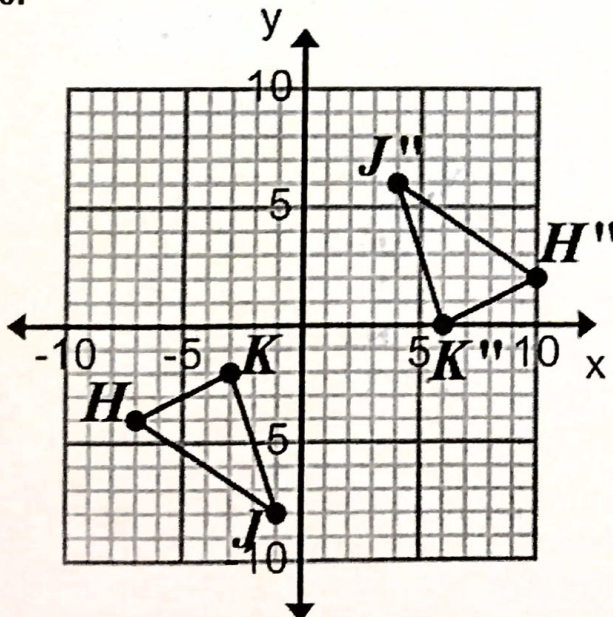
1st Transformation__Rotation_____

Notation:__90° CCW around origin_____

b. Identify what type of transformation occurred second and describe using the proper notation

2nd Trans: ___Reflection_____

Notation:___across y-axis_____

16.

a. Identify what type of transformation occurred first and describe using the proper notation.

1st Transformation_____

Notation:_____

b. Identify what type of transformation occurred second and describe using the proper notation

2nd Trans: _____

Notation:_____