Review of Transformation Notation:

Translations: Slide $(x, y) \rightarrow (x \pm a, y \pm b)$

Reflections: Flip Line of Reflection: x-axis, y-axis
$y = x$, $y = -x$
$y = \#$, $x = \#$

Rotations: Turn $90° \rightarrow$ opp. reciprocal slopes
$180° \rightarrow$ straight lines

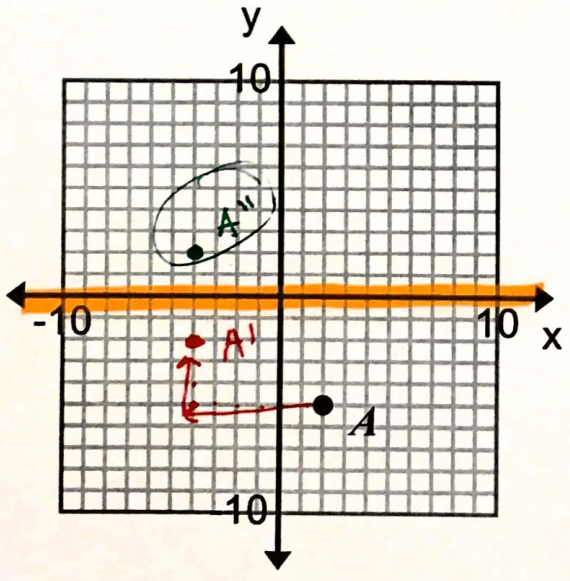
A Composition is a combination. So a Composition of Transformations is a combination of translations, reflections, rotations, and dilations. Just perform one transformation then the following transformation.

Rigid Transformation: preserves congruency

Pre-Image: A 1st Transformation: A' 2nd Transformation: A''

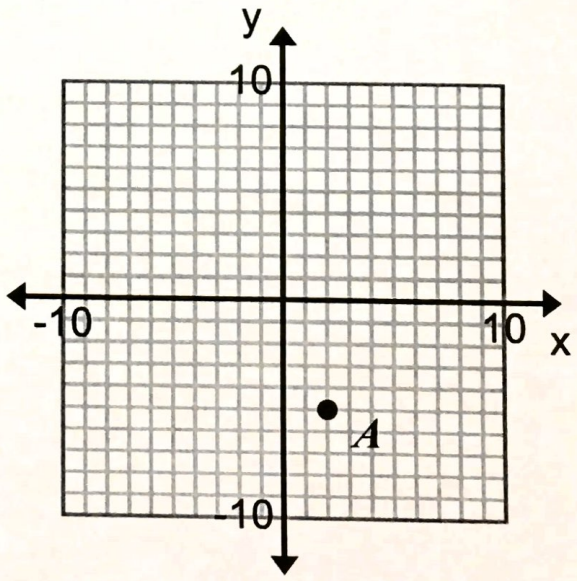
Graph and label the image of *A (2,-5)* after the described composition of transformations.

1. Translation: $(x, y) \rightarrow (x-6, y+3)$ A'
   Reflection: across the x-axis A''



A'(-4, -2) A''(-4, 2)

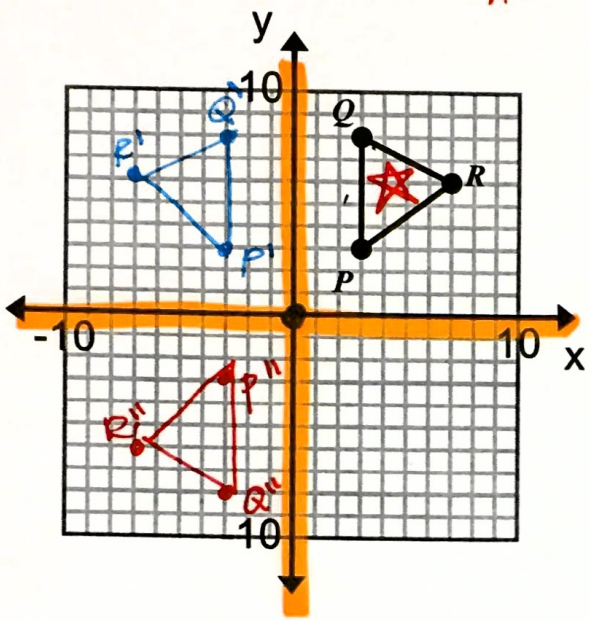
2. Translation: $(x, y) \rightarrow (x+3, y)$
   Reflection: across the y-axis



A'(,) A''(,)

Graph and label the image of ΔPQR after the given composition of transformations in the order they appear.

3. $P(3,3)$, $Q(3,8)$, $R(7,6)$
Reflection: across the y-axis A'
Reflection: across the x-axis A''

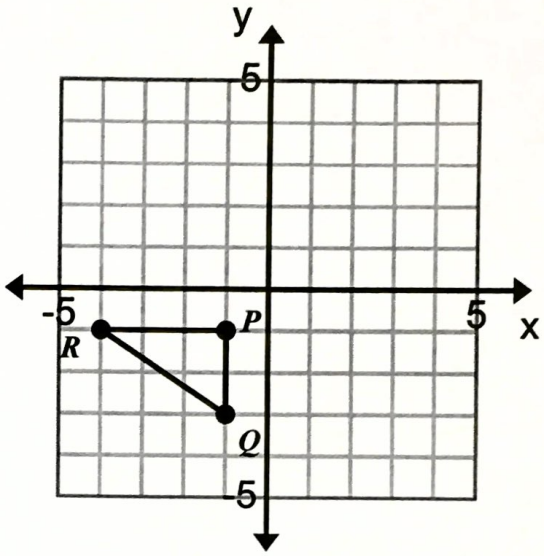


P'(-3, 3) **P''(-3, -3)**

Q'(-3, 8) **Q''(-3, -8)**

R'(-7, 6) **R''(-7, -6)**

4. $P(-1,-1)$, $Q(-1,-3)$, $R(-4,-1)$
90° Rotation Clockwise around the origin A'
Reflection: across the line $y = x$ A''



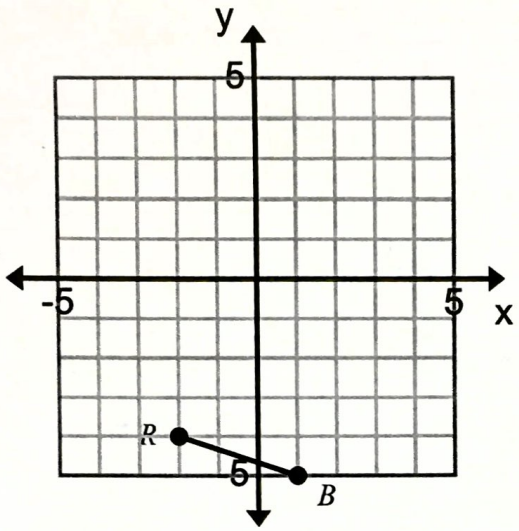
P'(,) **P''(,)**

Q'(,) **Q''(,)**

R'(,) **R''(,)**

Graph and label the image of $\overline{BR}$ after the given composition of transformations in the order they appear.

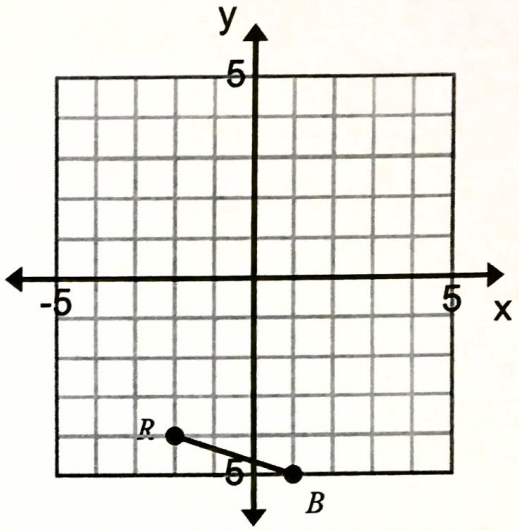
5. $B(1,-5)$, $R(-2,-4)$
Reflection: across the x-axis
Rotation: 270° counterclockwise



B'(,) B"(,)

R'(,) R"(,)

6. $B(1,-5)$, $R(-2,-4)$
Rotation: 270° counterclockwise
Reflection: across the x-axis



B'(,) B"(,)

R'(,) R"(,)

7. Comparing #5 and #6, does the order in which you perform transformations matter?

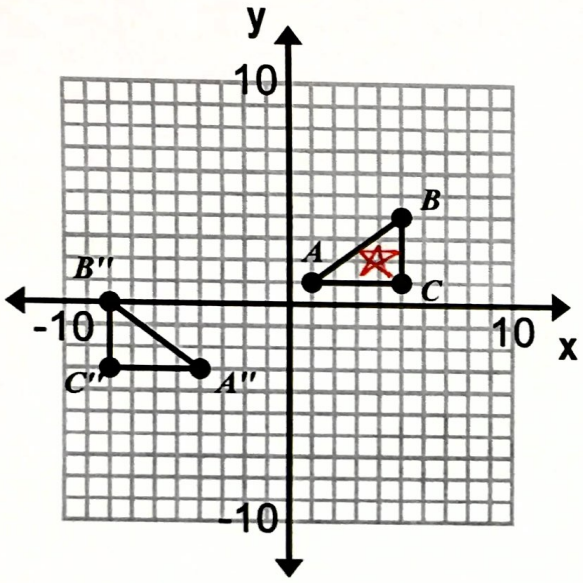
YES

For the following problems (#8 – 9)

a. **Identify the transformations**
(example: "reflection then translation")

b. **Describe the details of the transformations**
If there was a translation, write "slide" and the translation notation (example: "slide, $(x+2, y-3)$")
If there was a reflection, write the axis of reflection (example: "y-axis")
If there was a rotation, write the degree and direction (example: 270° clockwise)
If there was a dilation, write whether it was an "enlargement" or "reduction"

8.



1st Transformation:

Identify:_____

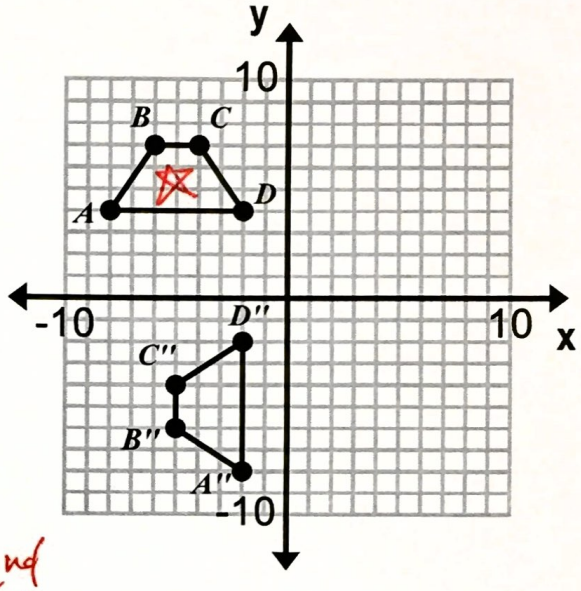
Details:_____

2nd Transformation:

Identify:_____

Details:_____

9.



2nd

1st Transformation:

Identify:_____

Details:_____

2nd Transformation:

Identify:_____

Details:_____