Date: 11/5/20

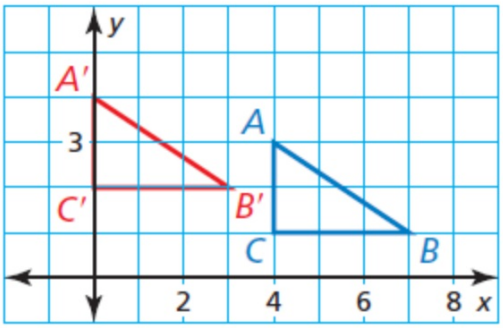
Lesson 4.1 and 4.2 Translations & Reflections

Learning Intent (Target): *Today I will* be able to graph line segments and polygons in the coordinate plane using transformations. Write rules of transformations given graphs.

Success Criteria: *I'll know I'll have it when* I can accuratley use and write rules of translations and reflections of line segments and polygons in the coordinate plane.

Accountable Team Task: *Therefore, I can* practice using interactive flip charts for notes to graph transformations.

Write a rule for the translation of $\triangle ABC$ to $\triangle A'B'C'$.



Write a rule for the translation of $\triangle ABC$ to $\triangle A'B'C'$.

SOLUTION

To go from A to A', you move 4 units left and 1 unit up

▶ So, a rule for the translation is $(x, y) \rightarrow (x - 4, y + 1)$.

Graph $\overline{RS}$ with endpoints $R(-8, 5)$ and $S(-6, 8)$ and its image after the composition.

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

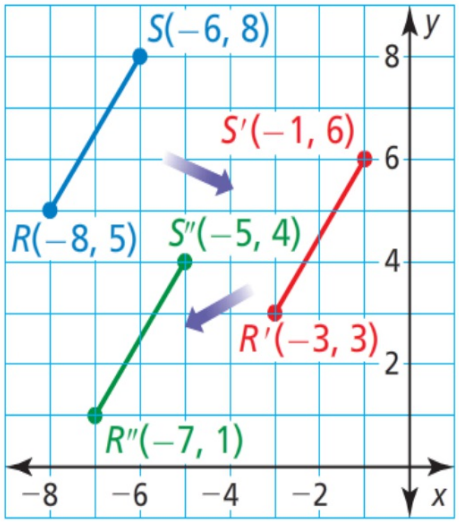
Translation: $(x, y) \rightarrow (x - 4, y - 2)$

SOLUTION

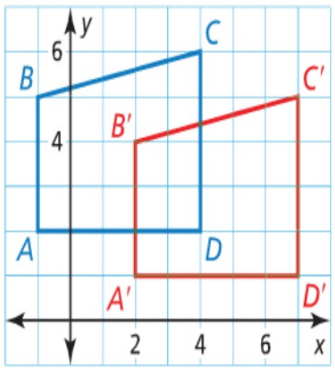
Step 1 Graph $\overline{RS}$.

Step 2 Translate $\overline{RS}$ 5 units right and 2 units down. $\overline{R'S'}$ has endpoints $R'(-3, 3)$ and $S'(-1, 6)$.

Step 3 Translate $\overline{R'S'}$ 4 units left and 2 units down. $\overline{R''S''}$ has endpoints $R''(-7, 1)$ and $S''(-5, 4)$.



Graph quadrilateral $ABCD$ with vertices $A(-1, 2)$, $B(-1, 5)$, $C(4, 6)$, and $D(4, 2)$ and its image after the translation $(x, y) \rightarrow (x + 3, y - 1)$.



SOLUTION

Graph quadrilateral $ABCD$. To find the coordinates of the vertices of the image, add 3 to the x-coordinates and subtract 1 from the y-coordinates of the vertices of the preimage. Then graph the image, as shown at the left.

$$(x, y) \rightarrow (x + 3, y - 1)$$

$$A(-1, 2) \rightarrow A'(2, 1)$$

$$B(-1, 5) \rightarrow B'(2, 4)$$

$$C(4, 6) \rightarrow C'(7, 5)$$

$$D(4, 2) \rightarrow D'(7, 1)$$