

Day 8 Compositions HW

Part 1: Graph the pre-image and image on the graph below AND label the vertices. Then, write a description of the transformation given by the coordinates below. Finally, write an algebraic rule for the transformation. (Hint: for help with the Algebraic Rules, look at earlier notes pages.)

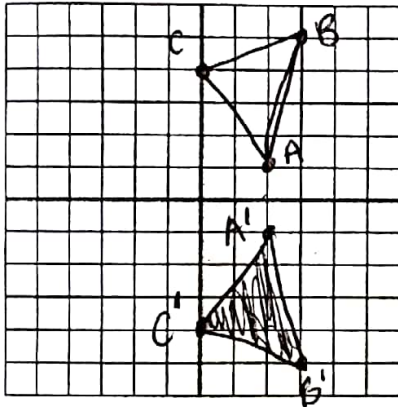
The coordinates of $\triangle ABC$ are
 $A(2, 1), B(3, 5), C(0, 4)$.

The coordinates of $\triangle A'B'C'$ are

1. $A'(2, -1), B'(3, -5), C'(0, -4)$.

Description: Reflect over x-axis

Algebraic Rule: $(x, y) \rightarrow (x, -y)$



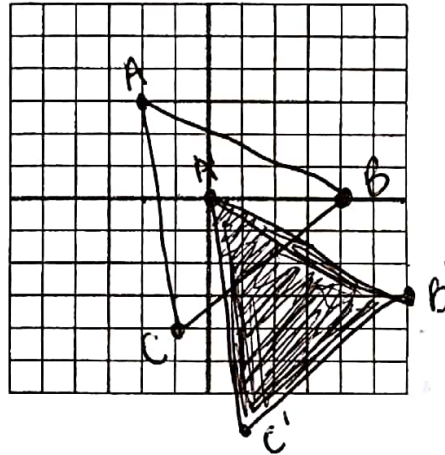
The coordinates of $\triangle ABC$ are
 $A(-2, 3), B(4, 0), C(-1, -4)$.

The coordinates of $\triangle A'B'C'$ are

2. $A'(0, 0), B'(6, -3), C'(1, -7)$.

Description: translate Right 2, Down 3

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



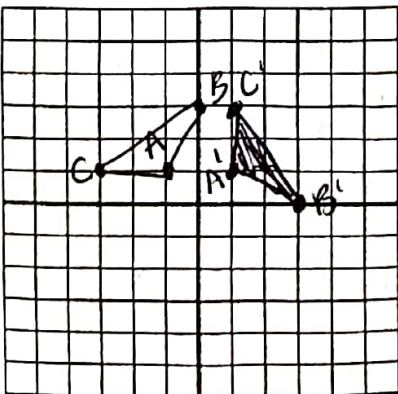
The coordinates of $\triangle ABC$ are
 $A(-1, 1), B(0, 3), C(-3, 1)$.

The coordinates of $\triangle A'B'C'$ are

3. $A'(1, 1), B'(3, 0), C'(1, 3)$.

Description: Rotate 90° C (-90)

Algebraic Rule: $(x, y) \rightarrow (y, -x)$



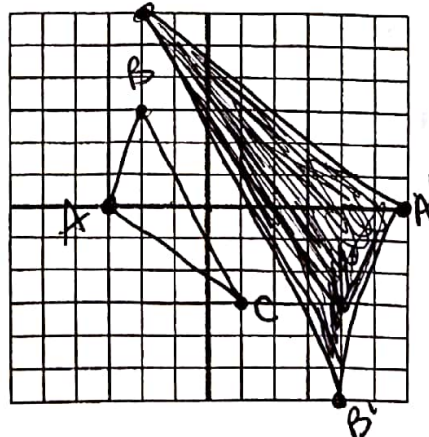
The coordinates of $\triangle ABC$ are
 $A(-3, 0), B(-2, 3), C(1, -3)$.

The coordinates of $\triangle A'B'C'$ are

4. $A'(6, 0), B'(4, -6), C'(-2, 6)$.

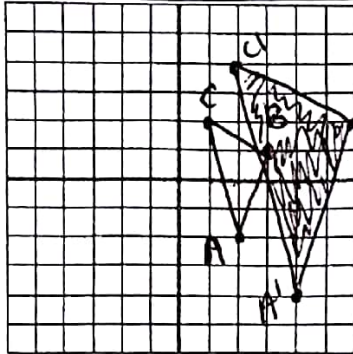
Description: Dilate by a scale factor of 2
 Rotate 180°

Algebraic Rule: $(x, y) \rightarrow (-2x, -2y)$



Part 2: Given the description, write an algebraic rule to represent the transformation. Then graph the pre-image and image on the graph below. Use $\triangle ABC$ with $A(2,-2)$, $B(3,1)$, and $C(1,2)$.

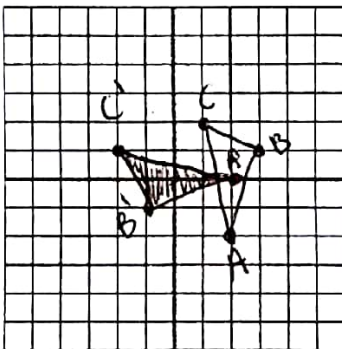
5) $\triangle ABC$ is dilated by 2 about the origin
by a factor of 2 about the origin



$A'(4, -4)$
 $B'(6, 2)$
 $C'(2, 4)$

Algebraic Rule: $(x, y) \rightarrow (2x, 2y)$

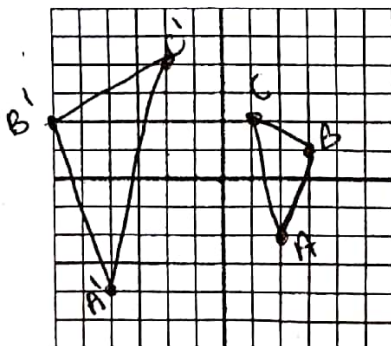
7) $\triangle ABC$ is reflected over $y = -x$ and moved up 2



$A'(2, 0)$
 $B'(-1, -1)$
 $C'(-2, 1)$

Algebraic Rule: $(x, y) \rightarrow (-y, -x + 2)$

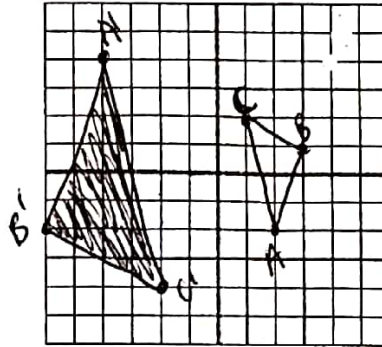
9) $\triangle ABC$ is reflected over the y-axis then dilated by a factor of 2 about the origin



$A'(-4, -4)$
 $B'(-6, 2)$
 $C'(-2, 4)$

Algebraic Rule: $(x, y) \rightarrow (-2x, 2y)$

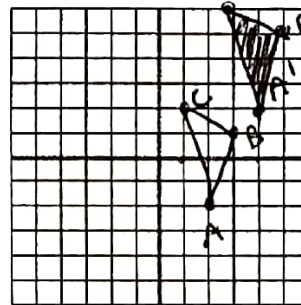
6) $\triangle ABC$ is rotated 180° then dilated



$(-x, -y)$
 $(-2x, -2y)$
 $A'(-4, 4)$
 $B'(-6, -2)$
 $C'(-2, -4)$

Algebraic Rule: $(x, y) \rightarrow (-2x, -2y)$

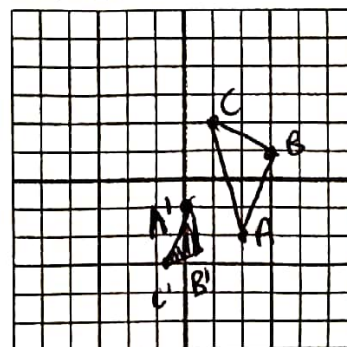
8) $\triangle ABC$ is moved up 4 and 2 to the right



$A'(4, 2)$
 $B'(5, 5)$
 $C'(3, 6)$

Algebraic Rule: $(x, y) \rightarrow (x + 2, y + 4)$

10) $\triangle ABC$ is reflected over the x-axis, then dilated by $\frac{1}{2}$ (about the origin), then moved down 2 and left 1.



$A'(0, -1)$
 $B'(1/2, -2.5)$
 $C'(-1/2, -3)$

Algebraic Rule: $(x, y) \rightarrow (\frac{1}{2}x - 1, \frac{1}{2}y - 2)$