You have triangle ABC with points A(3, 5), B(-4, 2) and C(3, -6)

1. You want to reflect the triangle over the y - axis. Without graphing what are the coordinates of A'B'C'?

$(x, y) \longrightarrow (-x, y)$

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

2. You want to rotate the original triangle 90° clockwise. Without graphing what are the coordinates of A"B"C"?

$(x, y) \longrightarrow (y, -x)$

A"(5, -3) B"(2, 4) C"(-6, -3)

3. You want to reflect the original triangle of the line y = -x. Without graphing what are the coordinates of A'''B'''C'''?

$(x, y) \longrightarrow (-y, -x)$

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

Composition of Transformations

Triangle ABC with vertices $A(-1, 0)$, $B(4, 0)$, and $C(2, 6)$ is first translated by the rule $(x, y) \rightarrow (x - 6, y - 5)$, and then its image, $\Delta A'B'C'$, is translated by the rule $(x, y) \rightarrow (x + 14, y + 3)$ to get $\Delta A''B''C''$.

a. What single translation is equivalent to the composition of these two translations?

b. What single translation brings the second image, $\Delta A''B''C''$, back to the position of the original triangle, ΔABC?

$A(-1,0) \longrightarrow A'(-7,-5) \longrightarrow A''(7,-2)$

$(x,y) \longrightarrow (x+8, y-2)$

$\updownarrow$

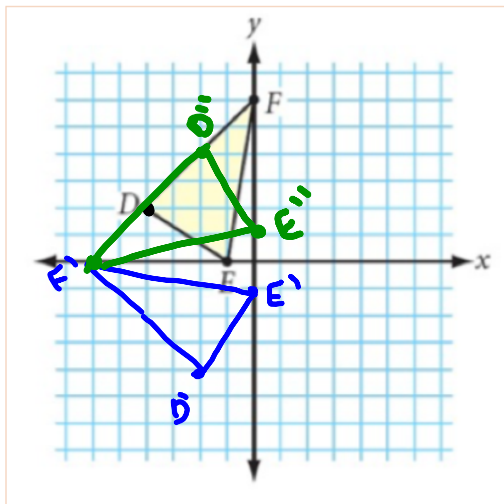
$\langle 8, -2 \rangle$

January 7, 2020

Rotate ΔDEF 90° ccw to create $\Delta D'E'F'$. Then reflect $\Delta D'E'F'$ over the x–axis to create $\Delta D''E''F''$.

1. Transformation Rule for ΔDEF to $\Delta D'E'F'$.

$(x,y) \rightarrow (-y, x)$



2. Coordinates of $\Delta D'E'F$?

$D(-4,2) \rightarrow D'(-2,-4)$
$E(-1,0) \rightarrow E'(0,-1)$
$F(0,6) \rightarrow F'(-6,0)$

3. Transformation Rule for $\Delta D'E'F'$ to $\Delta D''E''F''$

$(x,y) \rightarrow (x,-y)$

4. Coordinates of $\Delta D''E''F''$?

$D'(-2,-4) \rightarrow D''(-2,4)$
$E'(0,-1) \rightarrow E''(0,1)$
$F'(-6,0) \rightarrow F''(-6,0)$

5. What would be one single transformation rule to get ΔDEF to $\Delta D''E''F''$?

$(x,y) \rightarrow (-y, x) \rightarrow (x, -y)$

(x, y)

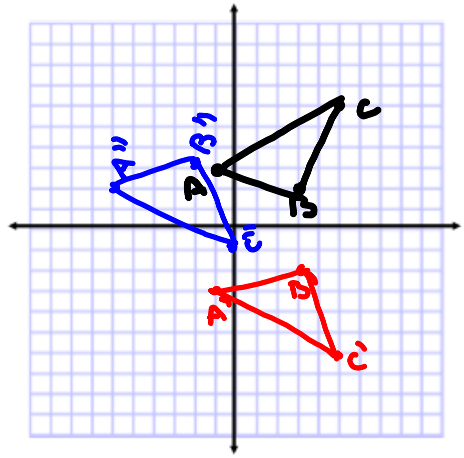
$\ast$ $\boxed{(x,y) \rightarrow (-y, -x)}$

Given ΔABC with vertices A(-1, 3), B(3, 2), C(5, 6)

a. Reflect ΔABC across the x-axis to create $\Delta A'B'C'$ state the rule and name the new coordinates

   a. Rule:

$(x, y) \longrightarrow (x, -y)$



   b. Coordinates

A'(-1, -3)

B'(3, -2)

C'(5, -6)

b. Translate $\Delta A'B'C'$ by the transformation rule $(x, y) \rightarrow (x - 5, y + 5)$ to create $\Delta A''B''C''$

A''(-6, 2)

B''(-2, 3)

C'' (0, -1)

c. What single transformation rule that takes ΔABC to $\Delta A''B''C''$

$(x, y) \rightarrow (x, -y) \rightarrow (x-5, y+5)$

$\boxed{(x, y) \longrightarrow (x-5, -y+5)}$

January 7, 2020