

Geometry

Target 9.1: Translate a polygon along the given translation vector and in the coordinate plane

Target 9.2: Reflect a polygon across a line in the coordinate plane

Target 9.3: Rotate a polygon about a given point and rotation angle and in the coordinate plane

Target 9.4: Perform a composition of transformations in the coordinate plane

Self-Assess: 1 (Uh oh)

2

3 (I am okay)

4

5 (I got this!!!)

9.1 - Translations

- 1) Describe the translation using vector $\langle -3, -1 \rangle$ in words.

Left 3, down 1

- 2) If B is at (50, -20) and B' is at (-300, -40) what is the translation vector in vector form?

$\langle -350, -20 \rangle$

- 3) What is the image of E(-1, 6) mapped by translation $T\langle -6, -10 \rangle (x, y)$?

$E'(-1-6, 6-10)$

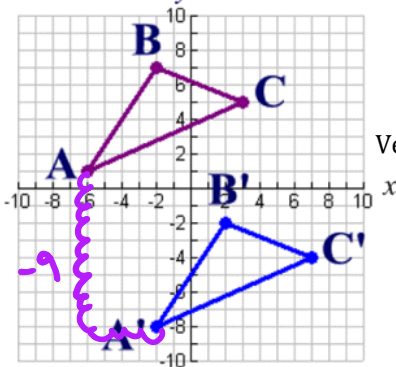
$E'(-7, -4)$

- 4) What is the pre-image of F'(9, -6) mapped by translation $T\langle 7, -1 \rangle (x, y)$?

$F(9-7, -6+1)$

$F(2, -5)$

- 5) Given the following diagram, write the translation vector in vector form.



Vector Form $\langle 4, -9 \rangle$

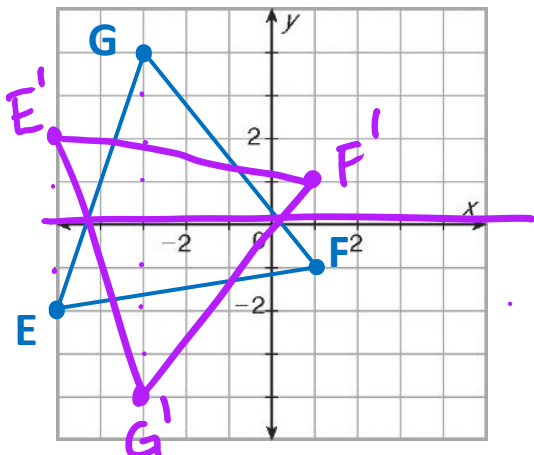
- 6) What is the image of coordinate M(4, 7) when it is translated along the vector $\langle -6, 3 \rangle$?

$M'(4-6, 7+3)$

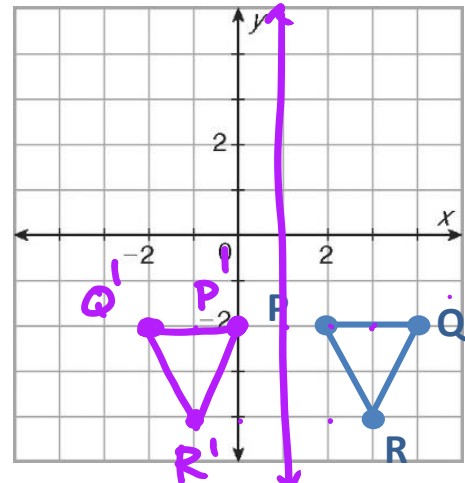
$M'(-2, 10)$

9.2 - Reflection: Give the coordinates of the reflection.

- 7) E(-5, -3), F(1, -2), G(-3, 4); x - axis



- 9) Reflect $\triangle PQR$ over the line $x = 1$.
P(0, -2), Q(-2, -2), R(-1, -4)

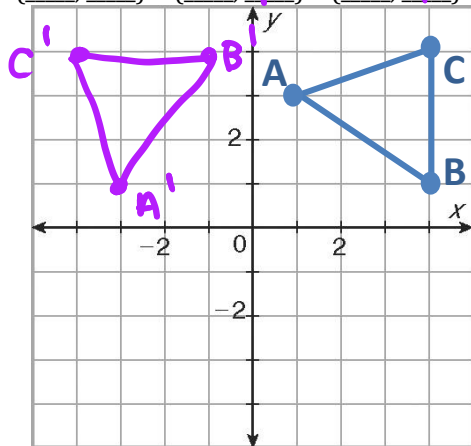


9.3 - Rotations

Rotate the given vertices about the origin using the given angle of rotation.

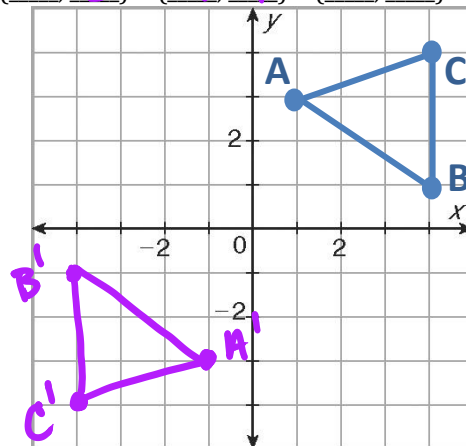
12) Rotate $\triangle ABC$ about the origin 90°

$A'(-3, 1)$ $B'(-1, 4)$ $C'(4, 4)$



13) Rotate $\triangle ABC$ about the origin 180°

$A'(-1, -3)$ $B'(-4, -1)$ $C'(-4, -4)$

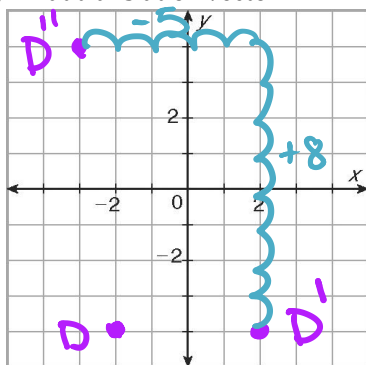


9.4 - Composition of Transformations

Complete the composition of transformations. Write as a composition of transformations. (9.4)

14) Point D $(-2, -4)$ was mapped to point D' $(-3, 4)$

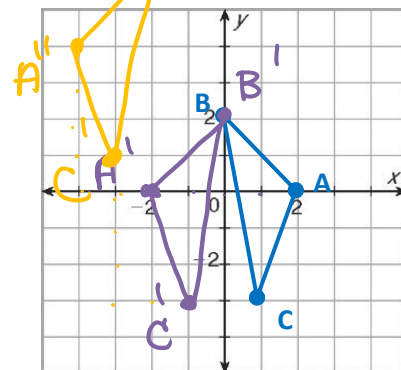
first by a reflection across the y-axis, and then by what translation vector?



$\langle -5, 8 \rangle$

15) Given $\triangle ABC$, A $(2, 0)$, B $(0, 2)$ and C $(1, -3)$

Reflect across y-axis then translate by vector $\langle -2, 4 \rangle$



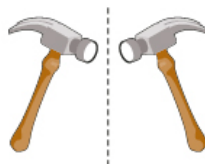
Left 2
up 4

Given the diagrams, decide if it is a reflection, rotation, or translation.

a) Translation



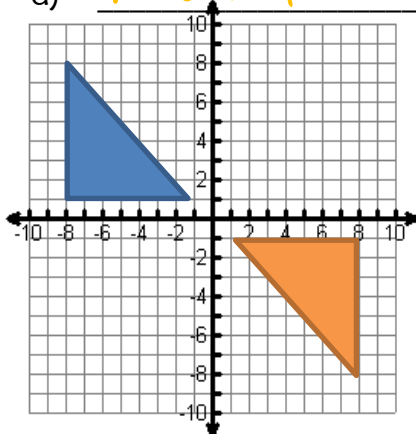
b) Reflection



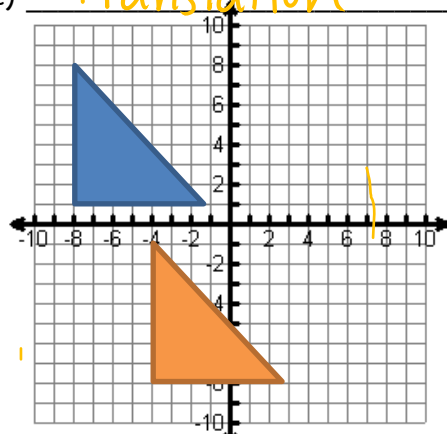
c) Rotation



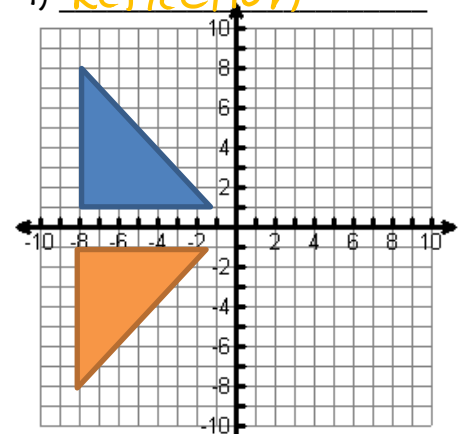
d) Rotation



e) Translation



f) Reflection



**What do you notice about the SIZE and SHAPE of all of these images? All \cong