

1.5 Rotations about the Origin

Warm-Up

1. $270^\circ \text{ CCW} = 90^\circ \text{ CW}$
2. $180^\circ \text{ CW} = 180^\circ \text{ CCW}$
3. $90^\circ \text{ CCW} = 270^\circ \text{ CW}$

Example One:

List the coordinates of the Pre-Image. Then use your rule to rotate it 90 degrees CW. Record and graph the coordinates of the Image.

$$J(-5, 5) \rightarrow J'(5, 5)$$

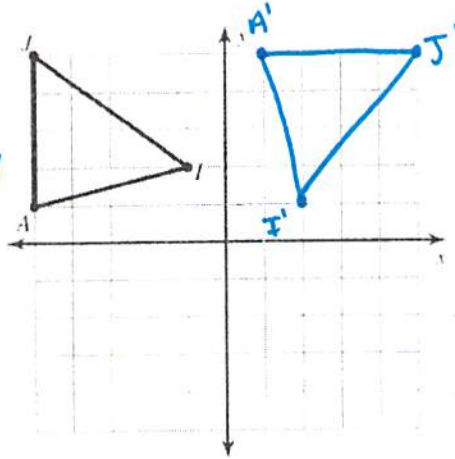
$$I(-1, 2) \rightarrow I'(2, 1)$$

$$A(-5, 1) \rightarrow A'(1, 5)$$

What is the rule for rotation 90 CW?

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

90° CW
 270° CCW



- Turn paper once
OR drive bus.

Example Two:

List the coordinates of the Pre-Image. Then use your rule to rotate it 180 degrees CW. Record and graph the coordinates of the Image.

$$J(-5, 5) \rightarrow J'(5, -5)$$

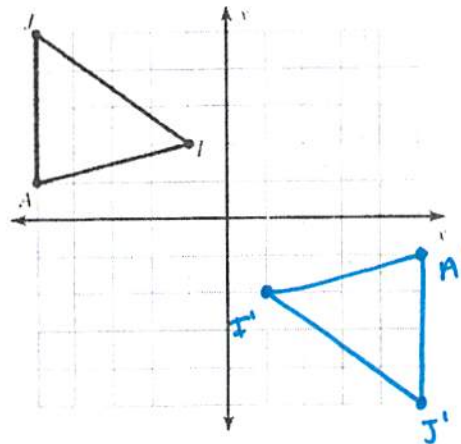
$$I(-1, 2) \rightarrow I'(1, -2)$$

$$A(-5, 1) \rightarrow A'(5, -1)$$

What is the rule for rotation 180 CW?

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

180° CW
 $\& \text{ CCW}$



- Turn paper twice

Example Three:

List the coordinates of the Pre-Image. Then use your rule to rotate it 270 degrees CW. Record and graph the coordinates of the Image.

$$J(-5, 5) \rightarrow J'(-5, -5)$$

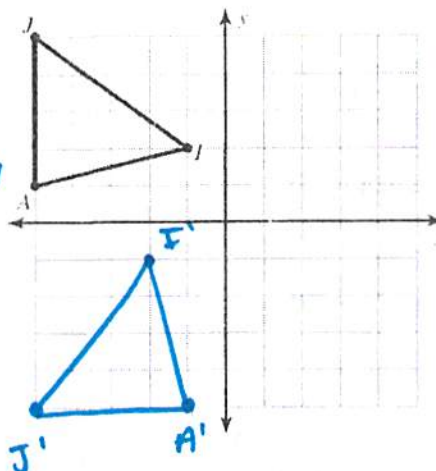
$$I(-1, 2) \rightarrow I'(-2, -1)$$

$$A(-5, 1) \rightarrow A'(-1, -5)$$

What is the rule for rotation 270 CW?

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

270° CW
 90° CCW



- Turn paper 3 times

270° CCW

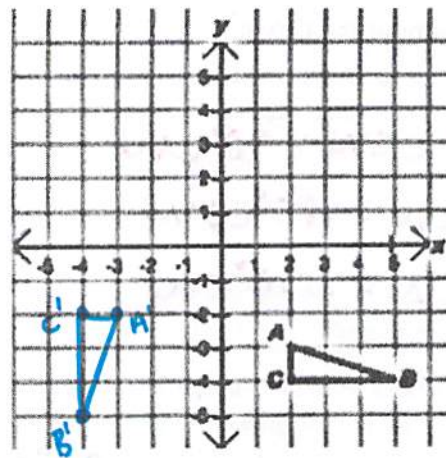
1) Rotate $\triangle ABC$ 90° CW about the origin.

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

$$A(2, -3) \rightarrow A'(-3, -2)$$

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

$$C(2, -4) \rightarrow (-4, -2)$$



270° CW

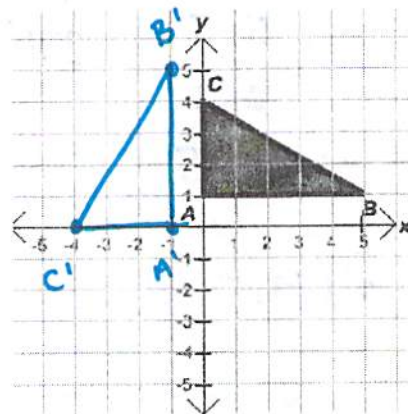
2) Rotate $\triangle JAI$ 90° CCW about the origin.

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

$$A(0, 1) \rightarrow A'(-1, 0)$$

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

$$C(0, 4) \rightarrow C'(4, 0)$$



3) If $T(-1, -1)$ and $P(-3, -5)$ are rotated 180° CW, what are the coordinates of the image?

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

$$\boxed{T'(1, 1) \quad P'(3, 5)}$$

4) What transformation has occurred in the graph to the right?

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

$$K(2, -4) \rightarrow K'(-4, -2)$$

$$V(4, -1) \rightarrow V'(-1, -4)$$

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

$$\boxed{90^\circ \text{ CW or } 270^\circ \text{ CCW}}$$

