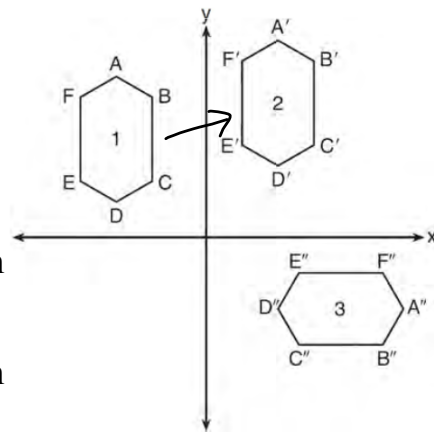


DO NOW

In the diagram below, congruent figures 1, 2, and 3 are drawn

Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

- (1) a reflection followed by a translation
 (2) a rotation followed by a translation
 (3) a translation followed by a reflection
 (4) a translation followed by a rotation



Nov 18-10:34 AM

A rotation is a transformation that "turns" a figure about a point. \rightarrow center of rotation

For a rotation you need:

Center of Rotation: a point

Direction: Clockwise or Counterclockwise
(Unless otherwise stated, a rotation is in the counterclockwise direction)

Number of Degrees of Rotation: often 90° , 180° , 270° or 360°

Notation: $R_{0,180^\circ}(\triangle ABC)$

$R_{90^\circ}(P)$

R_{-90°

\uparrow
clockwise

May 4-5:18 PM

90°
counterclockwise
 $(x, y) \rightarrow (-y, x)$

180°
counterclockwise
 $(x, y) \rightarrow (-x, -y)$

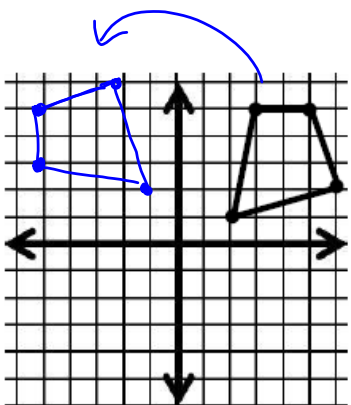
270°
counterclockwise
 $(x, y) \rightarrow (y, -x)$

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90°
counterclockwise
 $(x, y) \rightarrow (-y, x)$

Example 1:
Rotate the figure 90° counterclockwise about the origin.
List the coordinates of the vertices of the new image.

$(2, 1) \rightarrow (-1, 2)$
 $(3, 5) \rightarrow (-5, 3)$
 $(5, 5) \rightarrow (-5, 5)$
 $(6, 2) \rightarrow (-2, 6)$



Oct 9-8:17 AM

$$180^\circ$$

counterclockwise

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

Example 2:

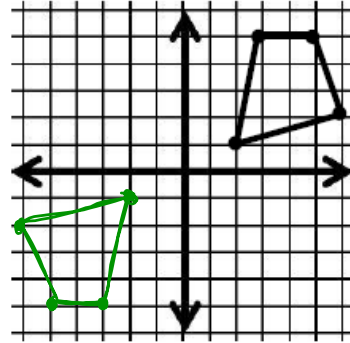
Rotate the figure 180° counterclockwise about the origin.
List the coordinates of the vertices of the new image.

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

$$(3, 5) \rightarrow (-3, -5)$$

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

$$(6, 2) \rightarrow (-6, -2)$$



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 90°
clockwise

$$270^\circ$$

counterclockwise

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

Example 3:

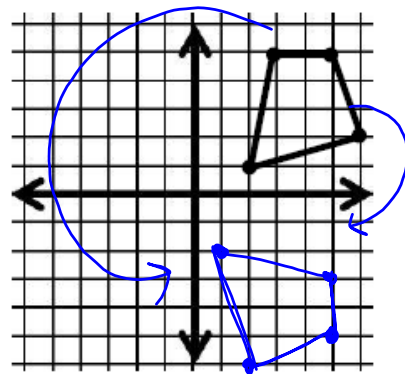
Rotate the figure 270° counterclockwise about the origin.
List the coordinates of the vertices of the new image.

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

$$(3, 5) \rightarrow (5, -3)$$

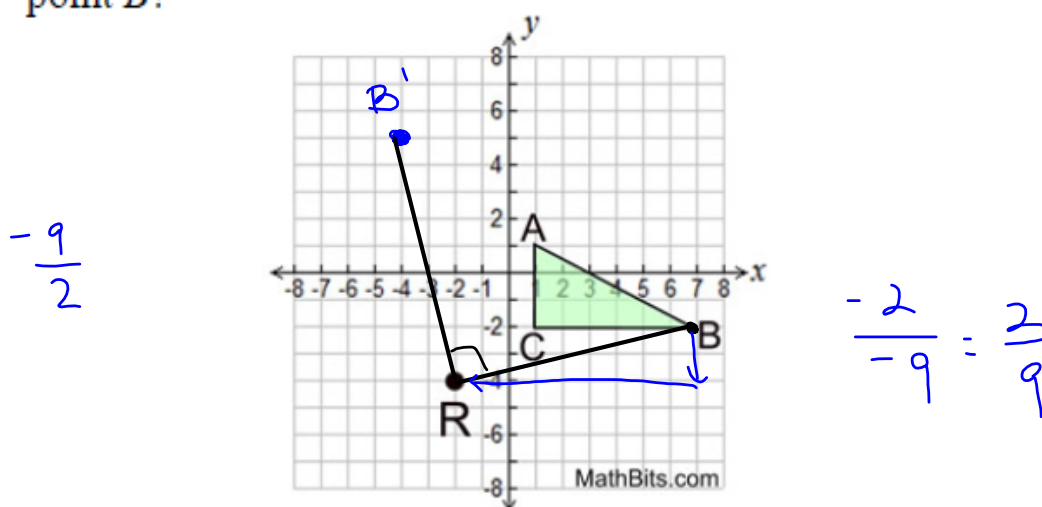
$$(5, 5) \rightarrow (5, -5)$$

$$(6, 2) \rightarrow (2, -6)$$



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$\triangle ABC$ with $A(1,1)$, $B(7,-2)$ and $C(1,-2)$ is rotated 90° about point $R(-2,-4)$. What are the coordinates of the image of point B ?



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