Transformations
Rotation Around The Origin

180 Degree Rotation

The x and y values of any ordered pair rotated 180 degrees will have an opposite value.

Example: A (5,-8)  ➞  A' (-5,8)

The only thing that you will change for any 180 degree rotation are the signs. The signs of the x and y values will become opposite of what they were.

90 Degree Rotation

For any 90 degree rotation around the origin, you must switch the absolute values of the x and y values. After you switch the x and y values, the sign you write for the x and y of your point (negative or positive) will depend on the quadrant you are rotating your point to.

90 Degree Clockwise Rotation Around The Origin

Example: A (-3,-6)  ➞  A' (-6,3)

90 Degree Counter-Clockwise Rotation Around The Origin

Example: A (-3,-6)  ➞  A' (6,-3)

1) List the coordinates of triangle ABC. After listing the coordinates, rotate triangle ABC 90 degrees clockwise around the origin and list the new coordinates. Draw the new location of triangle ABC on the coordinate plane.

Coordinates Before Rotation  Coordinates After Rotation
A  B  C  A’  B’  C’

2) Rotate parallelogram ABCD 90 degrees clockwise around the origin. List the coordinates before and after the rotation and draw the rotated shape on the coordinate plane.

Coordinates Before Rotation  Coordinates After Rotation
A  B  C  D  A’  B’  C’  D’

3) Rotate object WXYZ 180 degrees around the origin. List the coordinates before and after the rotation and draw the rotated shape on the coordinate plane.

Coordinates Before Rotation  Coordinates After Rotation
W  X  Y  Z  W’  X’  Y’  Z’

4) Rotate triangle RST 180 degrees around the origin. List the coordinates before and after the rotation and draw the rotated shape on the coordinate plane.

Coordinates Before Rotation  Coordinates After Rotation
R  S  T  R’  S’  T’
1) Rotate the figure in quadrant II, 90° clockwise around the origin. Draw the rotated image on the coordinate plane.

2) Rotate the figure in quadrant III, 180° around the origin. Draw the rotated figure.

3) Rotate the figure in quadrant IV, 90° counter-clockwise around the origin. Draw the rotated figure on the coordinate plane.

4) After rotating the first figures in problems one, two and three, at what point do all four quadrilaterals intersect?

5) Rotate the quadrilateral in quadrant IV 90° counter-clockwise around the origin. Draw the rotated figure on the coordinate plane.

6) Rotate the rectangle in quadrant II 90° clockwise around the origin. Draw the rotated figure on the coordinate plane.

7) Rotate the triangle in quadrant III 180° around the origin. Draw the rotated figure on the coordinate plane.

8) What picture was created after rotating the images.