

Transformations

90° Rotation Around The Origin

90° clockwise or counter-clockwise rotation around the origin.

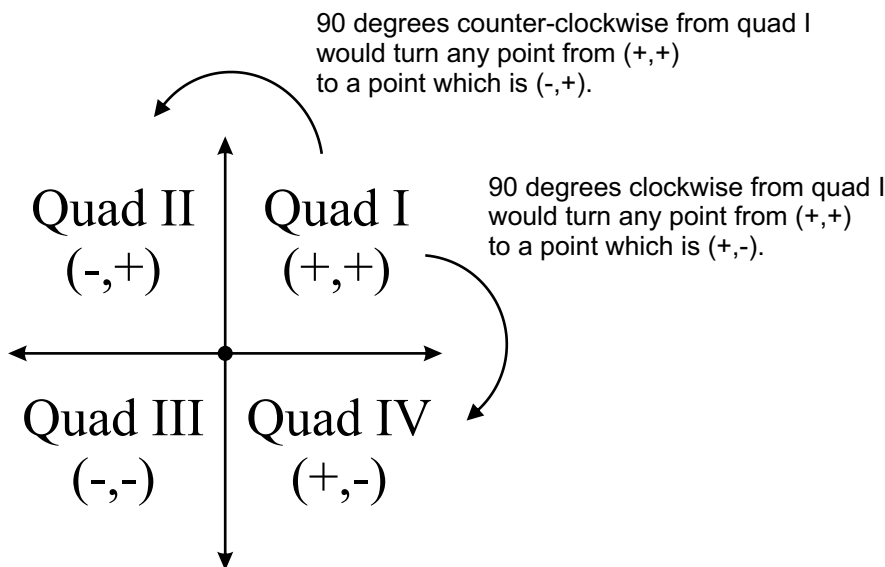
- A. Switch the original x and y-values.
B. Determine whether each x and y-value is negative or positive. This depends on what quadrant you rotate your point to.

Example: Rotating (3,4) 90° clockwise around the origin will place the point at (4,-3).

(3,4) should be switched to (4,3). After switching x and y take care of the signs.

Because (3,4) is in quadrant I and will end up in quadrant IV with a 90° clockwise rotation, the x-value must be positive and the y-value negative. It is always a good idea to have a 4-quadrant coordinate plane handy for reference. See 4-quadrant grid below.

(3,4) -----> (4,-3) with a 90 degree-clockwise rotation around the origin.



Whether rotating clockwise or counter-clockwise, remember to always switch the x and y-values.

Remember that any 90 degree rotation around the origin will always end up in an adjacent quadrant either before or after the quadrant you started in.

It will NEVER end up "kitty-corner" to where you started. That would be a 180 degree rotation around the origin.

Directions: Write what the new coordinates of each point will be if rotated 90° clockwise around the origin.

1) A (5,-8) → A' _____

6) K (3,-5) → K' _____

2) Z (8,9) → Z' _____

7) X (4,2) → X' _____

3) P (-9,-3) → P' _____

8) R (4,-2) → R' _____

4) M (8,-2) → M' _____

9) U (-3,-2) → U' _____

5) J (-1,0) → J' _____

10) S (2,9) → S' _____

Directions: Below are the same points found on the previous page. Rotate these points 90° **counterclockwise** around the origin.

11) A (5,-8) \longrightarrow A' _____

16) K (3,-5) \longrightarrow K' _____

12) Z (8,9) \longrightarrow Z' _____

17) X (4,2) \longrightarrow X' _____

13) P (-9,-3) \longrightarrow P' _____

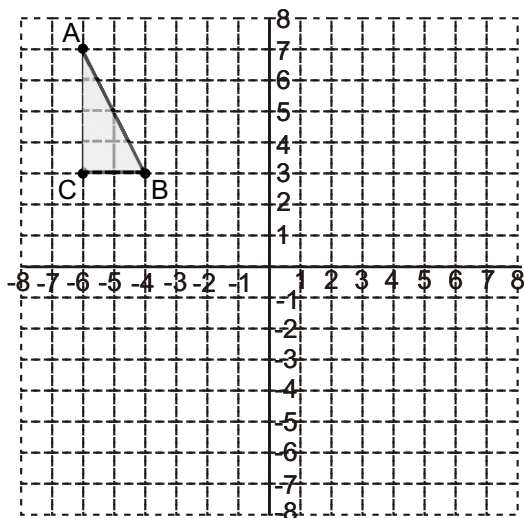
18) R (4,-2) \longrightarrow R' _____

14) M (8,-2) \longrightarrow M' _____

19) U (-3,-2) \longrightarrow U' _____

15) J (-1,0) \longrightarrow J' _____

20) S (2,9) \longrightarrow S' _____

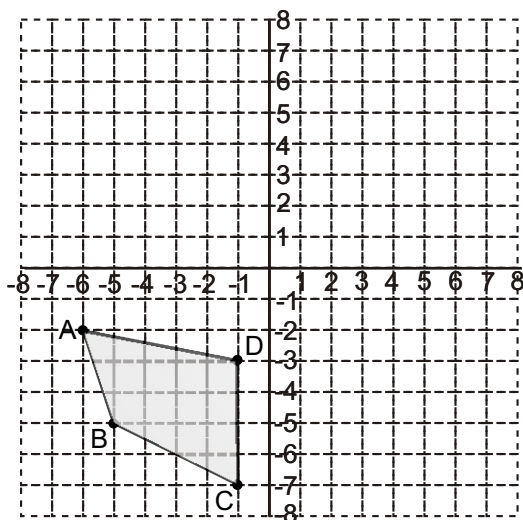


21) Rotate triangle ABC 90° counter-clockwise. Plot the new points and draw the new triangle. Record the rotated points below.

A' _____ B' _____ C' _____

22) Rotate triangle ABC 90° clockwise. Plot the points and draw the triangle. Record the new coordinates below.

A' _____ B' _____ C' _____



23) Rotate quadrilateral ABCD 90° clockwise around the origin. Plot the new points and draw the quadrilateral. Record the coordinates below.

A' _____ B' _____ C' _____ D' _____

24) Rotate quadrilateral ABCD 90° counter-clockwise around the origin. Plot the new points and draw the quadrilateral. Record the coordinates below.

A' _____ B' _____ C' _____ D' _____

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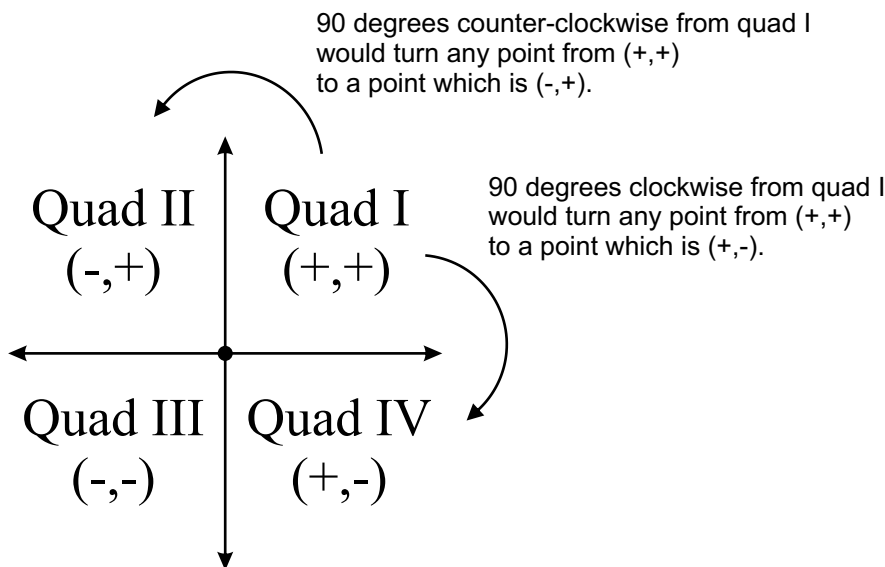
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(3,4) -----> (4,-3) with a 90 degree-clockwise rotation around the origin.



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Remember that any 90 degree rotation around the origin will always end up in an adjacent quadrant either before or after the quadrant you started in.

It will NEVER end up "kitty-corner" to where you started. That would be a 180 degree rotation around the origin.

Directions: Write what the new coordinates of each point will be if rotated 90° clockwise around the origin.

1) A (5,-8) → A' (-8,-5)

6) K (3,-5) → K' (-5,-3)

2) Z (8,9) → Z' (9,-8)

7) X (4,2) → X' (2,-4)

3) P (-9,-3) → P' (-3,9)

8) R (4,-2) → R' (-2,-4)

4) M (8,-2) → M' (-2,-8)

9) U (-3,-2) → U' (-2,3)

5) J (-1,0) → J' (0,1)

10) S (2,9) → S' (9,-2)

Directions: Below are the same points found on the previous page. Rotate these points 90° **counterclockwise** around the origin.

11) A (5,-8) → A' (8,5)

12) Z (8,9) → Z' (-9,8)

13) P (-9,-3) → P' (3,-9)

14) M (8,-2) → M' (2,8)

15) J (-1,0) → J' (0,-1)

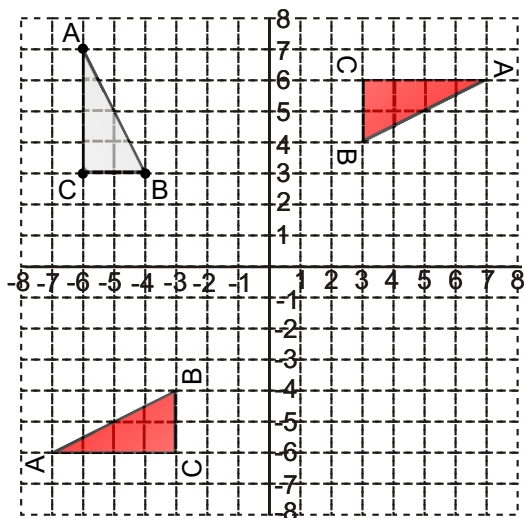
16) K (3,-5) → K' (5,3)

17) X (4,2) → X' (-2,4)

18) R (4,-2) → R' (2,4)

19) U (-3,-2) → U' (2,-3)

20) S (2,9) → S' (-9,2)

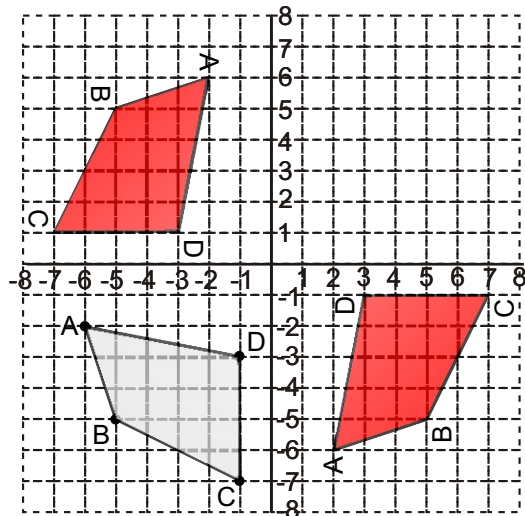


21) Rotate triangle ABC 90° counter-clockwise. Plot the new points and draw the new triangle. Record the rotated points below.

A' (-7,-6) B' (-3,-4) C' (-3,-6)

22) Rotate triangle ABC 90° clockwise. Plot the points and draw the triangle. Record the new coordinates below.

A' (7,6) B' (3,4) C' (3,6)



23) Rotate quadrilateral ABCD 90° clockwise around the origin. Plot the new points and draw the quadrilateral. Record the coordinates below.

A' (-2,6) B' (-5,5) C' (-7,1) D' (-3,1)

24) Rotate quadrilateral ABCD 90° counter-clockwise around the origin. Plot the new points and draw the quadrilateral. Record the coordinates below.

A' (2,-6) B' (5,-5) C' (7,-1) D' (3,-1)