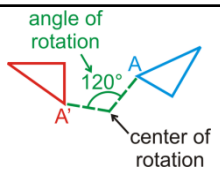
Geometry	Lesson 6.3: Rotations	Notes

NOTES

- A ***rotation*** uses a fixed point to turn a figure around, or about.
- The fixed point is called the ***center of rotation***, or *pivot point*.
- The ***angle of rotation*** is the angle formed by lines connecting the *pre-image* to the center and the *image* to the center.



★ Rotations in the coordinate plane

i. Rotation **90° counter-clockwise about the origin**
   - *Switch coordinates and make the point fit the quadrant.*

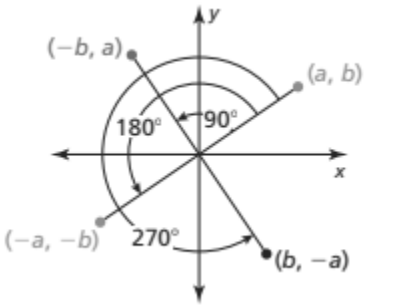
$$(x, y) \rightarrow (-y, x)$$

ii. Rotation **90° clockwise about the origin** *[or 270° CCW]*
   - *Switch coordinates and make the point fit the quadrant.*

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

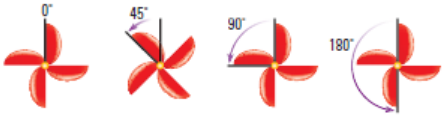
iii. Rotation **180° about the origin**
   - *Leave coordinate order alone, but make both of them the opposite sign.*

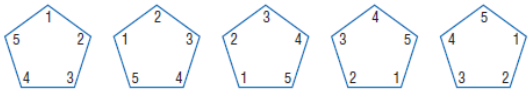
$$(x, y) \rightarrow (-x, -y)$$



🌟 *IF YOU ARE NOT GIVEN A DIRECTION, ASSUME TO GO **COUNTER-CLOCKWISE**.*

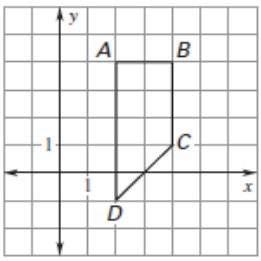
- A figure has ***rotational symmetry*** if it can be rotated onto itself, using its center as the center of rotation, in 180° *or less* in either direction.



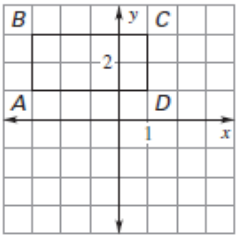


EXAMPLE 1 – Name the coordinates of the vertices of the image after the given rotation.

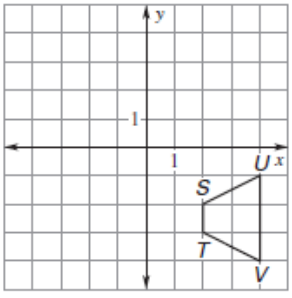
1. 90° *clockwise*



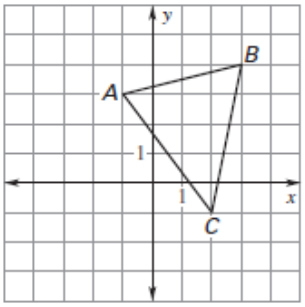
2. 90° *counter-clockwise*



3. 180°

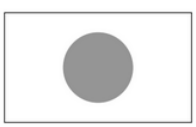


4. 270° *clockwise*

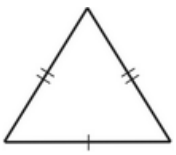


EXAMPLE 2 – Determine whether the figure has *rotational symmetry*. *IF SO, DESCRIBE THE ROTATIONS THAT MAP THE FIGURE ONTO ITSELF.*

1.



2.



3.