Name: _____ **Class:** _____

M8-U3: Notes# 4 – Rotations **Date:** _____

Rotation - turning a figure about a fixed point

How can we turn objects?

1.

2.

We need to know the two "D's" of rotations:

1.

2.

After a rotation has been performed, is the image going to be similar or congruent? Explain.

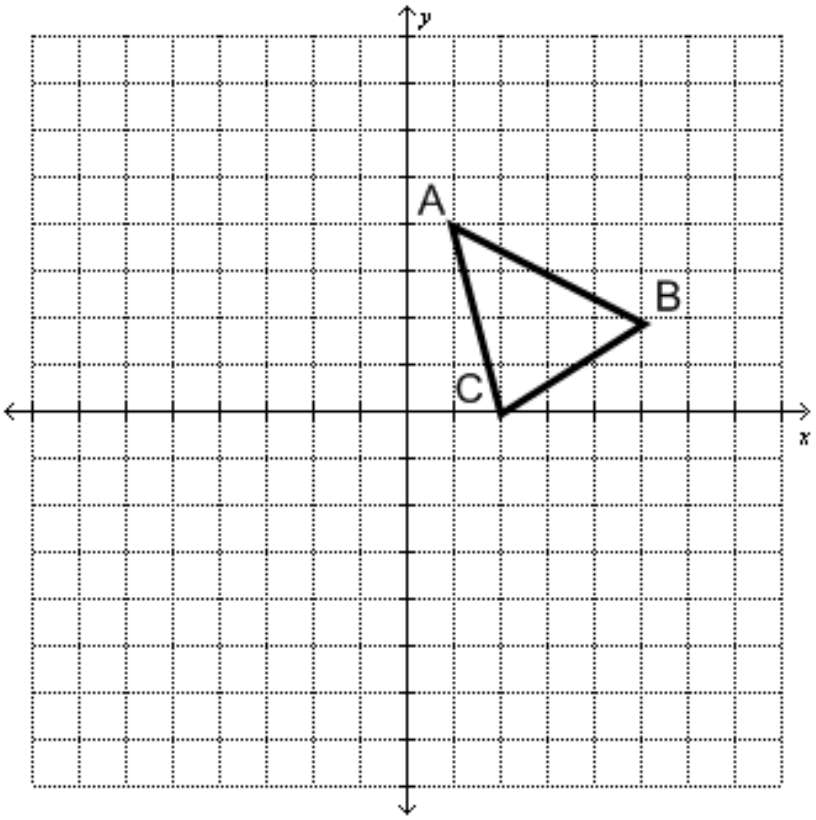
Example:

1. Triangle ABC is labeled on your graph below.

a) Rotate Triangle ABC, 90^{o} counterclockwise. Label the triangle $A'B'C'$.

b) Rotate Triangle ABC, 180^{o} counterclockwise. Label the triangle $A''B''C''$.

c) Rotate Triangle ABC, 270^{o} counterclockwise. Label the triangle $A'''B'''C'''$.



2. Organize your results from Part A in the table.

Starting Point	**90° Rotation CC**	**180° Rotation CC**	**270° Rotation CC**	**360° Rotation CC**
***A* (1, 4)**				
***B* (5, 2)**				
***C* (2, 0)**				

3. Complete each rule for finding the image of any point (*x, y*) under the given rotation.

a) 90° rotation about the origin: $(x, y) \rightarrow (\quad , \quad)$

b) 180° rotation about the origin: $(x, y) \rightarrow (\quad , \quad)$

c) 270° rotation about the origin: $(x, y) \rightarrow (\quad , \quad)$

d) 360° rotation about the origin: $(x, y) \rightarrow (\quad , \quad)$

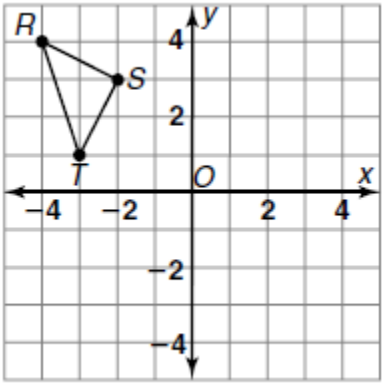
4. What are the coordinates of (3, - 2) under a 90° counterclockwise rotation about the origin?

5. What are the coordinates of (- 5, 4) under a 180° counterclockwise rotation about the origin?

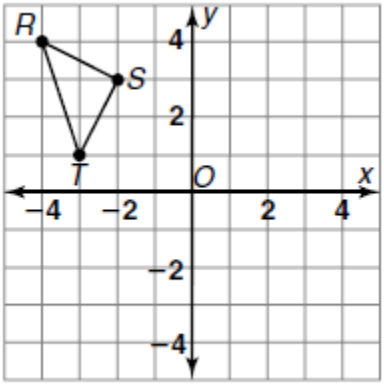
6. What are the coordinates of (3, 2) under a 90° **clockwise** rotation about the origin?

7.

a. Draw the final image created by rotating triangle *RST* 90° counterclockwise about the origin and then reflecting the image in the *x*-axis.

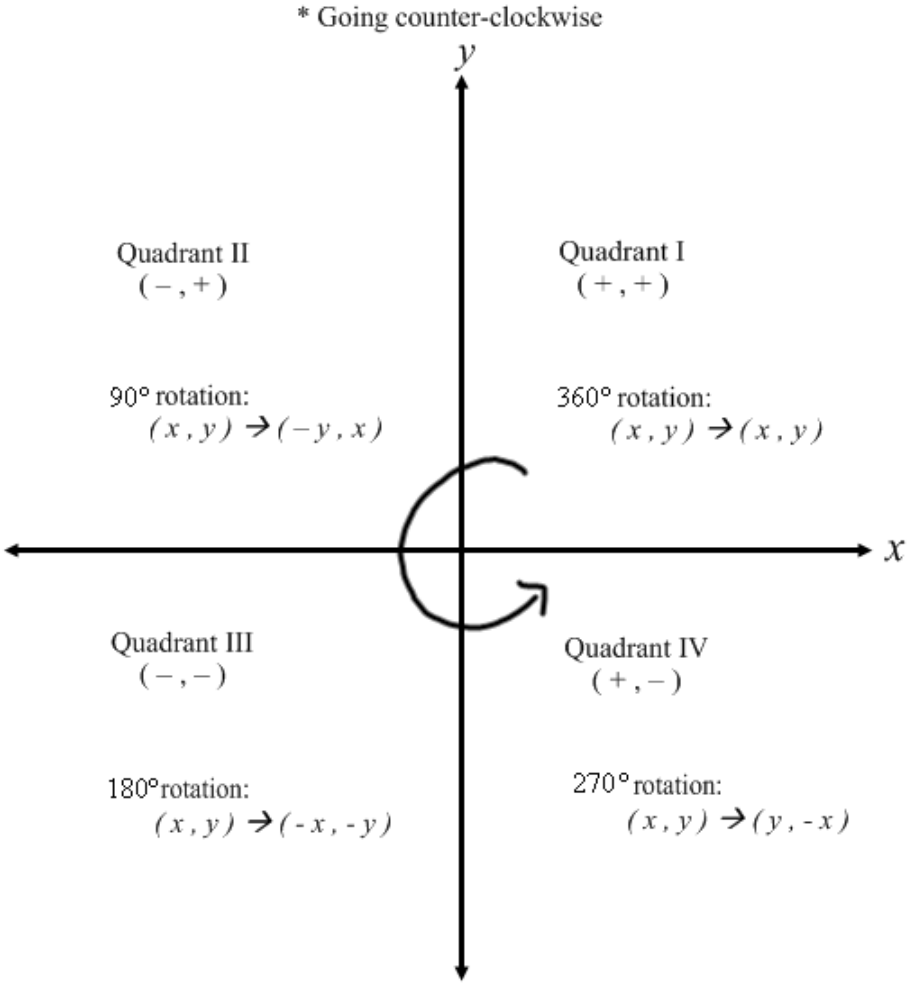


b. Draw the final image created by reflecting triangle *RST* in the *x*-axis and then rotating the image 90° counterclockwise about the origin.



c. Are the final images in parts (a) and (b) the same? Why or why not?

Rotation Summary



** Note: Negative sign in this case means opposite. **