Rotation - turning a figure about a fixed point

How can we turn objects?

1. **CLOCKWISE**
2. **COUNTER CLOCKWISE**

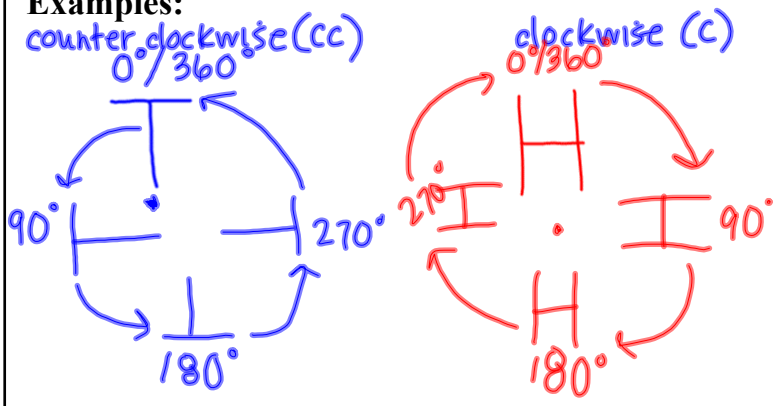
We need to know the two "D's" of rotations:

1. **DEGREE**
2. **DIRECTION**

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

congruent

Examples:



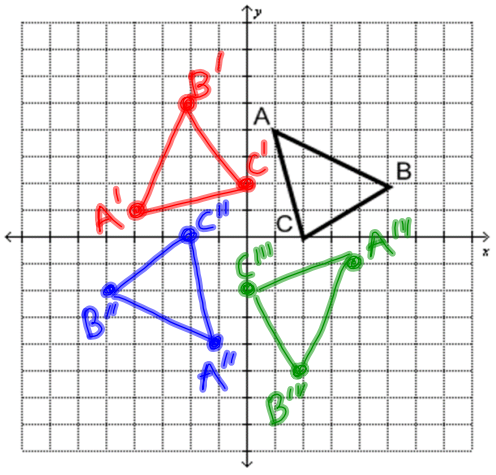
Oct 23-12:47 PM

1. Triangle *ABC* is labeled on your graph below.

a) Rotate Triangle *ABC*, 90° counter-clockwise about the origin. Label the triangle *A′ B′ C′*.

b) Rotate Triangle *ABC*, 180° counter-clockwise about the origin. Label the triangle *A″ B″ C″*.

c) Rotate Triangle *ABC*, 270° counter-clockwise. Label the triangle *A‴ B‴ C‴*.



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

(-y, x) (-x, -y) (y, -x)

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

Oct 23-1:08 PM

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

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

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

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

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

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

$(x,y) \rightarrow (-y,x)$ $(2,3)$

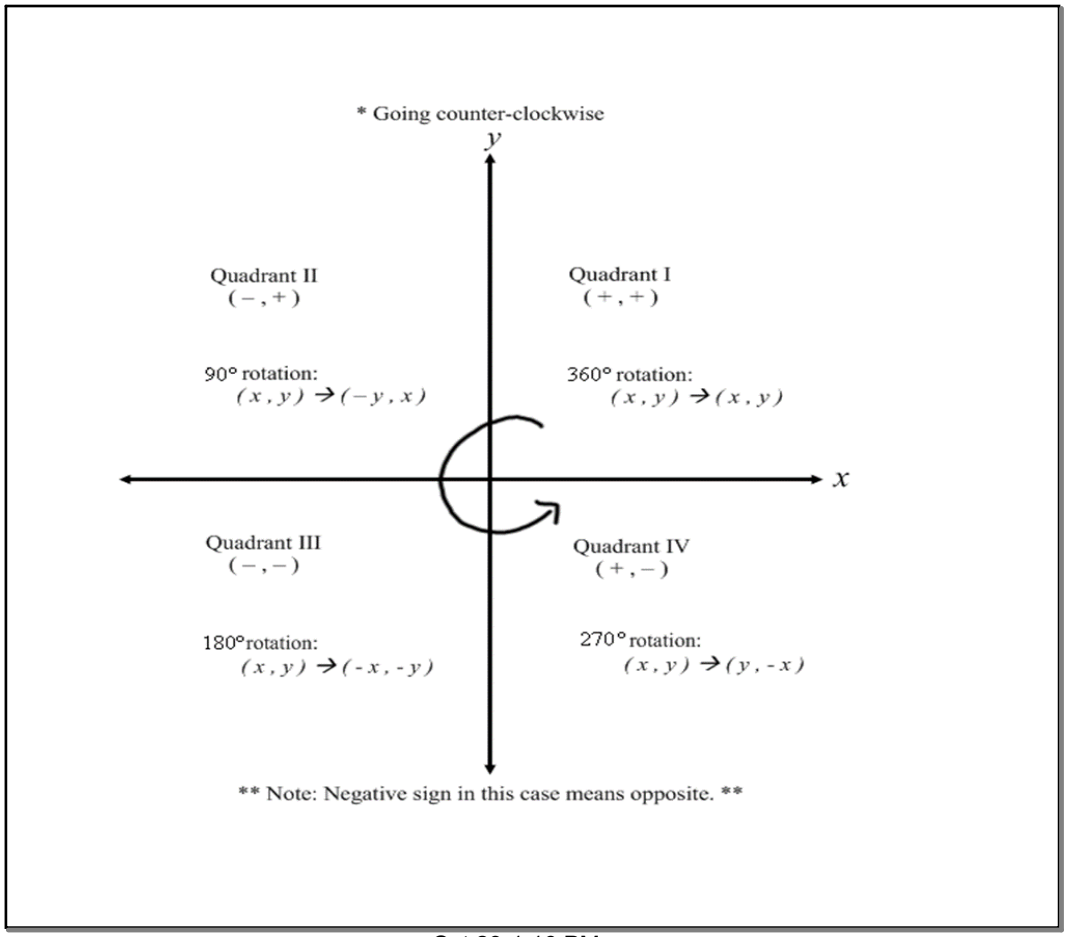
5. What are the coordinates of (- 5, 4) under a 180° counterclockwise rotation about the origin?

$(x,y) \rightarrow (-x,-y)$ $(5,-4)$

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

$(x,y) \rightarrow (y,-x)$ $(2,-3)$

Oct 23-1:13 PM



Oct 23-1:16 PM