

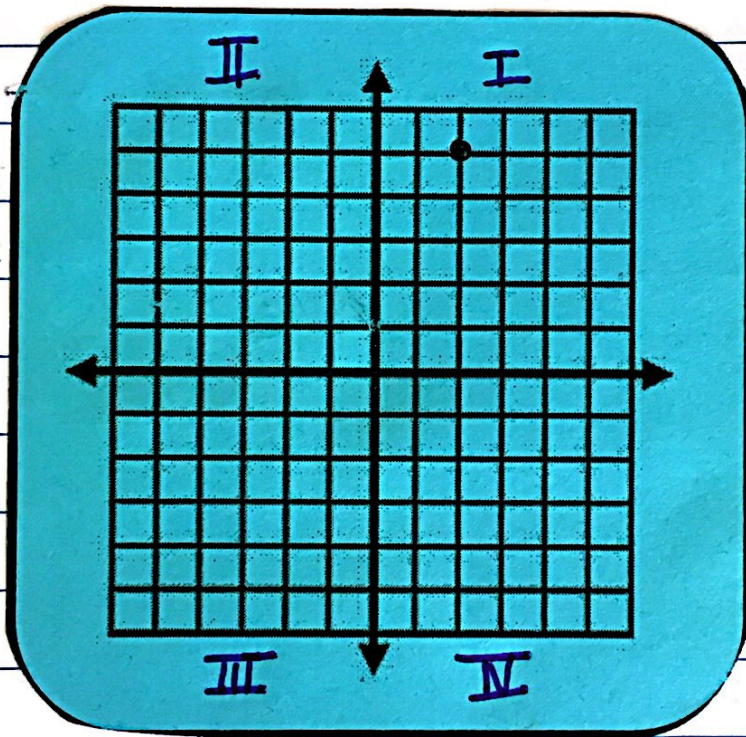
Rotations

Vocabulary

1. **Rotation** - a transformation that turns a figure a certain amount of degrees around a fixed point.

2. **Clockwise** ↻, C, CW **(-)**

3. **Counter Clockwise** ↺, CC, CCW **(+)**



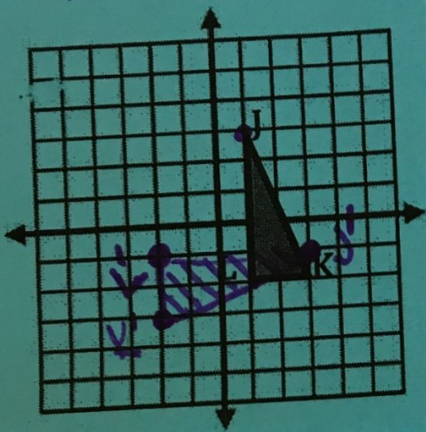
	90° C (-) 270° CC	180° C (-) 180° CC (+)	270° C (-) 90° CC	360° C 360° CC
(2, 5)	(5, -2)	(-2, 5)	(-5, 2)	(2, 5)
(x, y)	(y, -x)	(-x, -y)	(-y, x)	(x, y)

ROTATIONS ARE CONGRUENT

Examples of Rotations

#1

Rotate -90°



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

J $(1, 3) \rightarrow J' (3, -1)$

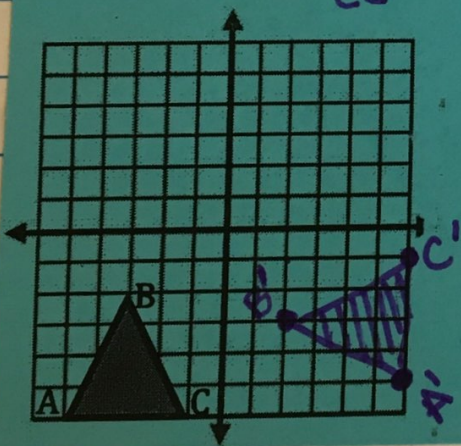
L $(1, -2) \rightarrow L' (-2, -1)$

K $(3, -2) \rightarrow K' (-2, -3)$

$\Delta JKL \cong \Delta J'L'K'$

#2

Rotate $+90^\circ / -270^\circ$



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

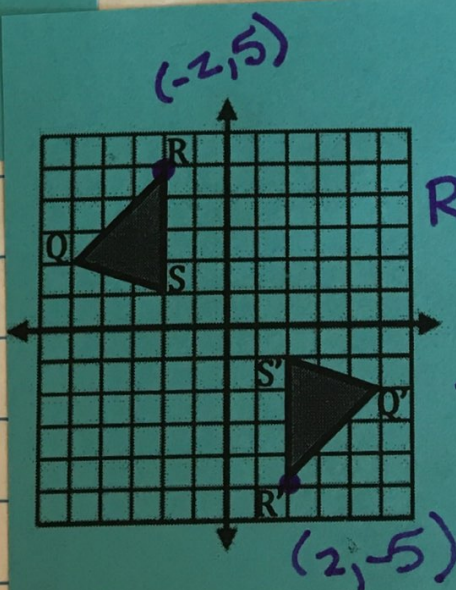
A $(-5, -6) \rightarrow A' (6, -5)$

B $(-3, -2) \rightarrow B' (2, -3)$

C $(-1, -6) \rightarrow C' (6, -1)$

$\Delta ABC \cong \Delta A'B'C'$

#3



Rotate 180° or -180°

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

Quiz Review

Translations

Coordinate/Algebraic Rules

Form: $(X \text{ ______}, Y \text{ ______})$

Ex: $(x + 2, y - 1)$

Vector Rule

Form: $\langle \text{___}, \text{___} \rangle$

Ex: $\langle -2, 3 \rangle$

Description

X+ shifts right, X- shifts left

Y+ shifts up, Y- shifts down

Reflections

	X-axis	Y-axis	Y=x	Y=-x
(x, y)	(x, -y)	(-x, y)	(y, x)	(-y, -x)

Rotations

	90° CC 270° CC	180° CC 180° CC	270° CC 90° CC	360° CC 360° CC
(x, y)	(y, -x)	(-x, -y)	(-y, x)	(x, y)

- Translations, reflections & rotations are congruent transformations (+)
- $y = \#$ are ~~vertical~~ horizontal lines (\longleftrightarrow)
- $x = \#$ are vertical lines (\updownarrow)