

Name: Key

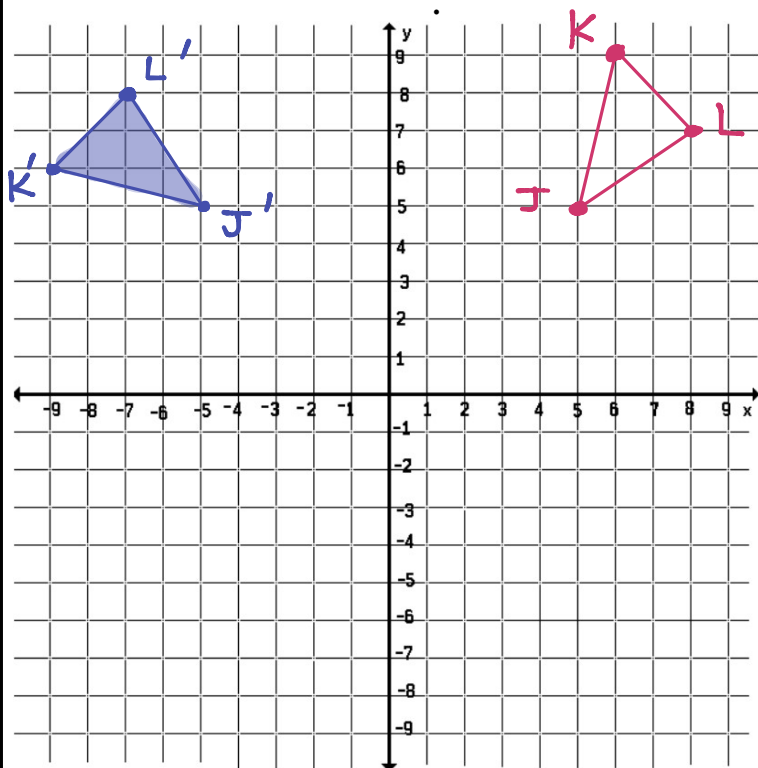
Date: _____

Period: A B C D E F

Module 1: Topic 1 Lesson 5 Assignment

1. A **ROTATION** is a rigid motion transformation that spin/turn a figure about a point
2. Anytime a **rotation** is performed, the pre-image and image will always be congruent.

Use the graph below to answer question 3.



3. Use $\triangle JKL$ and the coordinate plane to answer each question

- a. Plot the coordinates on the graph to the left.

$J(5, 5)$ $K(6, 9)$ $L(8, 7)$

- b. Rotate the figure 90° counterclockwise about the origin.



Coordinates of triangle	Coordinates after rotation
$J(5, 5)$	$J'(-5, 5)$
$K(6, 9)$	$K'(-9, 6)$
$L(8, 7)$	$L'(-7, 8)$

- c. Write the rule for the rotation.

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

4. Use the coordinates of the pre-image to determine how the trapezoid was rotated.

Pre-image	Image
A (-2, 5)	A' (5, 2)
B (3, -8)	B' (-8, -3)
C (6, 8)	C' (8, -6)
D (-9, 5)	D' (5, 9)



The pre-image was rotated (circle one)

- (a) 90° counterclockwise
 (b) 90° clockwise
 (c) 180°

5. Without graphing, determine the coordinates of the image after a **rotation of 180°** .

Pre-image	Image
X (7, 2)	X' (-7, -2)
Y (3, -5)	Y' (-3, 5)
Z (-6, 0)	Z' (6, 0)

Write the rule for the **rotation**.

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

6. Determine the coordinates of each triangle **without** graphing (use the rules).



A) Triangle ABC with coordinates A(3, 4) B(7, 7) C(8, 1) is **rotated 90° counterclockwise**.

A' (-4, 3) B' (-7, 7) C' (-1, 8)

B) Triangle ABC with coordinates A(3, 4) B(7, 7) C(8, 1) is **rotated 90° clockwise**.



A'' (4, -3) B'' (7, -7) C'' (1, -8)

C) Triangle ABC with coordinates A(3, 4) B(7, 7) C(8, 1) is **rotated 180°**.

A''' (-3, -4) B''' (-7, -7) C''' (-8, -1)

REVIEW

- The pre image is the original figure.
- The image is the figure after the transformation.

Determine the coordinates of the image following each given translation **without** graphing.

3. Triangle ABC with coordinates A(2, -4) B(-3, 6) C(5, -1) is **translated 6 units to the left and 5 units up**. (x-6, y+5)

A' (-4, 1) B' (-9, 11) C' (-1, 4)

4. Triangle XYZ with coordinates X(-2, 2) Y(1, 5) Z(0, -1) is **translated 2 units to the right and 7 units down**. (x+2, y-7)

X' (0, -5) Y' (3, -2) Z' (2, -8)

5. Parallelogram DEFG with coordinates D(0, 2) E(1, 5) F(6, 5) and G(5, 2) is **reflected over the y-axis**.

D' (0, 2) E' (-1, 5) F' (-6, 5) G' (-5, 2)

6. Quadrilateral ABCD with coordinates A(-5, 1) B(0, -3) C(6, 2) and D(-4, -2) is **reflected over the x-axis**.

A' (-5, -1) B' (0, 3) C' (6, -2) D' (-4, 2)