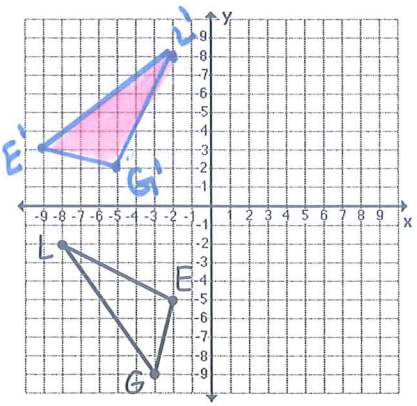
Geometry
Rotations Worksheet

Name: Key

Rules of Rotation

90° CW or 270° CCW	$(x,y) \rightarrow (y,-x)$
180° CW or 180° CCW	$(x,y) \rightarrow (-x,-y)$
90° CCW or 270° CW	$(x,y) \rightarrow (-y,x)$

1. Rotate LEG 90° CW from the origin. Call it L'E'G'.



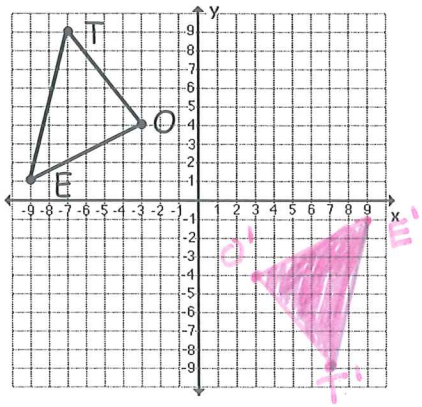
L (-8, -2) L' (-2, 8)

E (-2, -5) E' (-5, 2)

G (-3, -9) G' (-9, 3)

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

2. Rotate TOE 180° CW from the origin. Call it T'O'E'.



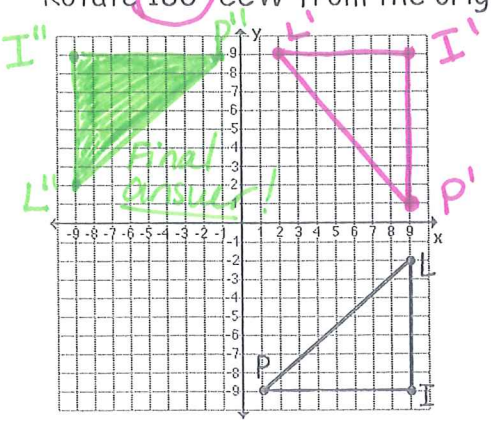
T (-7, 9) T' (7, -9)

O (-3, 4) O' (3, -4)

E (-9, 1) E' (9, -1)

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

3. Rotate 180° CCW from the origin. Call it L'I'P'.



90°

L (9, -2) L' (2, 9) L'' (-9, 2)

I (9, -9) I' (9, 9) I'' (-9, 9)

P (1, -9) P' (9, 1) P'' (-1, 9)

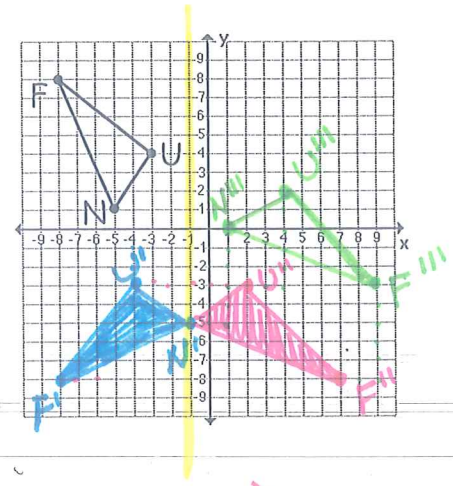
4. a. Rotate 270° CW from the origin. Call it F'U'N'.

BLUE

F (-8, 8) F' (-8, -8)

U (-3, 4) U' (-4, -3)

N (-5, 1) N' (-1, -5)



b. Reflect over the line $x = -1$. Call it F"U"N".

Pink

F" (7, -8) U" (2, -3) N" (-1, -5)

c. Translate 2 right and 5 up. Call it T'Y'M'.

$(x, y) \rightarrow (x + 2, y + 5)$

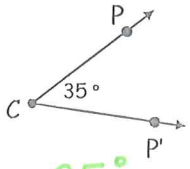
Green

~~F~~ (9, -3) ~~U~~ (4, 2) ~~N~~ (1, 0)

F''' U''' N'''

5. What rotation will take P to P'?

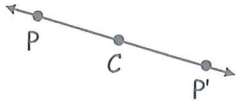
a.



CW 35°

CCW 325°

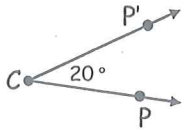
b.



CW 180°

CCW 180°

c.



CW 340°

CCW 20°

6. Which figure is a rotation of the original?

a) 

b) 

c) 

7. Which figure is a rotation of the original?

a) 

b) 

c) 

Give the new coordinate after each rotation. → You can use graph paper OR Rules but this must Be complete

8. 90° CW (y, -x)

M(2, 0)	M' (0, -2)
A(-3, 4)	A' (4, 3)
T(5, 2)	T' (2, -5)
H(-1, 6)	H' (6, 1)

9. 180° CW (-x, -y)

T(3, 2)	T' (-3, -2)
R(7, -1)	R' (-7, 1)
I(4, 0)	I' (-4, 0)
G(2, 8)	G' (-2, -8)

10. ~~270° CW~~ 90° CCW (-y, x)

G(3, 5)	G' (-5, 3)
E(-6, 3)	E' (-3, -6)
O(1, 2)	O' (-2, 1)
M(-42, 5)	M' (-5, -42)

11. 360° CW Same

A(-56, 0)	A' (-56, 0)
L(24, 3)	L' (24, 3)
G(6, -7)	G' (6, -7)