Geometry
Notes: Rotations

Rotate:_____

Clockwise (CW):

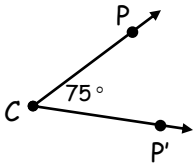
Counterclockwise (CCW):

There are _____ degrees in a circle. When we rotate clockwise or counterclockwise, the two rotations should always add up to _____ degrees.

Examples

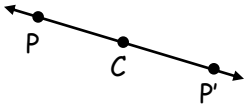
What rotation will take P to P'?

1.



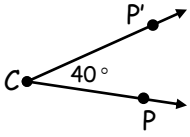
CW _____
CCW _____

2.



CW _____
CCW _____

3.



CW _____
CCW _____

4. Which figure is a rotation of the original?

a) 

b) 

c) 

5. Which figure is a rotation of the original?

a) 

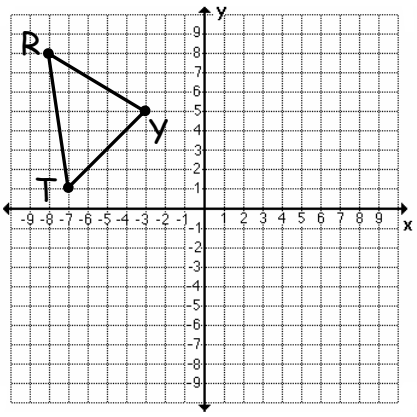
b) 

c) 

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 TRY 90° CW from the origin. Call it T'R'Y'.

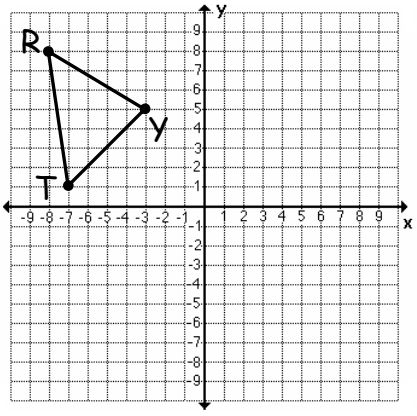


T _____ T' _____

R _____ R' _____

Y _____ Y' _____

2. Rotate TRY 90° CCW from the origin. Call it T'R'Y'.

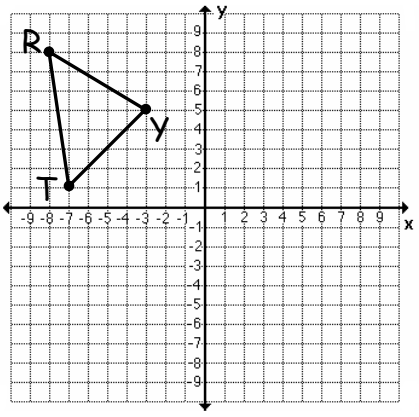


T _____ T' _____

R _____ R' _____

Y _____ Y' _____

3. Rotate TRY 180° CW from the origin. Call it T'R'Y'.

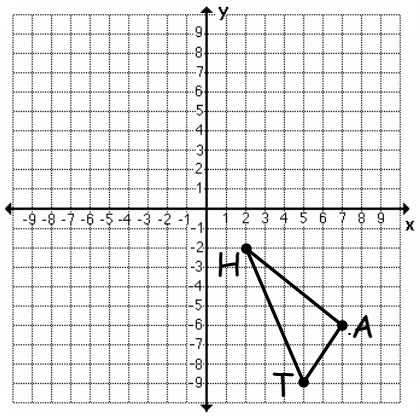


T _____ T' _____

R _____ R' _____

Y _____ Y' _____

4. a. Rotate 270° CW from the origin.
Call it H'A'T'.



H _____ H' _____

A _____ A' _____

T _____ T' _____

b. Reflect over the line $x = 1$.
Call it H"A"T".

H" _____ A" _____ T" _____

c. Translate 3 right and 4 down.
Call it BUG.

B _____ U _____ G _____

	Translation	Reflection	Rotation
Is congruency preserved?			
Is orientation preserved?			

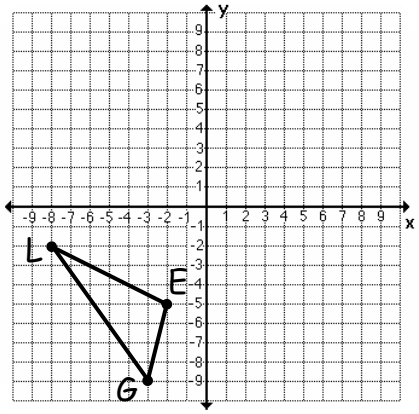
Geometry Name: _____

Rotations Worksheet

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'.

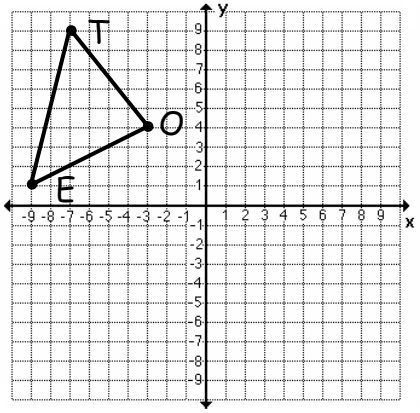


L _____ L' _____

E _____ E' _____

G _____ G' _____

2. Rotate TOE 270° CW from the origin. Call it T'O'E'.

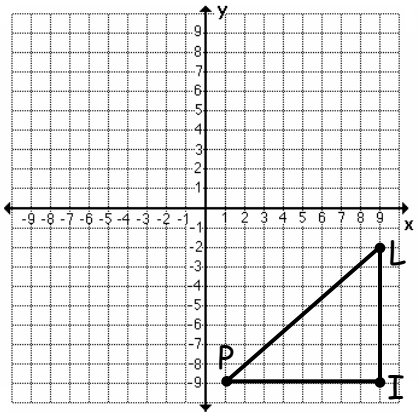


T _____ T' _____

O _____ O' _____

E _____ E' _____

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

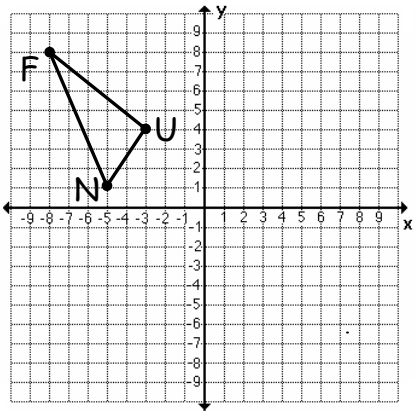


L _____ L' _____

I _____ I' _____

P _____ P' _____

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



F _____ F' _____

U _____ U' _____

N _____ N' _____

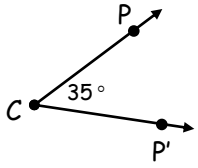
b. Reflect over the line $x = -1$. Call it F"U"N".

F" _____ U" _____ N" _____

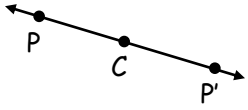
c. Translate 2 right and 5 up. Call it TYM.

T _____ Y _____ M _____

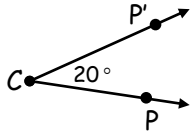
5. What rotation will take P to P'?

a. 

CW _____
CCW _____

b. 

CW _____
CCW _____

c. 

CW _____
CCW _____

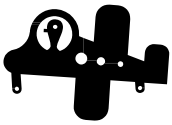
6. Which figure is a rotation of the original?

a)

b)

c)

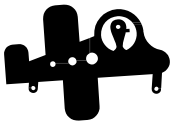
7. Which figure is a rotation of the original?



a)

b)

c)



Give the new coordinate after each rotation.

8. 90° CW

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

9. 180° CW

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

10. 270° CW

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

11. 360° CW

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