Winston

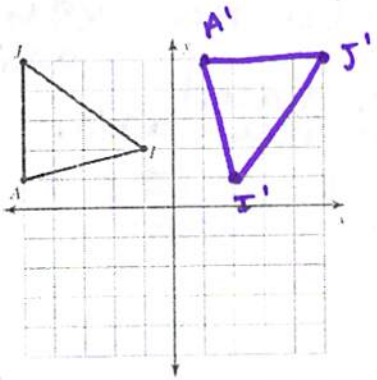
1.6 Rotations about Other Fixed Points

Warm-Up	
	5.
2.	6.
3.	7.
4.	8.

Methods for Rotating about Other Fixed Points

Method One: Redrawing the x and y-axis

Rotate ΔJAI 90° CW about (0, 0).



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

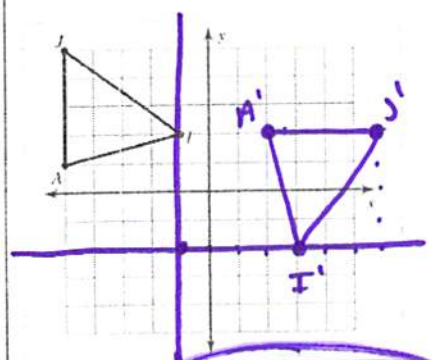
$J(-5,5) \rightarrow J'(5,5)$

$A(-5,1) \rightarrow A'(1,5)$

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

*Rotation rules only work if you are centered around (0,0).

Rotate ΔJAI 90° CW about (-1, -2).



way 1: draw new x & y axis through new center. ID coordinates & then apply rule $(x,y) \rightarrow (y,-x)$.

$J(-4,7) \rightarrow J'(7,4)$

$A(-4,3) \rightarrow A'(3,4)$

$I(0,4) \rightarrow I'(4,0)$

Graph points on new axis.

Method Two: Solving Algebraically

If M(3, 1) is rotated 270° CCW about E(0, –2), what is M'?

90° CW

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

$m'(3,-5)$

① $(3,1) - (0,-2) = (3,3)$

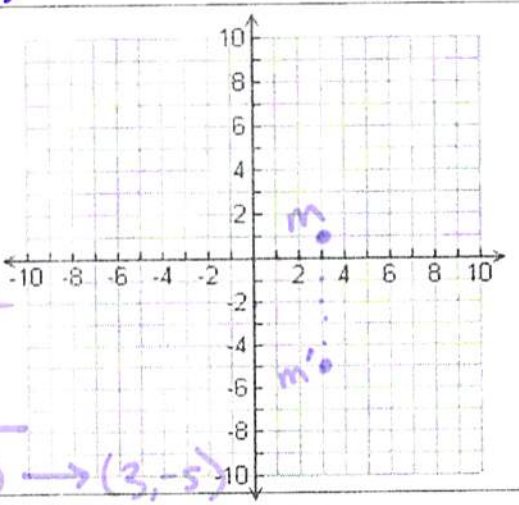
② $(3,3) \rightarrow (3,-3)$

③ $(3,-3) + (0,-2) = (3,-5)$

① Subtract new center

② Apply Rule

③ Add new center

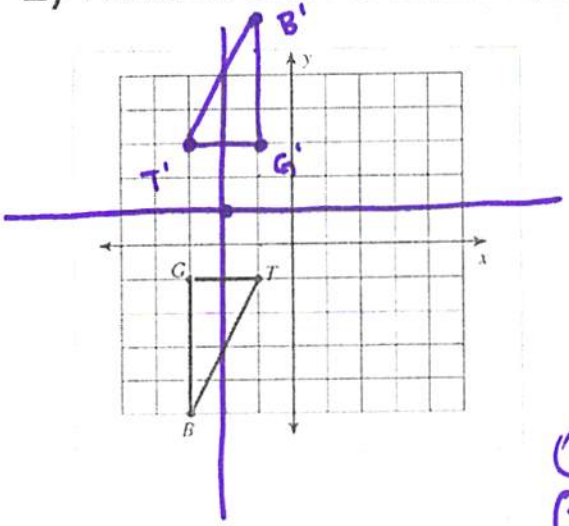


$m(3,1) \rightarrow (3,3) \rightarrow (3,-3) \rightarrow (3,-5)$

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

① Trans. to (0,0) ② Apply rule ③ undo

1) Rotate ΔGTB 180° CCW about (–2, 1). $(x,y) \rightarrow (-x,-y)$



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

$T(1,-2) \rightarrow T'(-1,2)$

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

① Draw new x & y axis.
② List coordinates based on new x & y axis.
③ Apply rule ④ Plot based on new axis.

2) If F(2, -1) is rotated 90° CCW about E(1, 3), what is ~~W~~ F'?

① Subtract new center
② Apply Rule $(x,y) \rightarrow (-y,x)$
③ Add new center

$F'(5,4)$

① $(2,-1) - (1,3) = (1,-4)$
② $(4,1)$
③ $+(1,3) = (5,4)$

3) What transformation has occurred in the figure?