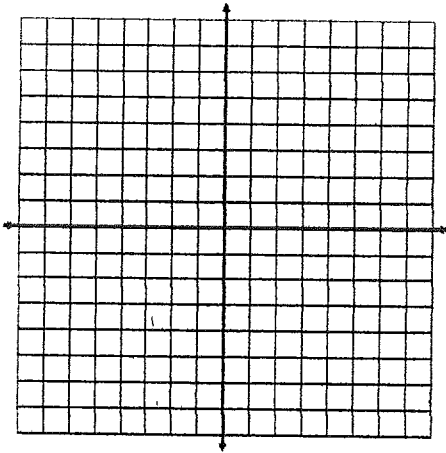


**Directions:** Graph and label each figure and its image under the given transformations.  
All rotations are about the origin.

9. Triangle  $DEF$  with vertices  $D(-6, -1)$ ,  $E(-3, -2)$ , and  $F(-5, -7)$ :

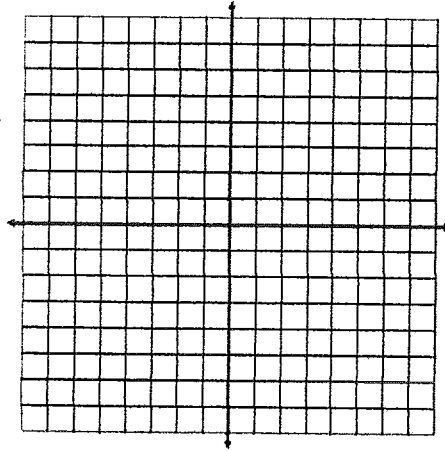
- (a) Reflection: In the  $x$ -axis
- (b) Rotation:  $180^\circ$



$D'$  (     ,     )  
 $E'$  (     ,     )  
 $F'$  (     ,     )

10. Rectangle  $WXYZ$  with vertices  $W(1, 5)$ ,  $X(7, 5)$ ,  $Y(7, 2)$ , and  $Z(1, 2)$ :

- (a) Rotation:  $270^\circ$  counterclockwise
- (b) Translation:  $(x, y) \rightarrow (x - 7, y + 3)$



$W'$  (     ,     )  
 $X'$  (     ,     )  
 $Y'$  (     ,     )  
 $Z'$  (     ,     )

**90°**

COUNTERCLOCKWISE

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

**180°**

COUNTERCLOCKWISE

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

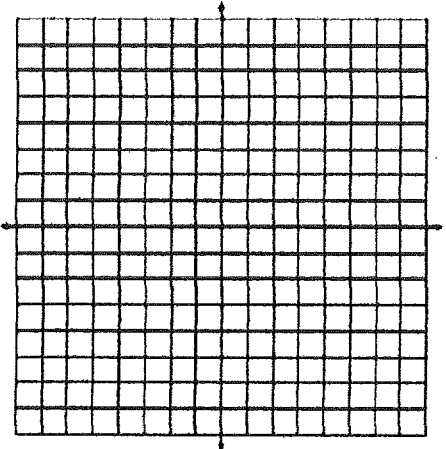
**270°**

COUNTERCLOCKWISE

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

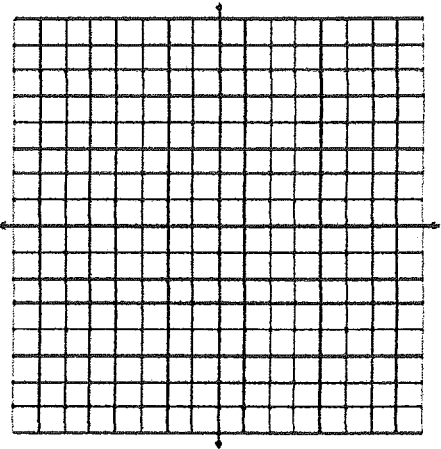
Name: \_\_\_\_\_

7. Parallelogram  $MNOP$  with vertices  $M(1, 7)$ ,  $N(8, 5)$ ,  $O(4, 2)$ , and  $P(-3, 4)$ : **180°**



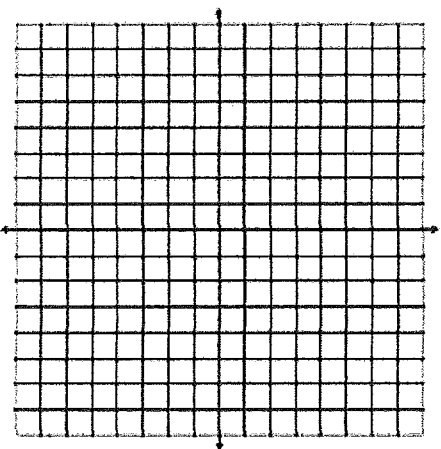
$M'$  (\_\_\_\_, \_\_\_\_)  
 $N'$  (\_\_\_\_, \_\_\_\_)  
 $O'$  (\_\_\_\_, \_\_\_\_)  
 $P'$  (\_\_\_\_, \_\_\_\_)

8. Triangle  $GHI$  with vertices  $G(0, -2)$ ,  $H(7, -6)$ , and  $I(3, -8)$ : **270° counterclockwise**



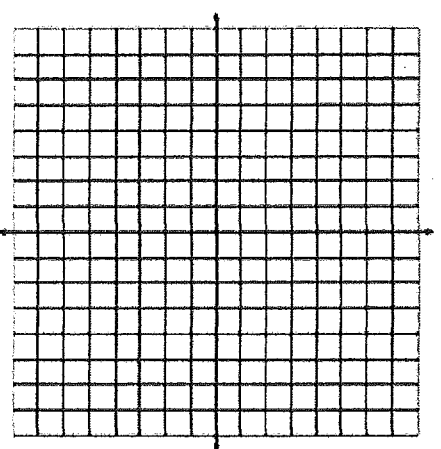
$G'$  (\_\_\_\_, \_\_\_\_)  
 $H'$  (\_\_\_\_, \_\_\_\_)  
 $I'$  (\_\_\_\_, \_\_\_\_)

9. Square  $ABCD$  with vertices  $A(-7, 5)$ ,  $B(-4, 7)$ ,  $C(-2, 4)$ , and  $D(-5, 2)$ : **90° counterclockwise**



$A'$  (\_\_\_\_, \_\_\_\_)  
 $B'$  (\_\_\_\_, \_\_\_\_)  
 $C'$  (\_\_\_\_, \_\_\_\_)  
 $D'$  (\_\_\_\_, \_\_\_\_)

10. Rectangle  $WXYZ$  with vertices  $W(-3, -5)$ ,  $X(1, -1)$ ,  $Y(3, -3)$ , and  $Z(-1, -7)$ : **180°**



$W'$  (\_\_\_\_, \_\_\_\_)  
 $X'$  (\_\_\_\_, \_\_\_\_)  
 $Y'$  (\_\_\_\_, \_\_\_\_)  
 $Z'$  (\_\_\_\_, \_\_\_\_)