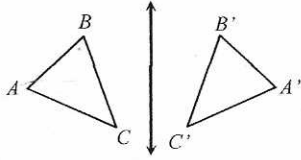


Name: \_\_\_\_\_

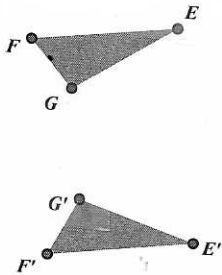
Date: \_\_\_\_\_

**Main Ideas/Questions**

# Reflection



Construct the line of reflection below:



**Notes**

- A \_\_\_\_\_ over a line called the \_\_\_\_\_.
- The line of reflection is the perpendicular bisector of any segment whose endpoints are a preimage point and its corresponding image point.
- Possible lines of reflection:
  - ✓ \_\_\_\_\_ or \_\_\_\_\_
  - ✓ Vertical or horizontal lines in the form \_\_\_\_\_ or \_\_\_\_\_
  - ✓ Diagonal lines in the form \_\_\_\_\_ or \_\_\_\_\_

Rules for most common reflections on a coordinate plane:

Over the x-axis:  $(x,y) \rightarrow ( \quad , \quad )$

Over the y-axis:  $(x,y) \rightarrow ( \quad , \quad )$

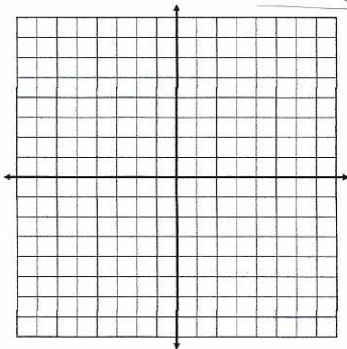
Over the line  $y = x$ :  $(x,y) \rightarrow ( \quad , \quad )$

Over the line  $y = -x$ :  $(x,y) \rightarrow ( \quad , \quad )$

**Practical** Graph and label each figure and its image under the given reflection. Give the new coordinates.

1. Triangle  $ABC$  with vertices  $A(-4, 2)$ ,  $B(4, 7)$ , and  $C(5, 1)$  in the  $x$ -axis.

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



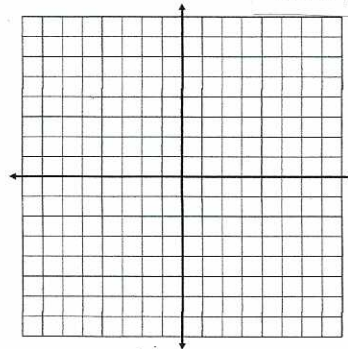
$A' ( \quad , \quad )$

$B' ( \quad , \quad )$

$C' ( \quad , \quad )$

2. Rectangle  $PQRS$  with vertices  $P(1, 2)$ ,  $Q(2, 5)$ ,  $R(8, 3)$ , and  $S(7, 0)$  in the  $y$ -axis.

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



$P' ( \quad , \quad )$

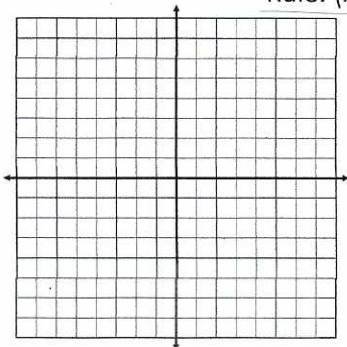
$Q' ( \quad , \quad )$

$R' ( \quad , \quad )$

$S' ( \quad , \quad )$

3. Trapezoid  $FGHI$  with vertices  $F(-5, -2)$ ,  $G(-2, -2)$ ,  $H(0, -6)$ , and  $I(-8, -6)$  in the  $y$ -axis.

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



$F' ( \quad , \quad )$

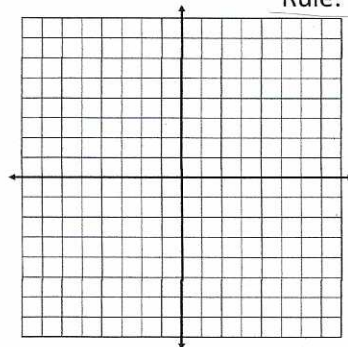
$G' ( \quad , \quad )$

$H' ( \quad , \quad )$

$I' ( \quad , \quad )$

4. Rhombus  $WXYZ$  with vertices  $W(-2, -4)$ ,  $X(1, -2)$ ,  $Y(4, -4)$ , and  $Z(1, -6)$  in the  $x$ -axis.

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



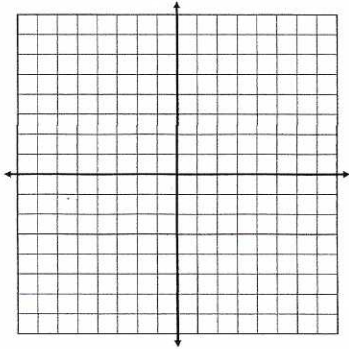
$W' ( \quad , \quad )$

$X' ( \quad , \quad )$

$Y' ( \quad , \quad )$

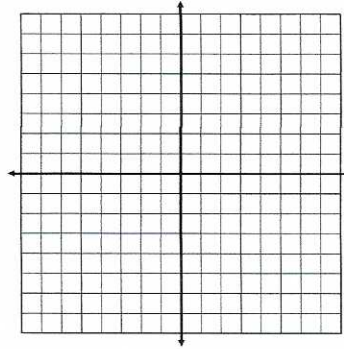
$Z' ( \quad , \quad )$

5. Triangle  $JKL$  with vertices  $J(1, -1)$ ,  $K(2, 3)$ , and  $L(3, -2)$  in the line  $x = 4$ .



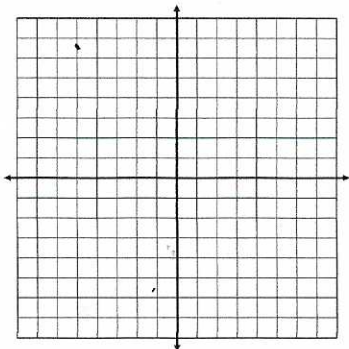
$J'$  (\_\_\_\_, \_\_\_\_)  
 $K'$  (\_\_\_\_, \_\_\_\_)  
 $L'$  (\_\_\_\_, \_\_\_\_)

6. Square  $RSTU$  with vertices  $R(0, 3)$ ,  $S(5, 4)$ ,  $T(6, -1)$ , and  $U(1, -2)$  in the line  $x = -1$ .



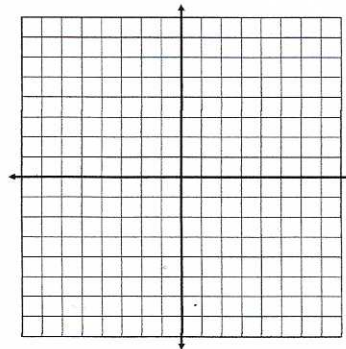
$R'$  (\_\_\_\_, \_\_\_\_)  
 $S'$  (\_\_\_\_, \_\_\_\_)  
 $T'$  (\_\_\_\_, \_\_\_\_)  
 $U'$  (\_\_\_\_, \_\_\_\_)

7. Parallelogram  $CDEF$  with vertices  $C(-4, -4)$ ,  $D(-2, 0)$ ,  $E(6, 1)$ , and  $F(4, -3)$  in the line  $y = 2$ .



$C'$  (\_\_\_\_, \_\_\_\_)  
 $D'$  (\_\_\_\_, \_\_\_\_)  
 $E'$  (\_\_\_\_, \_\_\_\_)  
 $F'$  (\_\_\_\_, \_\_\_\_)

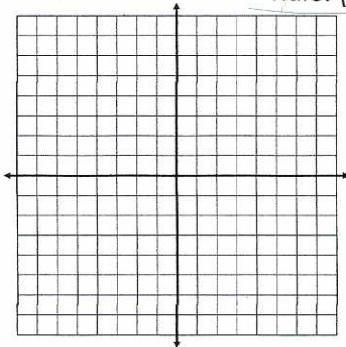
8. Triangle  $MNP$  with vertices  $M(-6, -8)$ ,  $N(-1, -6)$ , and  $P(-2, -8)$  in the line  $y = -5$ .



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

9. Triangle  $XYZ$  with vertices  $X(-5, -2)$ ,  $Y(-3, 4)$ , and  $Z(-1, 1)$  in the line  $y = x$ .

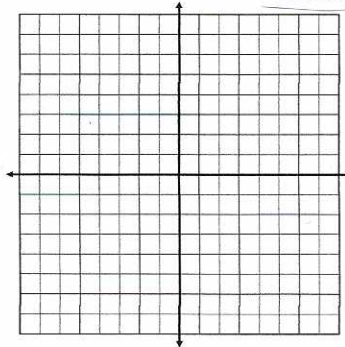
Rule:  $(x,y) \rightarrow$  (\_\_\_\_, \_\_\_\_)



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

10. Rectangle  $GHIJ$  with vertices  $G(2, -1)$ ,  $H(7, -1)$ ,  $I(7, -4)$ , and  $J(2, -4)$  in the line  $y = x$ .

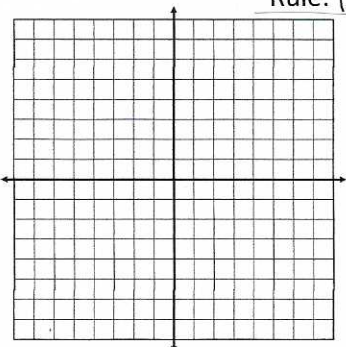
Rule:  $(x,y) \rightarrow$  (\_\_\_\_, \_\_\_\_)



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

11. Square  $ABCD$  with vertices  $A(-1, 3)$ ,  $B(0, 6)$ ,  $C(3, 5)$ , and  $D(2, 2)$  in the line  $y = -x$ .

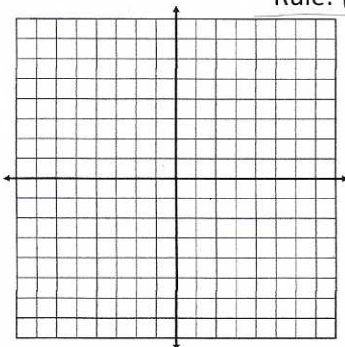
Rule:  $(x,y) \rightarrow$  (\_\_\_\_, \_\_\_\_)



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

12. Triangle  $STU$  with vertices  $S(-1, -6)$ ,  $T(0, -3)$ , and  $U(3, -4)$  in the line  $y = -x$ .

Rule:  $(x,y) \rightarrow$  (\_\_\_\_, \_\_\_\_)



$S'$  (\_\_\_\_, \_\_\_\_)  
 $T'$  (\_\_\_\_, \_\_\_\_)  
 $U'$  (\_\_\_\_, \_\_\_\_)