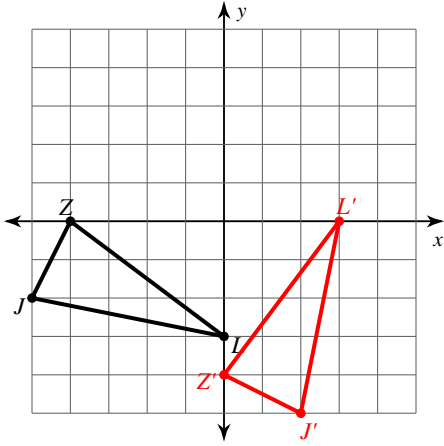


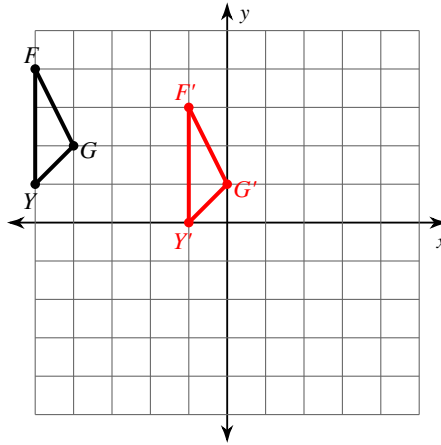
# All Transformations

**Graph the image of the figure using the transformation given.**

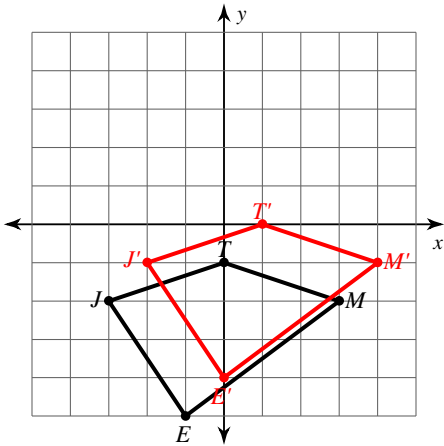
1) rotation  $90^\circ$  counterclockwise about the origin



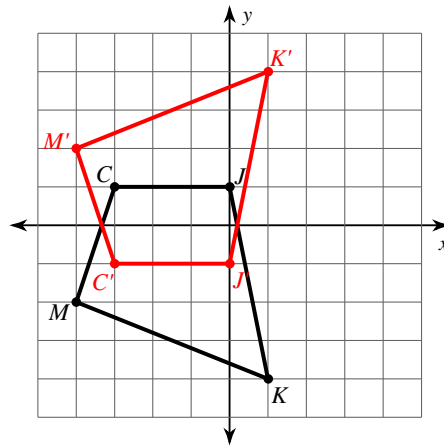
2) translation: 4 units right and 1 unit down



3) translation: 1 unit right and 1 unit up

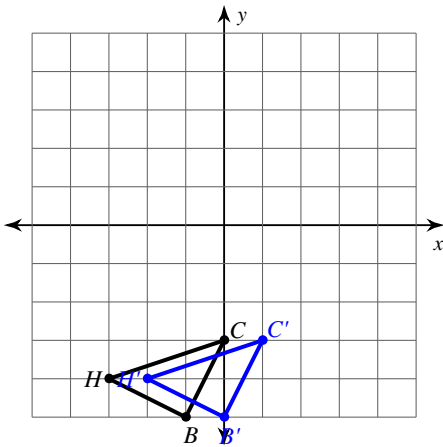


4) reflection across the x-axis



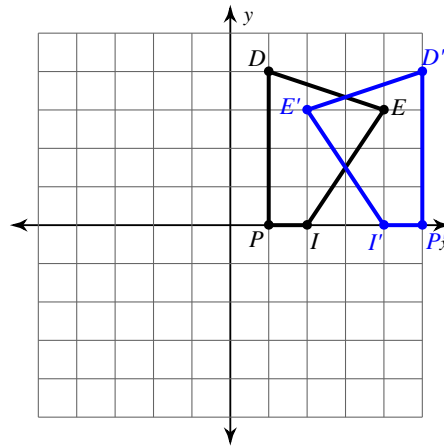
**Write a rule to describe each transformation.**

5)



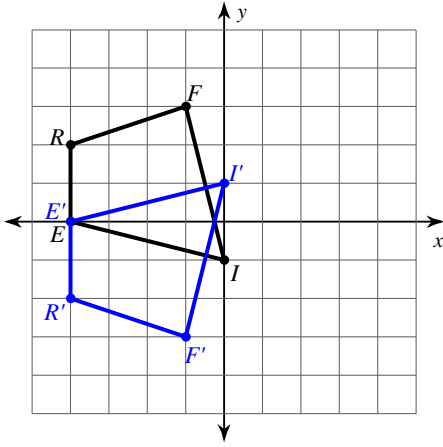
translation: 1 unit right

6)



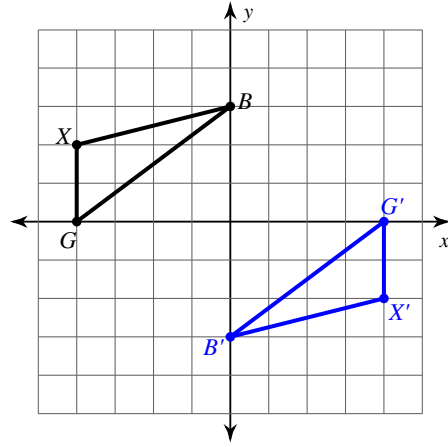
reflection across  $x = 3$

7)



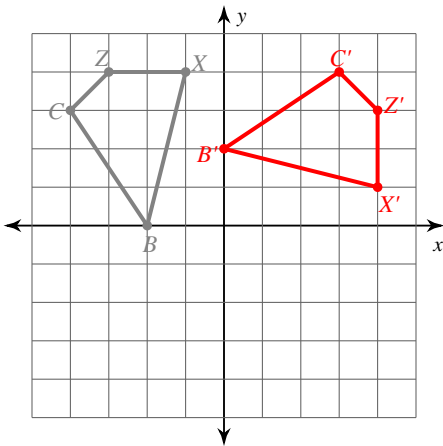
reflection across the x-axis

8)

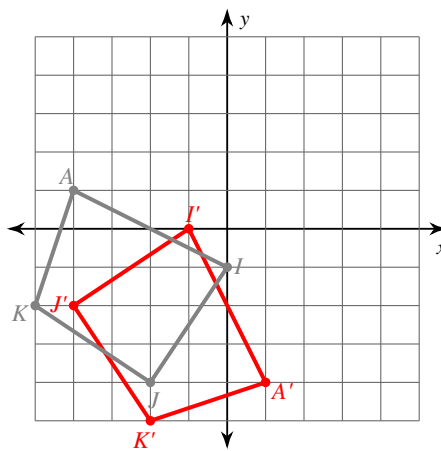
rotation  $180^\circ$  about the origin

**Graph the image of the figure using the transformation given.**

9) rotation  $90^\circ$  clockwise about the origin  
 $B(-2, 0)$ ,  $C(-4, 3)$ ,  $Z(-3, 4)$ ,  $X(-1, 4)$



10) reflection across  $y = x$   
 $K(-5, -2)$ ,  $A(-4, 1)$ ,  $I(0, -1)$ ,  $J(-2, -4)$



**Find the coordinates of the vertices of each figure after the given transformation.**

11) rotation  $180^\circ$  about the origin  
 $E(2, -2)$ ,  $J(1, 2)$ ,  $R(3, 3)$ ,  $S(5, 2)$

$E'(-2, 2)$ ,  $J'(-1, -2)$ ,  $R'(-3, -3)$ ,  $S'(-5, -2)$

12) reflection across  $y = 2$   
 $J(1, 3)$ ,  $U(0, 5)$ ,  $R(1, 5)$ ,  $C(3, 2)$

$U'(0, -1)$ ,  $R'(1, -1)$ ,  $C'(3, 2)$ ,  $J'(1, 1)$

13) translation: 7 units right and 1 unit down  
 $J(-3, 1)$ ,  $F(-2, 3)$ ,  $N(-2, 0)$

$J'(4, 0)$ ,  $F'(5, 2)$ ,  $N'(5, -1)$

14) translation: 6 units right and 3 units down  
 $S(-3, 3)$ ,  $C(-1, 4)$ ,  $W(-2, -1)$

$S'(3, 0)$ ,  $C'(5, 1)$ ,  $W'(4, -4)$