

## Transformations

Date \_\_\_\_\_

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

- 1) translation: 7 units right and 5 units down

$T(-5, 0), R(-5, 3), S(-4, 2)$

- 2) reflection across the y-axis

$C(1, -3), E(4, 1), L(5, 0), Y(5, -4)$

- 3) reflection across
- $y = -2$

$Y(-2, -4), M(-5, 0), P(-4, 1), G(1, -1)$

- 4) rotation
- $90^\circ$
- counterclockwise about the origin

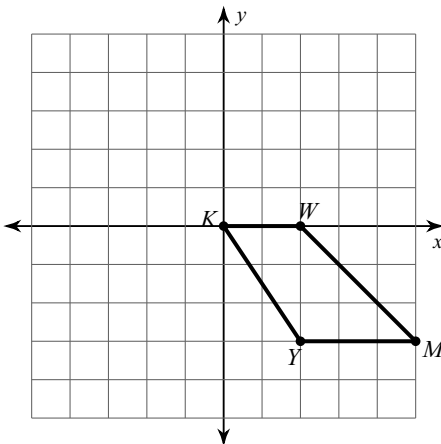
$D(0, 2), U(1, 3), C(3, 0), H(1, -3)$

- 5) reflection across the x-axis

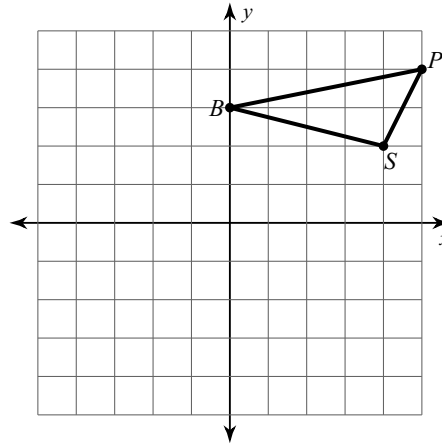
$F(-3, 0), E(-4, 3), Y(-1, 0)$

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

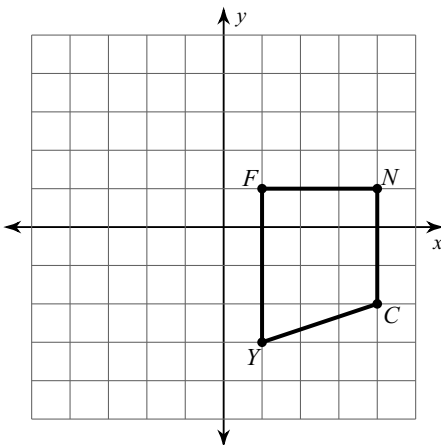
- 6) reflection across
- $y = -1$



- 7) rotation
- $180^\circ$
- about the origin



- 8) translation: 1 unit left and 3 units up



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

9)  $S(1, -4), G(1, -1), V(3, -4)$   
to  
 $G'(1, 1), V'(3, 4), S'(1, 4)$

10)  $D(-4, -1), F(-2, 1), H(1, -3)$   
to  
 $D'(1, -4), F'(-1, -2), H'(3, 1)$

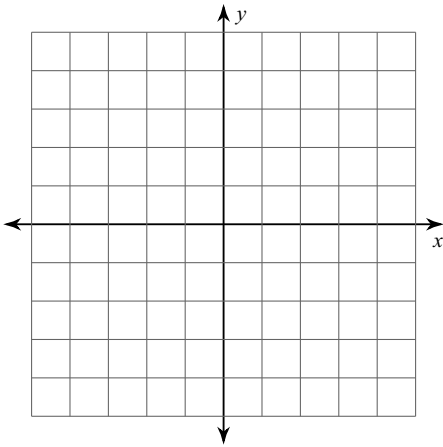
11)  $T(3, -4), U(2, 1), L(3, 1), D(5, 0)$   
to  
 $T'(-3, 4), U'(-2, -1), L'(-3, -1), (-5, 0)$

12)  $Z(2, 0), R(2, 4), W(4, 3), G(5, 1)$   
to  
 $Z'(-5, -3), R'(-5, 1), W'(-3, 0), (-2, -2)$

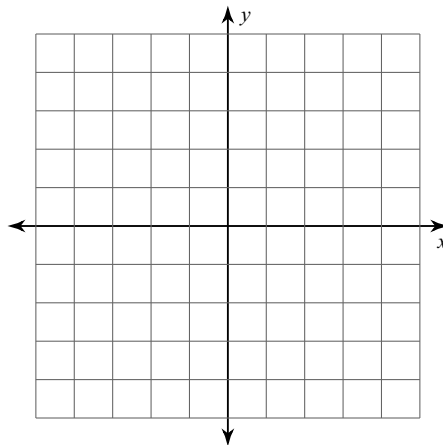
13)  $E(-5, -4), W(-5, 0), A(-1, -3)$   
to  
 $W'(1, 0), A'(-3, -3), E'(1, -4)$

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

14) translation: 2 units left and 4 units down  
 $G(-3, 3), Q(-3, 4), Z(-1, 5), N(0, 4)$



15) reflection across the x-axis  
 $Y(1, 0), Q(2, 2), R(4, -3), K(1, -4)$



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1) translation: 7 units right and 5 units down

$T(-5, 0), R(-5, 3), S(-4, 2)$

$T'(2, -5), R'(2, -2), S'(3, -3)$

2) reflection across the y-axis

$C(1, -3), E(4, 1), L(5, 0), Y(5, -4)$

$E'(-4, 1), L'(-5, 0), Y'(-5, -4), C'(-1, -3)$

3) reflection across  $y = -2$

$Y(-2, -4), M(-5, 0), P(-4, 1), G(1, -1)$

$M'(-5, -4), P'(-4, -5), G'(1, -3), Y'(-2, 0)$

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

$D(0, 2), U(1, 3), C(3, 0), H(1, -3)$

$D'(-2, 0), U'(-3, 1), C'(0, 3), H'(3, 1)$

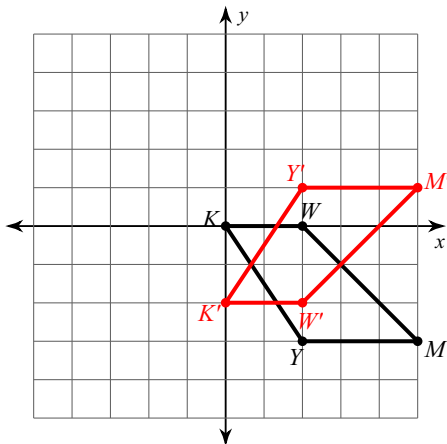
5) reflection across the x-axis

$F(-3, 0), E(-4, 3), Y(-1, 0)$

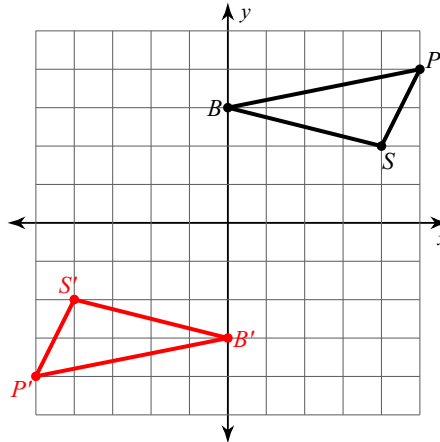
$E'(-4, -3), Y'(-1, 0), F'(-3, 0)$

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

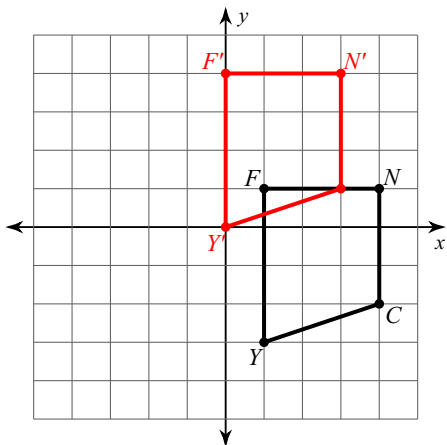
6) reflection across  $y = -1$



7) rotation  $180^\circ$  about the origin



8) translation: 1 unit left and 3 units up



Write a rule to describe each transformation.

9)  $S(1, -4), G(1, -1), V(3, -4)$   
to  
 $G'(1, 1), V'(3, 4), S'(1, 4)$

reflection across the x-axis

10)  $D(-4, -1), F(-2, 1), H(1, -3)$   
to  
 $D'(1, -4), F'(-1, -2), H'(3, 1)$

rotation  $90^\circ$  counterclockwise about the origin

11)  $T(3, -4), U(2, 1), L(3, 1), D(5, 0)$   
to  
 $T'(-3, 4), U'(-2, -1), L'(-3, -1), (-5, 0)$

rotation  $180^\circ$  about the origin

12)  $Z(2, 0), R(2, 4), W(4, 3), G(5, 1)$   
to  
 $Z'(-5, -3), R'(-5, 1), W'(-3, 0), (-2, -2)$

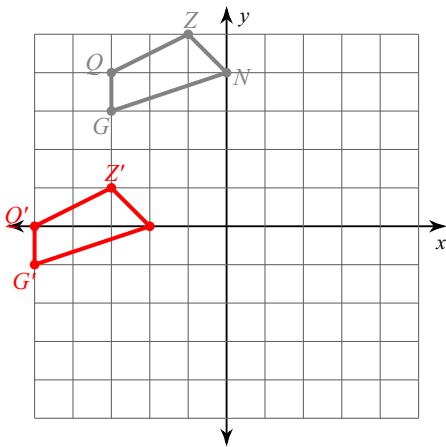
translation: 7 units left and 3 units down

13)  $E(-5, -4), W(-5, 0), A(-1, -3)$   
to  
 $W'(1, 0), A'(-3, -3), E'(1, -4)$

reflection across  $x = -2$

Graph the image of the figure using the transformation given.

14) translation: 2 units left and 4 units down  
 $G(-3, 3), Q(-3, 4), Z(-1, 5), N(0, 4)$



15) reflection across the x-axis  
 $Y(1, 0), Q(2, 2), R(4, -3), K(1, -4)$

