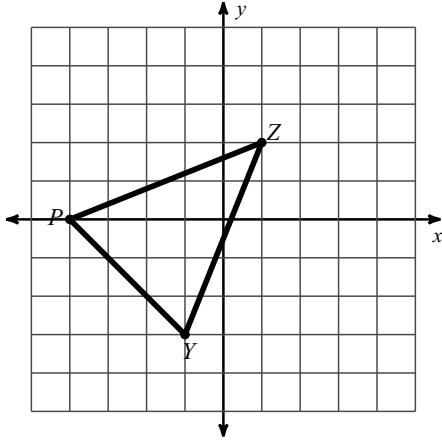


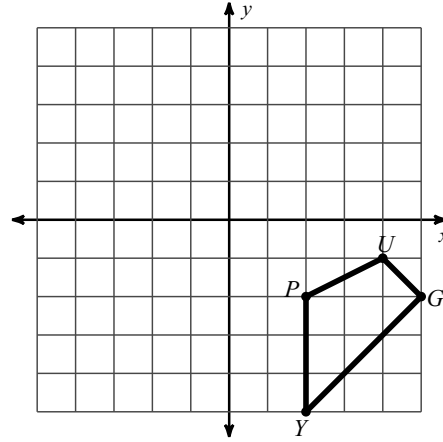
1.6.D1 ~ Transformations

Graph the image of the figure after the given transformation. Label the vertices accordingly.

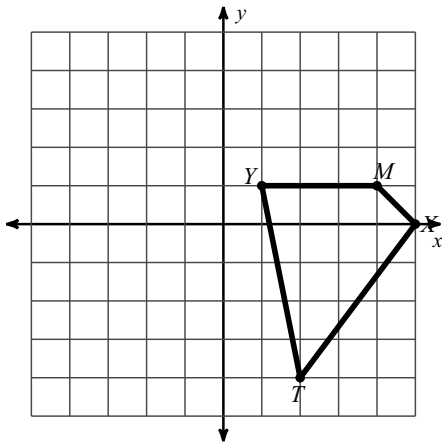
1) rotation 90° counterclockwise about the origin



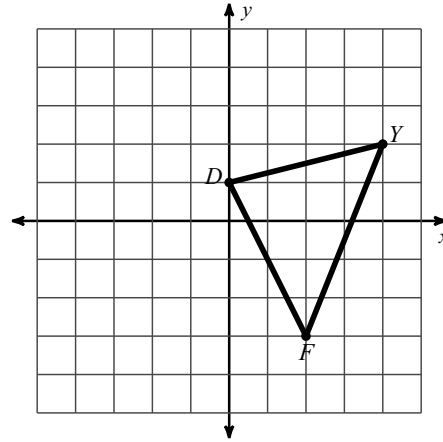
2) translation: 6 units left and 3 units up



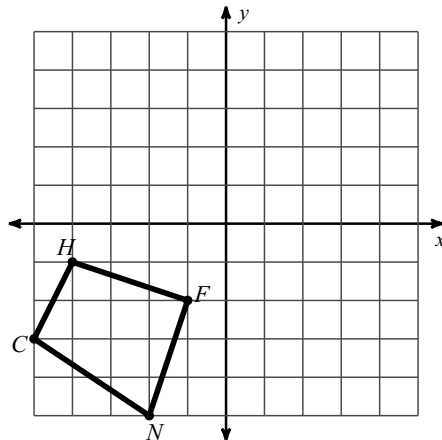
3) reflection across $x = 1$



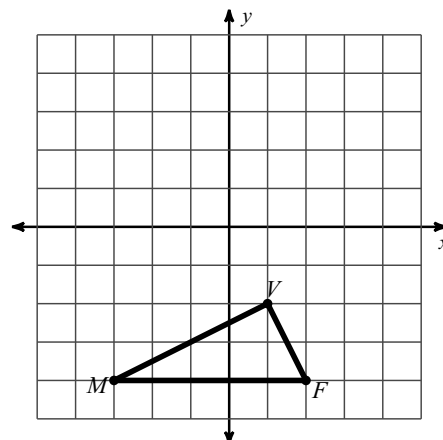
4) rotation 180° about the origin



5) rotation 90° clockwise about the origin



6) reflection across $y = -1$



Find the coordinates of the vertices of each image after the given transformation.

7) translation: 2 units left and 1 unit down
 $T(-1, -2), Y(3, 1), Q(4, -4)$

8) rotation 90° clockwise about the origin
 $W(2, -1), R(4, 0), F(2, -4)$

9) reflection across the y-axis
 $H(0, 2), W(4, 4), V(4, -1)$

10) rotation 180° about the origin
 $P(-5, -4), B(-3, -3), J(-2, -4)$

11) reflection across the x-axis
 $B(-4, -4), T(-1, -1), R(-2, -4)$

12) translation: 4 units left and 6 units up
 $U(-1, -4), W(4, -3), N(3, -5)$

13) rotation 90° counterclockwise about the origin
 $A(3, 4), Z(4, 4), S(4, 1)$

14) translation: 2 units right and 7 units down
 $G(-5, 3), M(-4, 4), Q(-2, 2)$

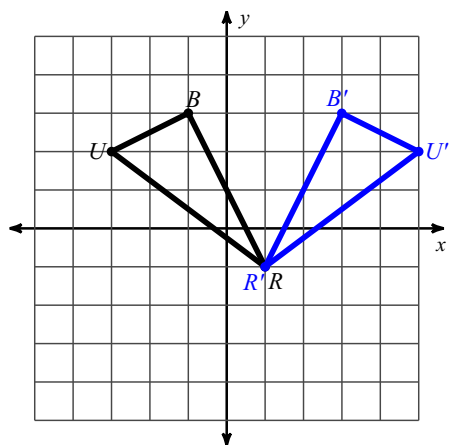
15) rotation 180° about the origin
 $L(1, -2), Z(2, -2), I(3, -4)$

16) rotation 90° counterclockwise about the origin
 $K(-3, -2), V(-2, 2), F(0, -3)$

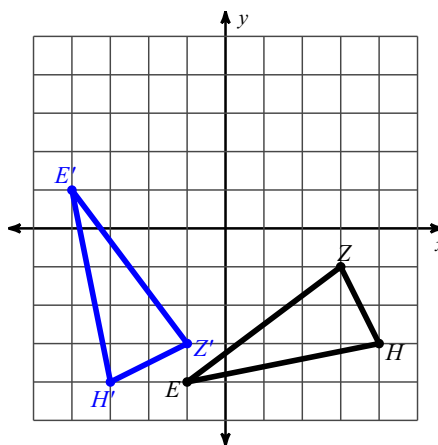
17) Consider $\triangle JCS$ with the vertices $J(-5, -3), C(-4, 2)$, and $S(6, 1)$. What are the coordinates of the image of $\triangle JCS$ after being reflected over the x -axis, translated 1 unit up and 8 units left, and then rotated 270° counterclockwise?

Write a rule to describe each transformation.

18)



19)



20) Consider the quadrilateral $GUAM$ with vertices $G(-1, 4), U(-4, 3), A(-4, 1)$ and $M(1, -1)$. The translated image of $GUAM$ has vertices $G'(0, 2), U'(-3, 1), A'(-3, -1)$, and $M'(2, -3)$. Write a rule to describe this translation.