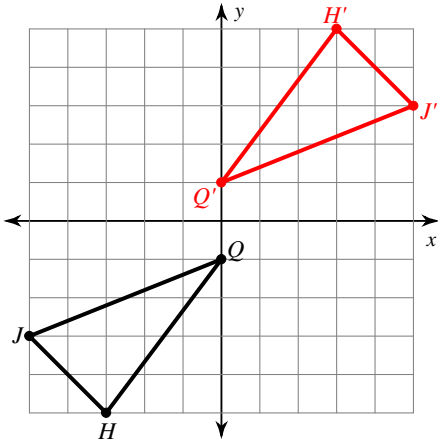


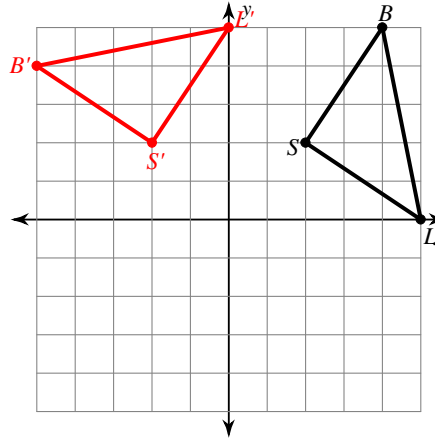
Rotations of Shapes

Graph the image of the figure using the transformation given.

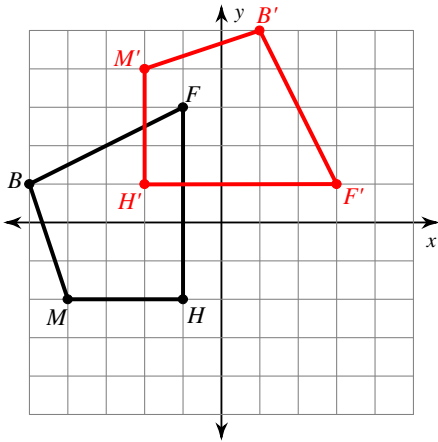
1) rotation 180° about the origin



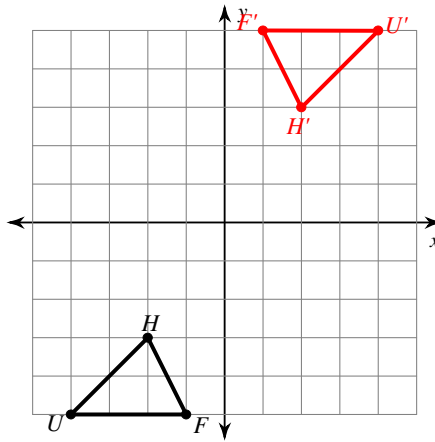
2) rotation 90° counterclockwise about the origin



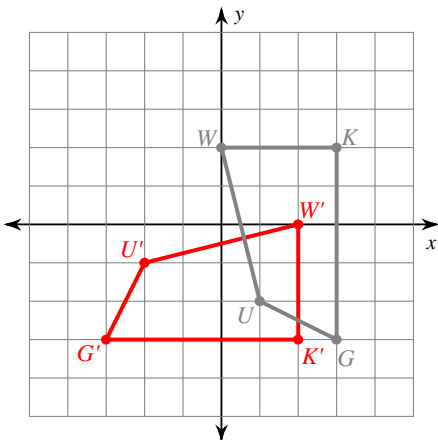
3) rotation 90° clockwise about the origin



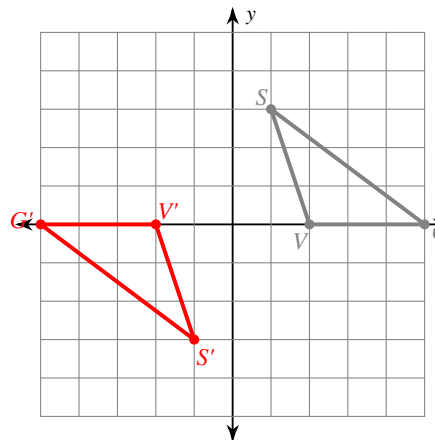
4) rotation 180° about the origin



5) rotation 90° clockwise about the origin
 $U(1, -2)$, $W(0, 2)$, $K(3, 2)$, $G(3, -3)$



6) rotation 180° about the origin
 $V(2, 0)$, $S(1, 3)$, $G(5, 0)$



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

7) rotation 180° about the origin

$Z(-1, -5), K(-1, 0), C(1, 1), N(3, -2)$

$Z'(1, 5), K'(1, 0), C'(-1, -1), N'(-3, 2)$

9) rotation 90° clockwise about the origin

$S(1, -4), W(1, 0), J(3, -4)$

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

8) rotation 180° about the origin

$L(1, 3), Z(5, 5), F(4, 2)$

$L'(-1, -3), Z'(-5, -5), F'(-4, -2)$

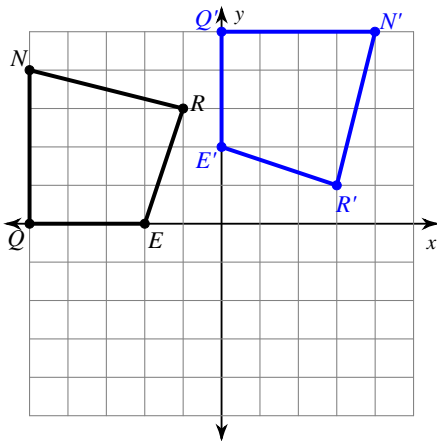
10) rotation 180° about the origin

$V(-5, -3), A(-3, 1), G(0, -3)$

$V'(5, 3), A'(3, -1), G'(0, 3)$

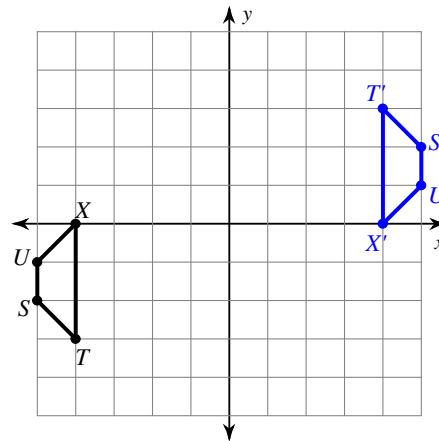
Write a rule to describe each transformation.

11)



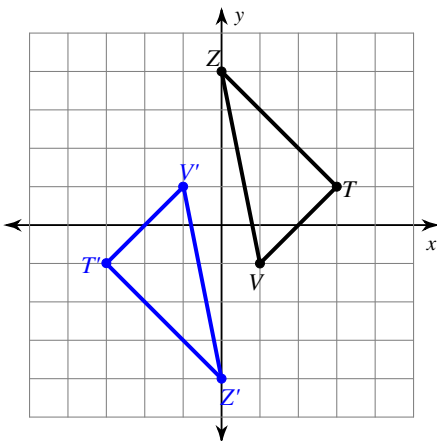
rotation 90° clockwise about the origin

12)



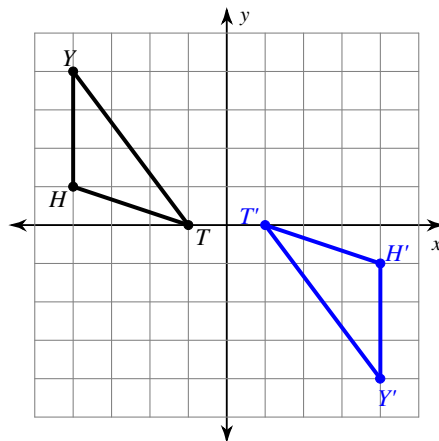
rotation 180° about the origin

13)



rotation 180° about the origin

14)



rotation 180° about the origin