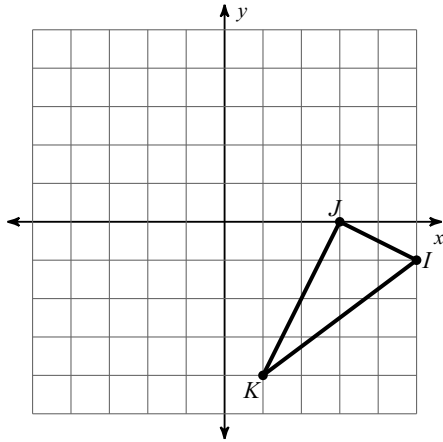


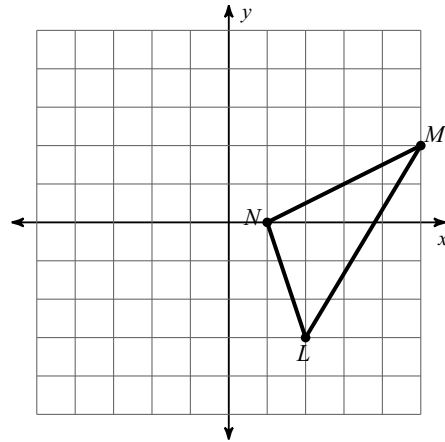
# Rotations

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

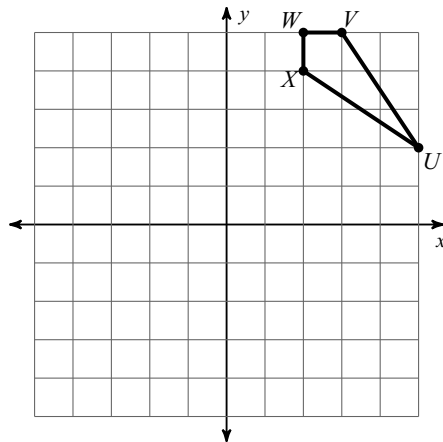
1) rotation  $180^\circ$  about the origin



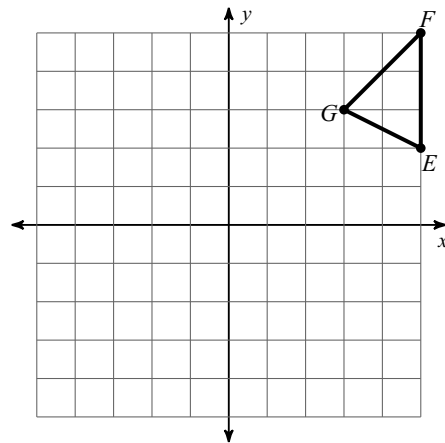
2) rotation  $90^\circ$  counterclockwise about the origin



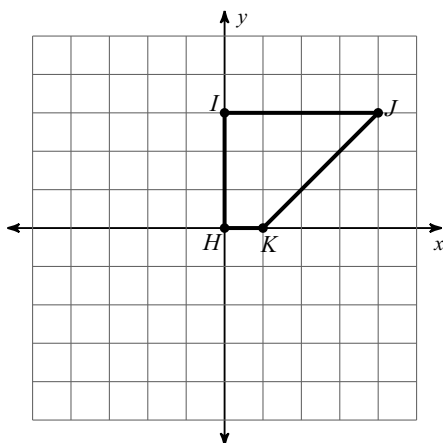
3) rotation  $90^\circ$  counterclockwise about the origin



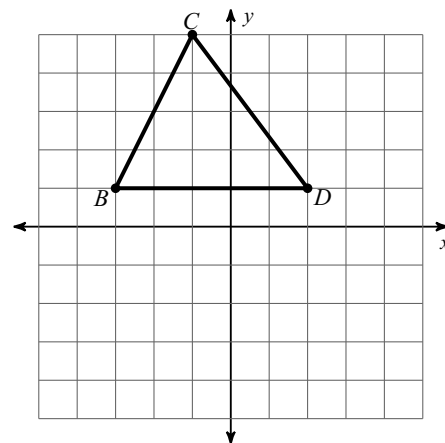
4) rotation  $180^\circ$  about the origin



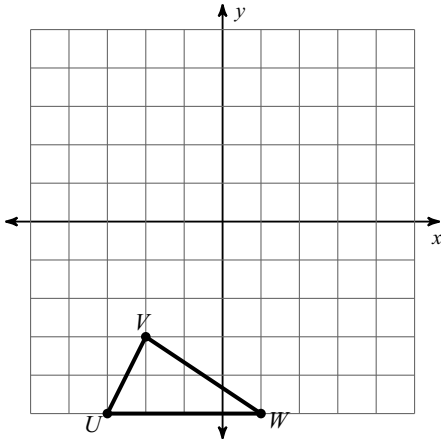
5) rotation  $90^\circ$  clockwise about the origin



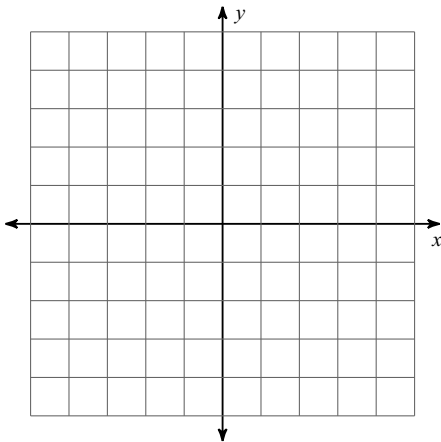
6) rotation  $90^\circ$  counterclockwise about the origin



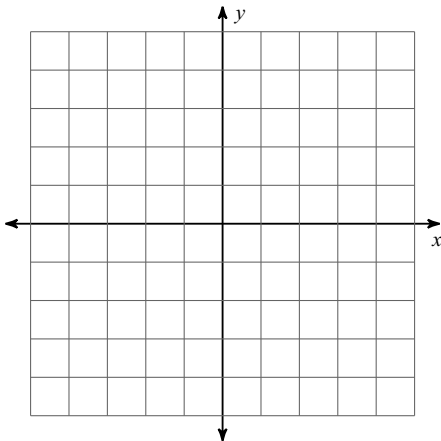
7) rotation  $90^\circ$  counterclockwise about the origin



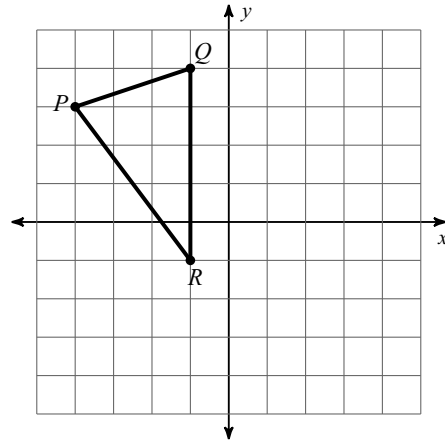
9) rotation  $180^\circ$  about the origin  
 $F(-5, -4)$ ,  $G(-4, -1)$ ,  $H(-1, -1)$



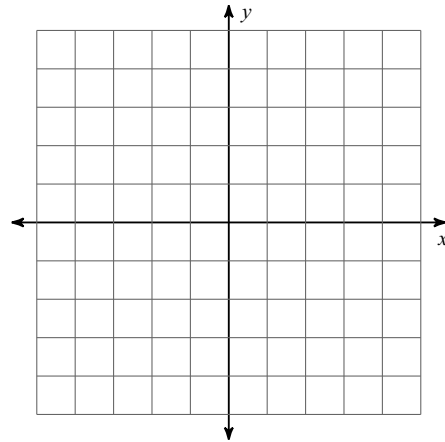
11) rotation  $90^\circ$  clockwise about the origin  
 $S(-3, -5)$ ,  $T(-3, -2)$ ,  $U(2, -4)$



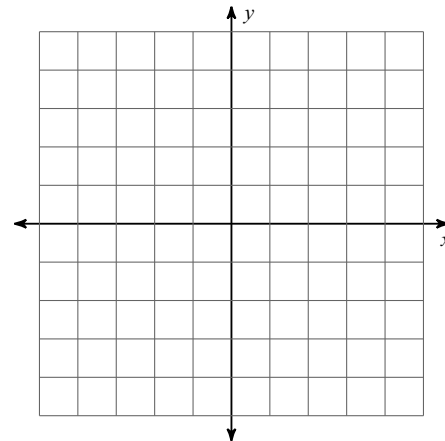
8) rotation  $90^\circ$  clockwise about the origin



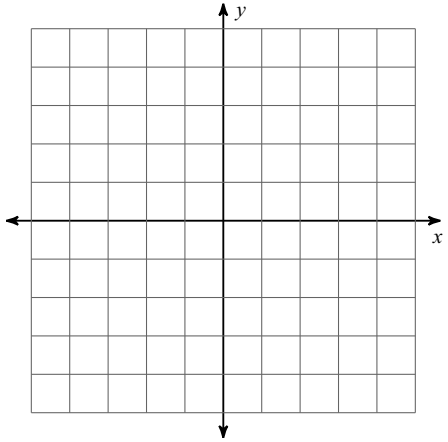
10) rotation  $90^\circ$  counterclockwise about the origin  
 $T(2, 1)$ ,  $S(3, 3)$ ,  $R(4, 3)$ ,  $Q(2, -1)$



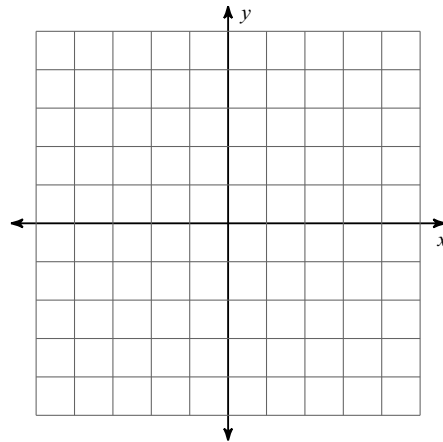
12) rotation  $180^\circ$  about the origin  
 $A(-1, 1)$ ,  $B(1, 5)$ ,  $C(5, 2)$ ,  $D(4, -1)$



- 13) rotation  $90^\circ$  clockwise about the origin  
 $W(-5, -2), V(-3, 2), U(0, 0), T(-2, -3)$

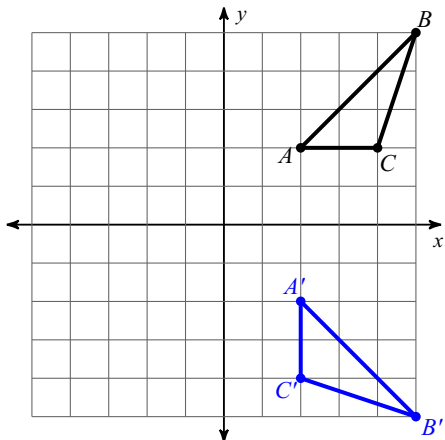


- 14) rotation  $90^\circ$  counterclockwise about the origin  
 $P(-1, 0), Q(-4, 4), R(-2, 5), S(-1, 5)$

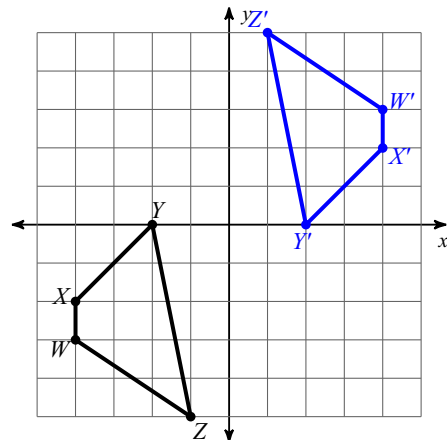


Write a rule to describe each transformation.

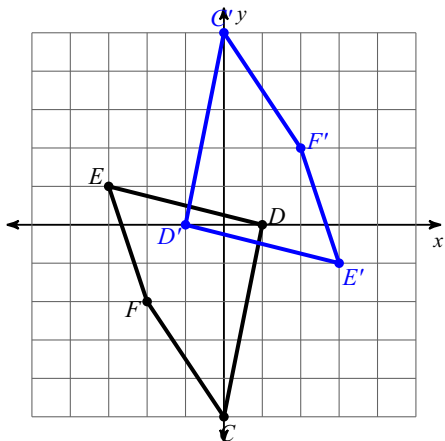
15)



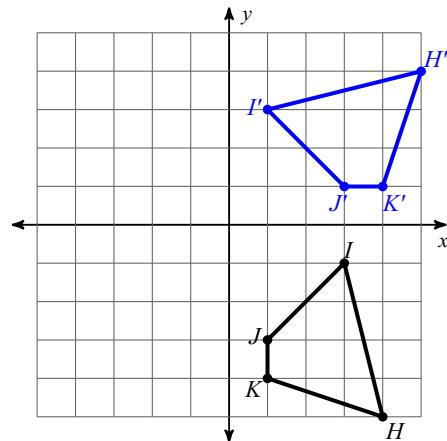
16)



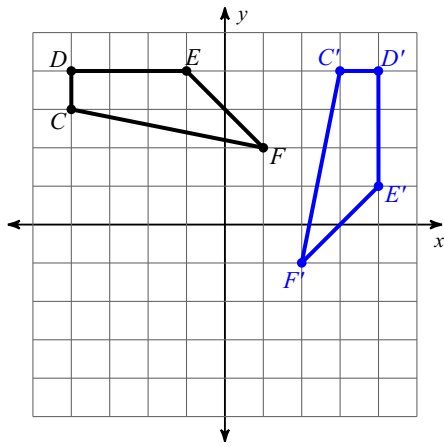
17)



18)



19)



20)

