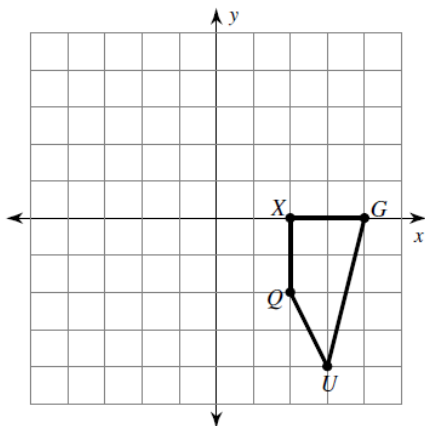


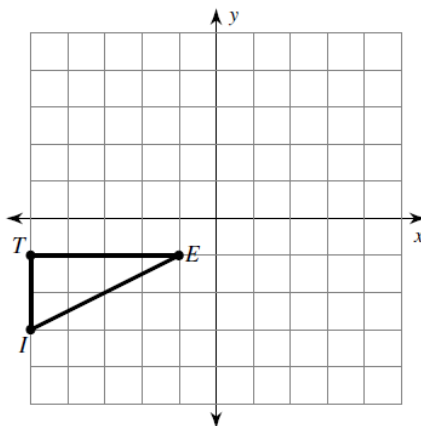
Translations of Shapes

Graph the image of the figure using the transformation given.

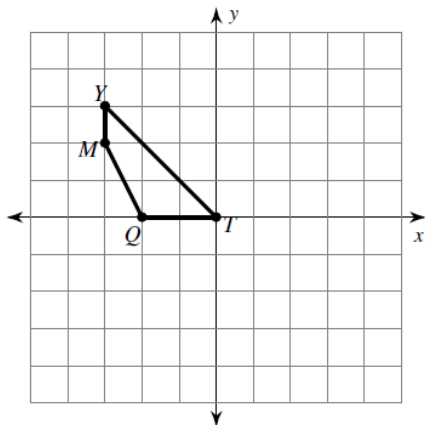
1) translation: 1 unit left



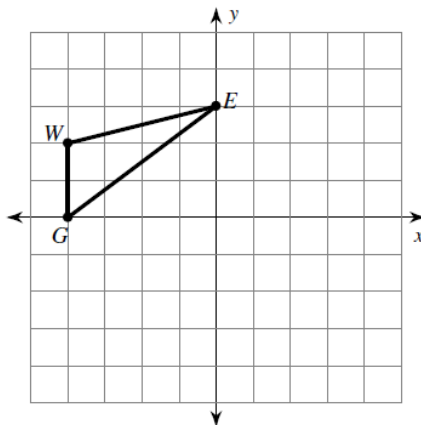
2) translation: 1 unit right and 2 units down



3) translation: 3 units right

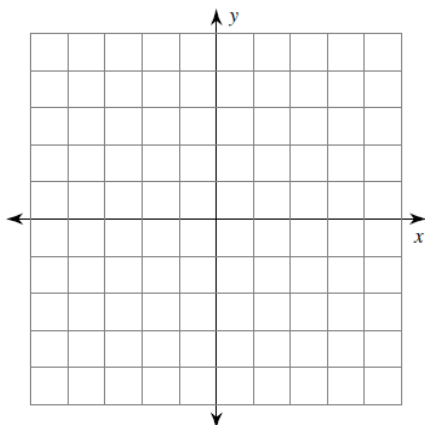


4) translation: 1 unit right and 2 units down



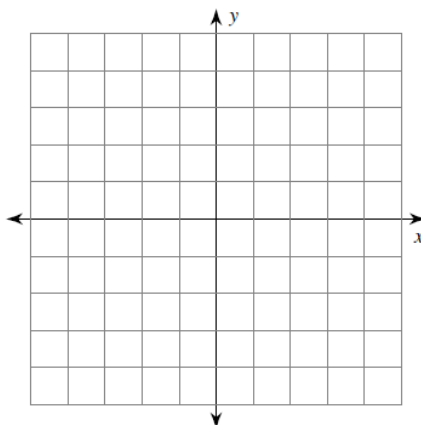
5) translation: 5 units up

$U(-3, -4), M(-1, -1), L(-2, -5)$



6) translation: 3 units up

$R(-4, -3), D(-4, 0), L(0, 0), F(0, -3)$



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

7) translation: 2 units left and 1 unit down
 $Q(0, -1), D(-2, 2), V(2, 4), J(3, 0)$

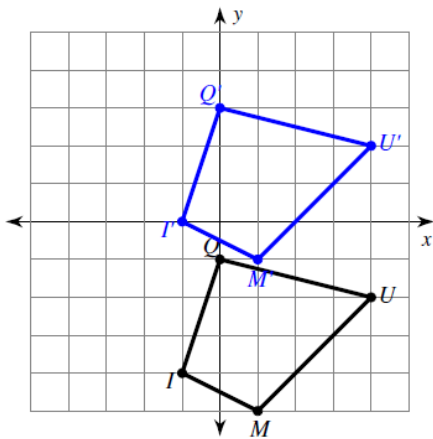
8) translation: 2 units down
 $D(-4, 1), A(-2, 5), S(-1, 4), N(-1, 2)$

9) translation: 4 units left and 4 units up
 $J(-1, -2), A(-1, 0), N(3, -3)$

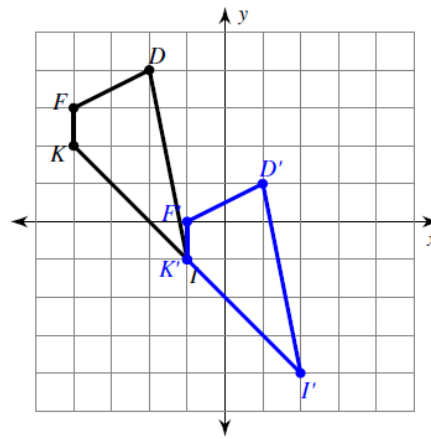
10) translation: 3 units right and 4 units up
 $Z(-4, -3), I(-2, -2), V(-2, -4)$

Write a rule to describe each transformation.

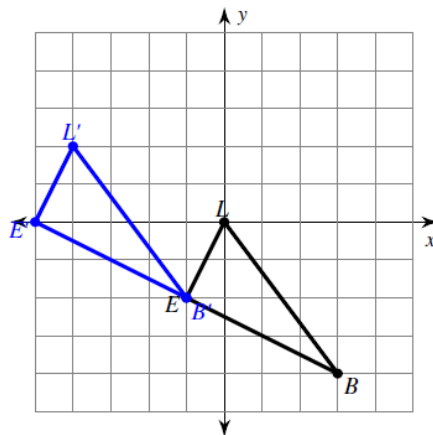
11)



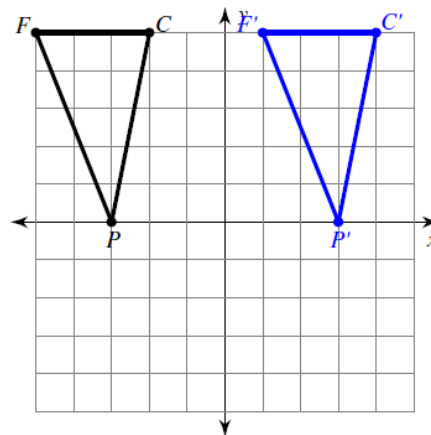
12)



13)



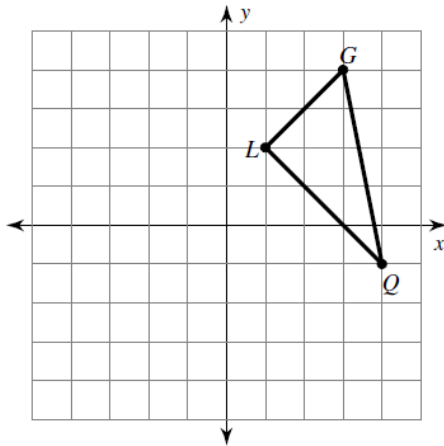
14)



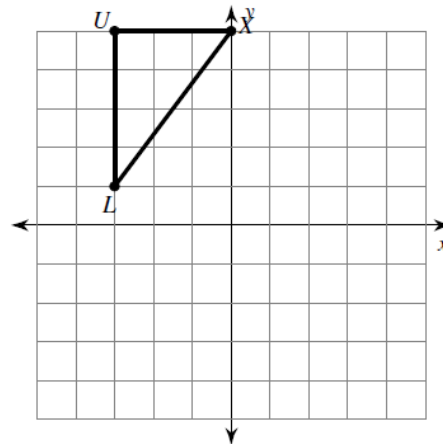
Reflections of Shapes

Graph the image of the figure using the transformation given.

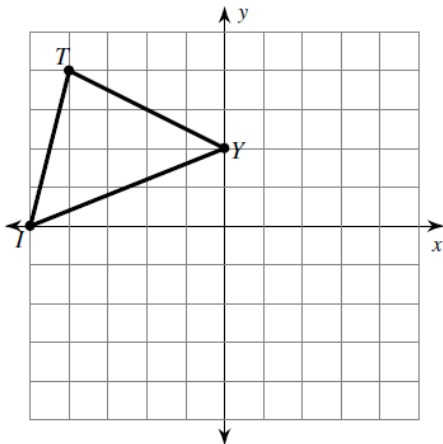
1) reflection across the x-axis



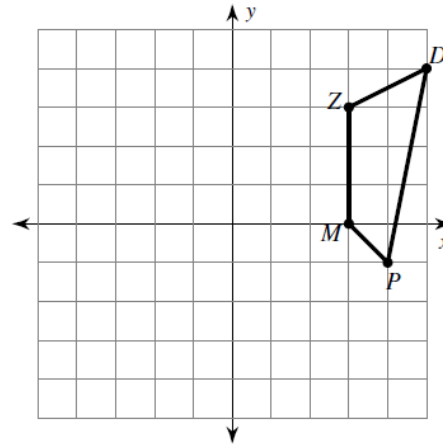
2) reflection across $y = 3$



3) reflection across $y = 1$

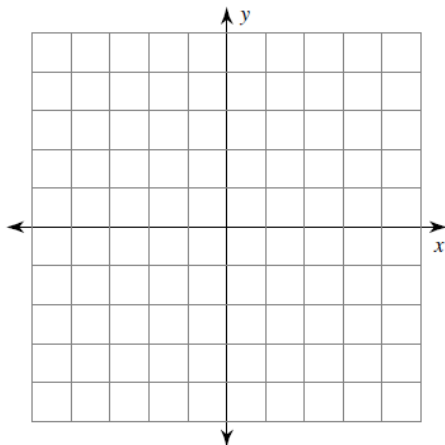


4) reflection across the x-axis



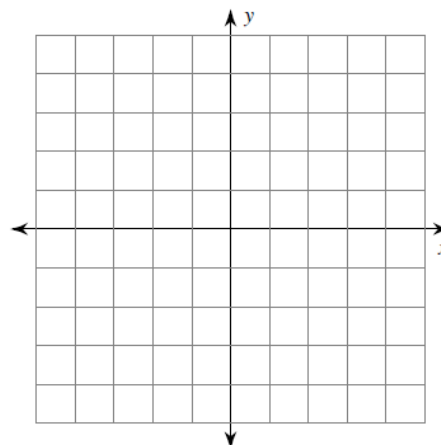
5) reflection across the x-axis

$T(2, 2)$, $C(2, 5)$, $Z(5, 4)$, $F(5, 0)$



6) reflection across $y = -2$

$H(-1, -5)$, $M(-1, -4)$, $B(1, -2)$, $C(3, -3)$



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

7) reflection across the x-axis
 $K(1, -1), N(4, 0), Q(4, -4)$

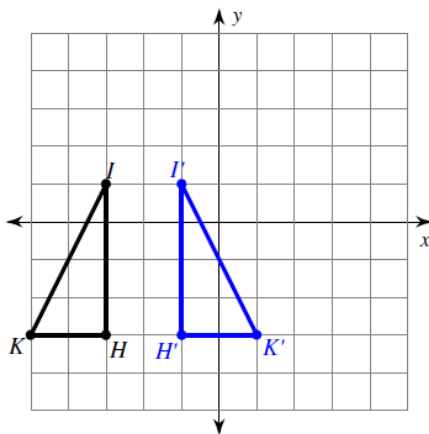
8) reflection across $y = -1$
 $R(-3, -5), N(-4, 0), V(-2, -1), E(0, -4)$

9) reflection across $x = 3$
 $F(2, 2), W(2, 5), K(3, 2)$

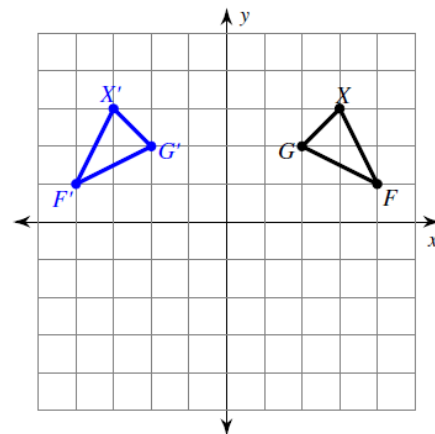
10) reflection across $x = -1$
 $V(-3, -1), Z(-3, 2), G(-1, 3), M(1, 1)$

Write a rule to describe each transformation.

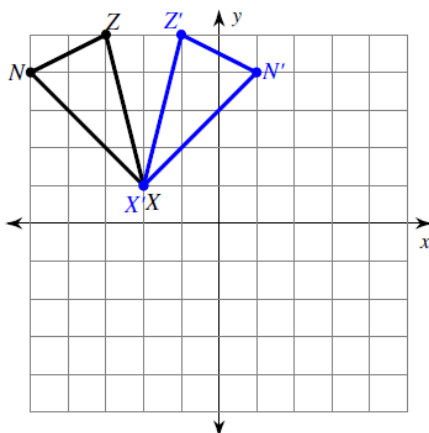
11)



12)



13)



14)

