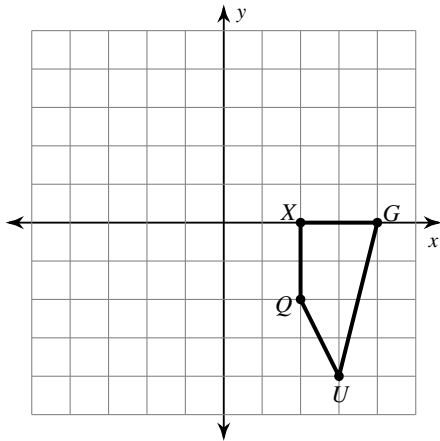


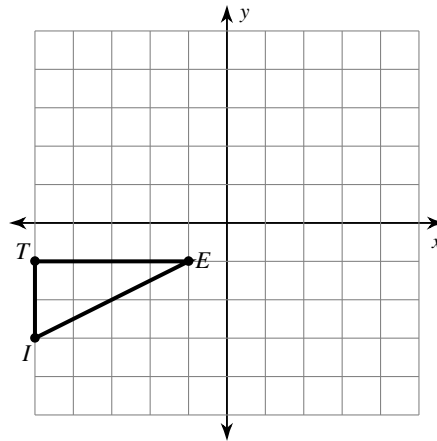
# Translations of Shapes

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

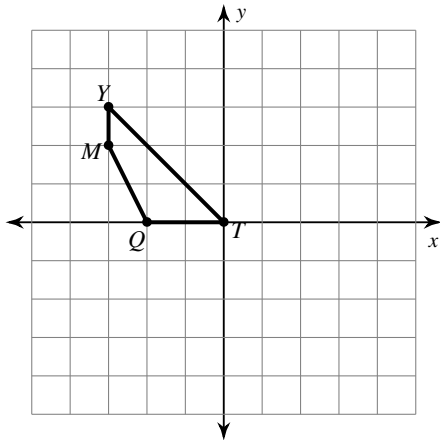
1) translation: 1 unit left



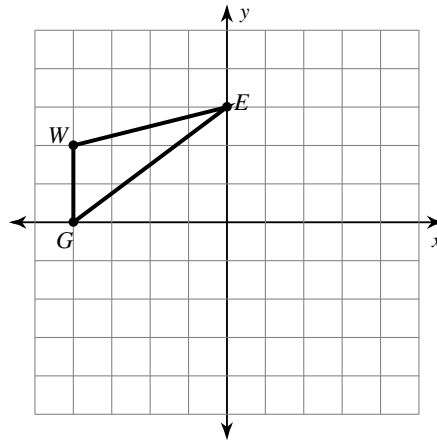
2) translation: 1 unit right and 2 units down



3) translation: 3 units right

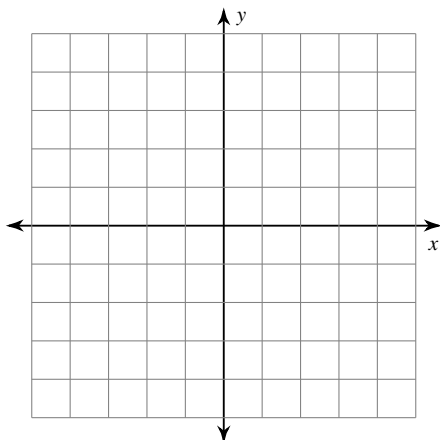


4) translation: 1 unit right and 2 units down



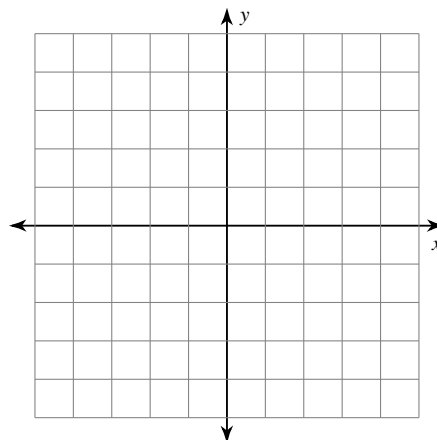
5) translation: 5 units up

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



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  
 $Q(0, -1), D(-2, 2), V(2, 4), J(3, 0)$

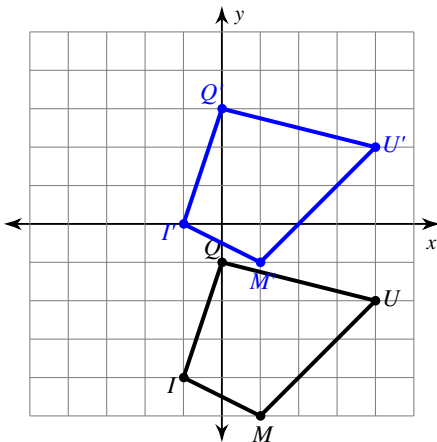
8) translation: 2 units down  
 $D(-4, 1), A(-2, 5), S(-1, 4), N(-1, 2)$

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

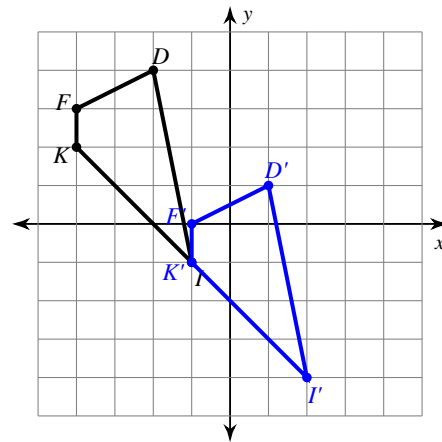
10) translation: 3 units right and 4 units up  
 $Z(-4, -3), I(-2, -2), V(-2, -4)$

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

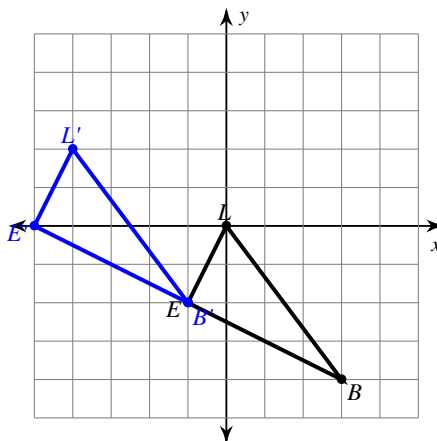
11)



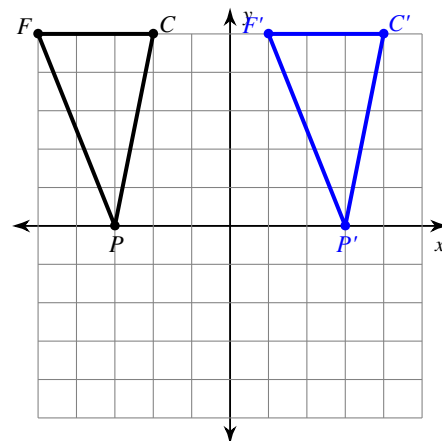
12)



13)



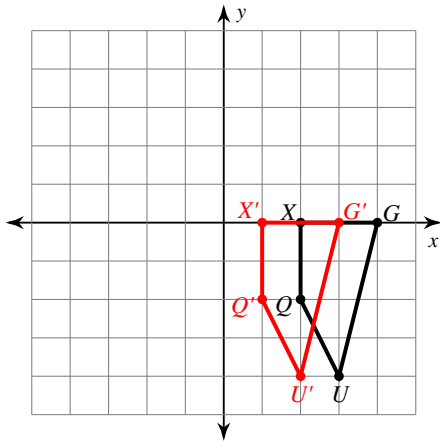
14)



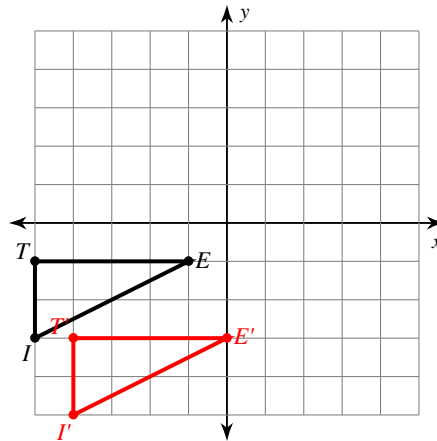
# Translations of Shapes

Graph the image of the figure using the transformation given.

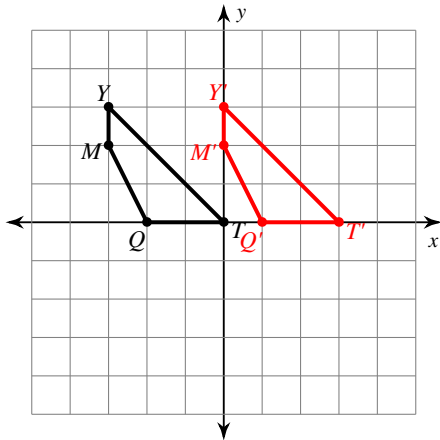
1) translation: 1 unit left



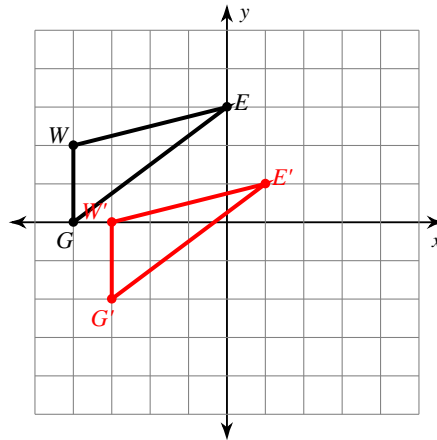
2) translation: 1 unit right and 2 units down



3) translation: 3 units right

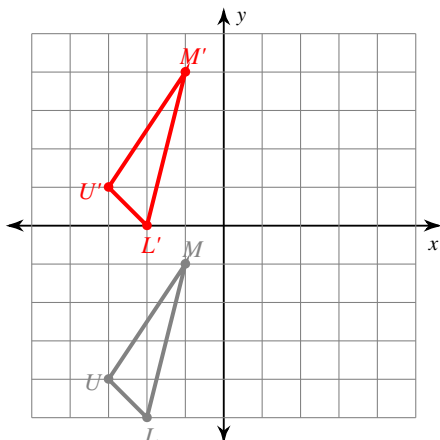


4) translation: 1 unit right and 2 units down



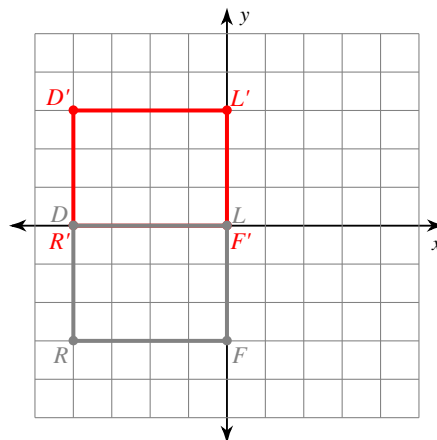
5) translation: 5 units up

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



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  
 $Q(0, -1), D(-2, 2), V(2, 4), J(3, 0)$

$Q'(-2, -2), D'(-4, 1), V'(0, 3), J'(1, -1)$

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

$D'(-4, -1), A'(-2, 3), S'(-1, 2), N'(-1, 0)$

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

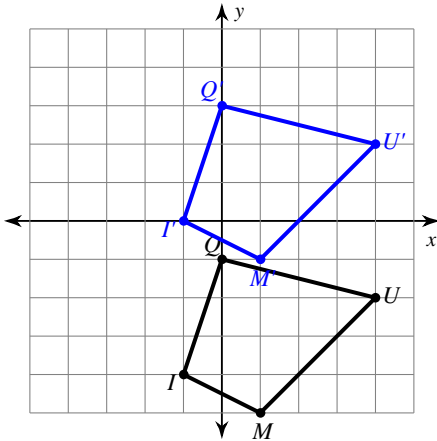
$J'(-5, 2), A'(-5, 4), N'(-1, 1)$

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

$Z'(-1, 1), I'(1, 2), V'(1, 0)$

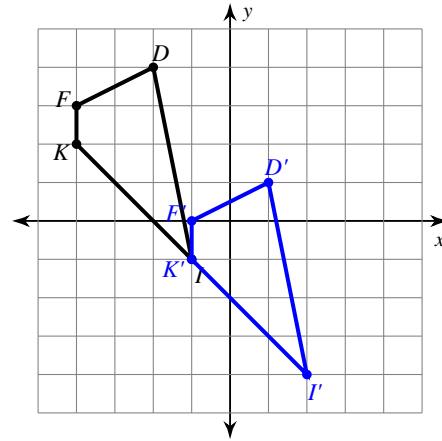
**Write a rule to describe each transformation.**

11)



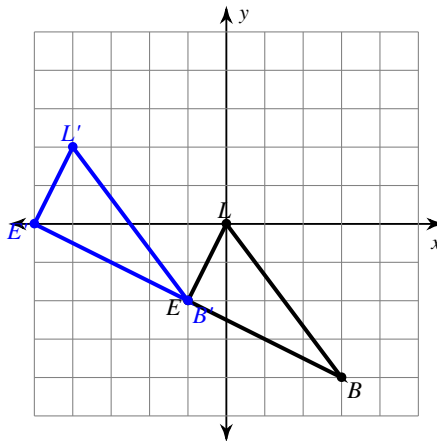
translation: 4 units up

12)



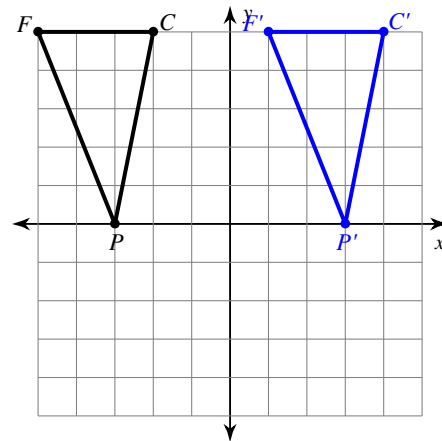
translation: 3 units right and 3 units down

13)



translation: 4 units left and 2 units up

14)



translation: 6 units right