

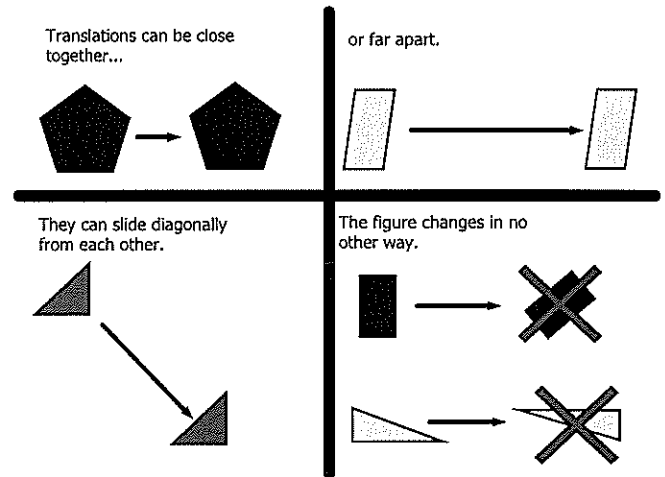
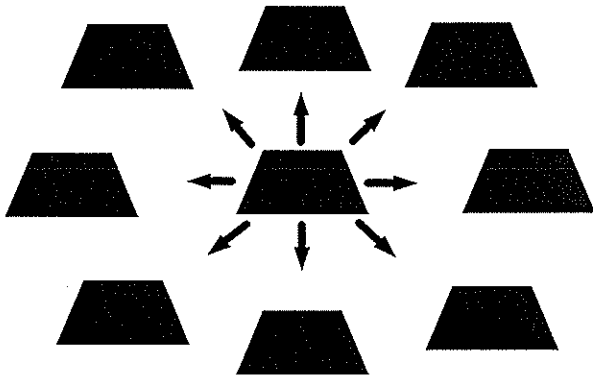
A transformation is when a figure or point is moved to a new position in a coordinate plane.

There are four types:

- TRANSLATION (slide)
- ROTATION (turn)
- REFLECTION (flip)
- DILATION (enlarge or reduce)

# Translations

**Translation-** when a figure is slid in any direction



## Translations On A Graph

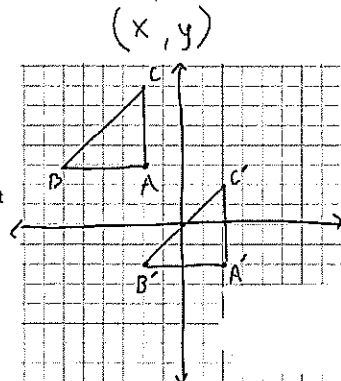
**Example:** Plot points  $A(-2, 3)$ ,  $B(-6, 3)$ , and  $C(-2, 7)$ . Translate the figure 4 units right and 5 units down.

**Step 1:** Plot original points

**Step 2:** From each original point move 4 units right and 5 units down.

**Step 3:** Connect the new points. This is your post-image and the points are "prime" points.

**Step 4:** Now list the location of the new points as your "primes".



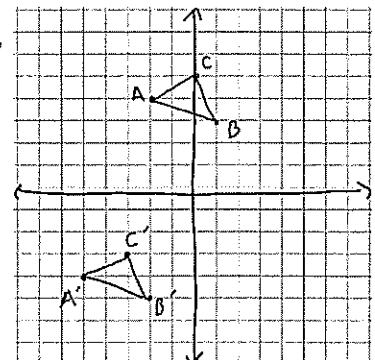
Translate ABC 3 units left and 8 units down

Label the image  $A'B'C'$

$A(-2, 4)$     $A'(-5, -4)$

$B(1, 3)$     $B'(-2, -5)$

$C(0, 5)$     $C'(-3, -3)$



# Notes - Translations

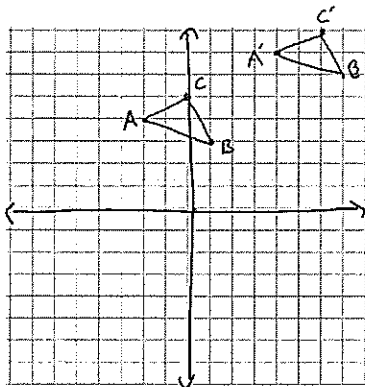
Translate ABC 6 units right and 3 units up

Label the image A'B'C'

A(-2, 4)    A'(4, 7)

B(1, 3)    B'(7, 6)

C(0, 5)    C'(6, 8)



(-5, -4)  
(-2, -5)  
(-3, -3)

## Translations With Ordered Pairs

A right/left move will affect the x coordinate and an up/down move will affect the y coordinate. Rather than graphing to find the new coordinates, you can do the math to find the new prime points.

Example  $(x, y)$

Plot points A(-2, 3), B(-6, 3), and C(-2, 7). If the figure is translated 8 units right and 5 units up, name the prime points.

The 8 units right will add 8 to the x coordinate, and the 5 units up will add 5 to the y.

A(-2, 3)     $-2 + 8 = 6$  and  $3 + 5 = 8$     A'(6, 8)

B(-6, 3)     $-6 + 8 = 2$  and  $3 + 5 = 8$     B'(2, 8)

C(-2, 7)     $-2 + 8 = 6$  and  $7 + 5 = 12$     C'(6, 12)

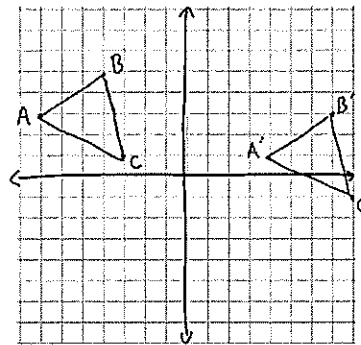
Write the ordered pair for each given translation

E(5,1)  
5 units left, 1 unit down  
E' (0, 0)

F(2,-3)  
6 units right, 10 units up  
F' (8, 7)

G(-5,4)  
2 units right, 9 units down  
G' (-3, -5)

Describe this Translation

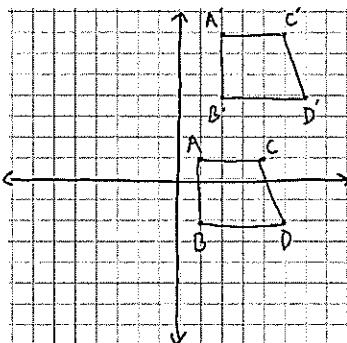


ABC    A'B'C'  
right 11  
down 2

left    up  
right    down

- 1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15

Describe this Translation



ABC    A'B'C'  
1 right  
6 up

left    up  
right    down

- 1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15