

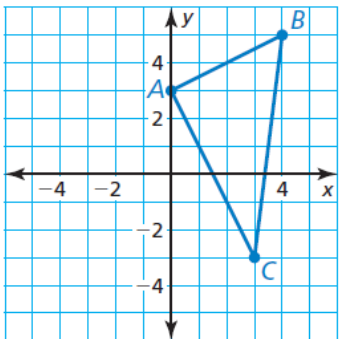
# Lesson 4.1 Translations

Name \_\_\_\_\_ Period \_\_\_\_\_

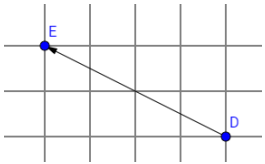
## Notes

A rule to translate a point **a** units horizontally and **b** units vertically for  $(x, y)$  is \_\_\_\_\_.

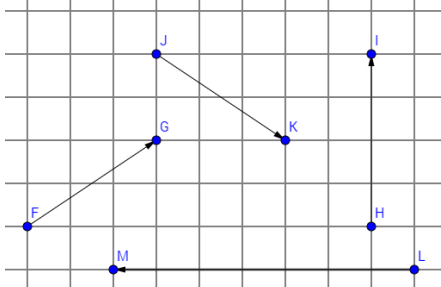
Translate  $\triangle ABC$  4 units left and 3 units down.  
What are the coordinates of the vertices of the image,  $\triangle A'B'C'$ ?



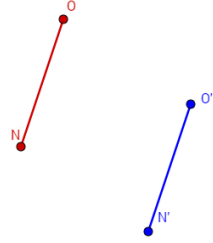
### Vectors



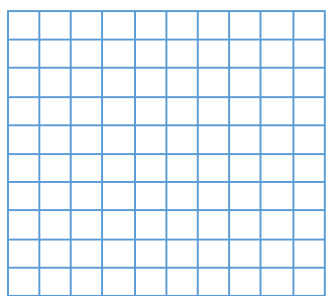
Name the vectors and write their component forms.



### Translations



The vertices of  $\triangle ABC$  are  $A(0, 3)$ ,  $B(2, 4)$ , and  $C(1, 0)$ . Translate  $\triangle ABC$  using the vector  $\langle -1, -2 \rangle$ .

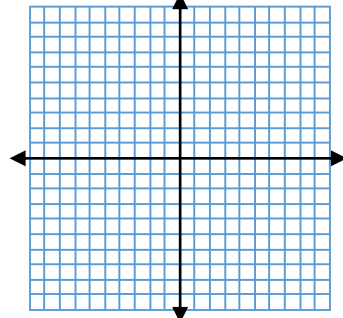


$A(1, 1)$ ,  $B(7, 3)$ ,  $C(4, 8)$ . Write the component form of the vector that can be used to describe the translation to  $A'(-3, -1)$ ,  $B'(3, 1)$ ,  $C'(0, 6)$ .

**Coordinate Notation -**

Use points  $A(-3, 4)$ ,  $B(-5, -1)$  and  $C(-1, 0)$

- map the translation:  $(x, y) \Rightarrow (x + 4, y + 6)$
- map the translation:  $\langle -2, 4 \rangle$ .
- map the translation:  $\langle 2, -7 \rangle$ .

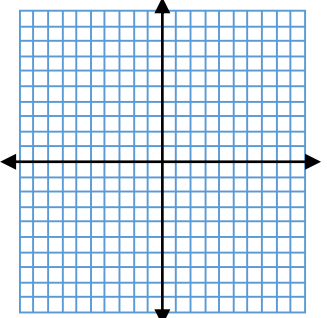


### Rigid Motion and Isometry

### Composition of Transformations

**Composition Theorem -**

Composition Example  
Graph  $\overline{RS}$  with endpoints  $R(-8, 5)$  and  $S(-6, 8)$ .  
Graph its image after the composition.  
Translation:  $(x, y) \rightarrow (x - 1, y + 4)$   
Translation:  $(x, y) \rightarrow (x + 4, y - 6)$



Assignment -

Monitoring Progress 1-4 p. 175 and 5-7 p. 177.

Coming up - Section 4.1 p. 178: 14-22 even, 32-34

