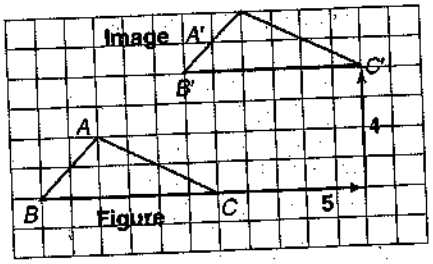
Name _____ Class _____ Date _____

Translations

# Reteaching 3-8

A *translation* moves every point of a figure the same distance in the same direction.

Triangle $ABC$ is translated 5 units to the right and 4 units up. The *image* of $\triangle ABC$ is $\triangle A'B'C'$.




You can write a rule to describe a translation in the coordinate plane.

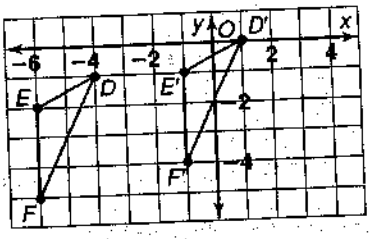
For the translation of $\triangle DEF$, the rule is:

Add 5 to each $x$-coordinate.
Add 1 to each $y$-coordinate.

$D(-4, -1) \rightarrow D'(1, 0)$

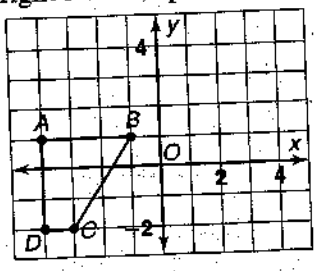
$E(-6, -2) \rightarrow E'(-1, -1)$

$F(-6, -5) \rightarrow F'(-1, -4)$

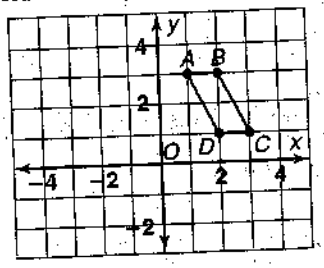



**Copy each figure. Then graph the image after the given translation. Name the coordinates of the image.**

1. right 5 units, up 1 unit

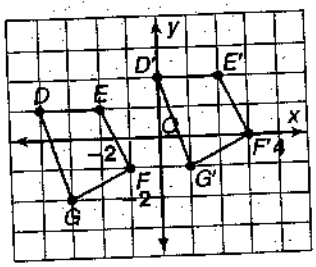



2. left 3 units, down 2 units

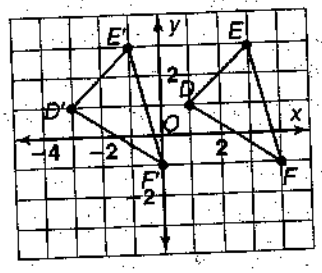



**Use arrow notation to write a rule that describes the translation shown on each graph.**

3.




4.

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NAME _____ DATE _____ PERIOD _____

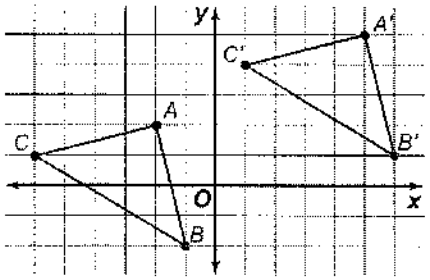
# Study Guide

Student Edition
Pages 687–691

## Translations

To **translate** a figure in the direction described by an ordered pair, add the ordered pair to the coordinates of each vertex of the figure.

***Example:*** Graph $\triangle ABC$ with vertices $A(-2, 2)$, $B(-1, -2)$, and $C(-6, 1)$. Then find the coordinates of its vertices if it is translated by $(7, 3)$. Graph the translation image.

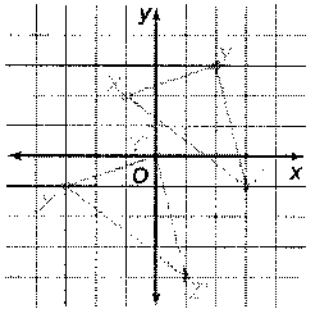



$A(-2, 2) + (7, 3) \rightarrow A'(5, 5)$
$B(-1, -2) + (7, 3) \rightarrow B'(6, 1)$
$C(-6, 1) + (7, 3) \rightarrow C'(1, 4)$.

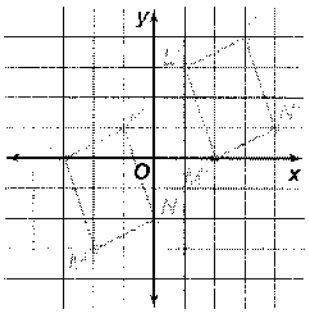
The vertices of the translated figure are $A'(5, 5)$, $B'(6, 1)$, and $C'(1, 4)$.

***Find the coordinates of the vertices of each figure after the given translation. Then graph the figure and its translation image.***

1. $\triangle XYZ$ with vertices $X(-1, 2)$, $Y(2, 3)$, and $Z(3, -1)$, translated by $(-2, -3)$




2. polygon $KLMN$ with vertices $K(-1, 1)$, $L(-3, 0)$, $M(-2, -3)$, $N(0, -2)$, translated by $(4, 3)$




***Find the coordinates of the vertices of each figure after the translation described.***

3. $\triangle DEF$ with vertices $D(0, 5)$, $E(-1, 3)$, and $F(-3, 4)$, translated by $(2, -1)$

4. pentagon $ABCDE$ with vertices $A(4, -1)$, $B(3, 2)$, $C(1, 4)$, $D(-2, 1)$, and $E(-3, -3)$, translated by $(-2, 1)$