# 11–8 Translations

**Main Idea**

- Graph translations on a coordinate plane.

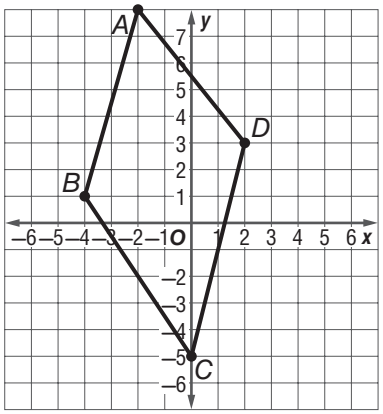
## Build Your Vocabulary (page 262)

A **transformation** is a _____ of a geometric figure. The resulting figure is called an **image**.

Sliding a figure without _____ it is a **translation**.

**EXAMPLE** **Graph a Translation**

**1** **Translate quadrilateral *ABCD* 5 units to the right. Graph quadrilateral *A′B′C′D′*.**



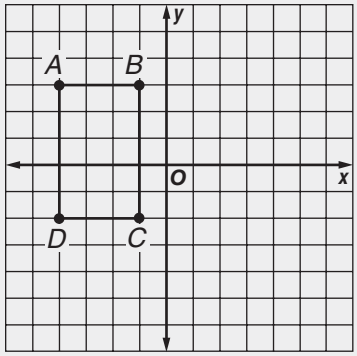

Move each vertex of the quadrilateral _____ units right.

Label the new vertices $A'$, $B'$, $C'$, and $D'$.

Connect the new vertices to draw the quadrilateral. The coordinates of the new quadrilateral are $A'$ _____, $B'$ _____, $C'$ _____, and $D'$ _____.

**Check Your Progress**

Translate square *ABCD* 6 units to the right. Graph rectangle *A′B′C′D′*.

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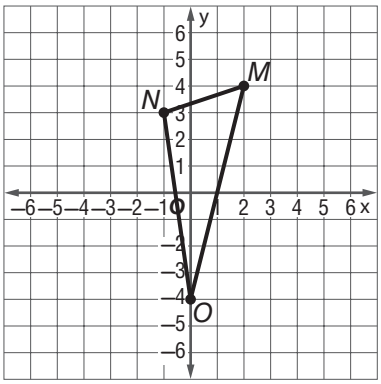
**EXAMPLE** **Graph a Translation**

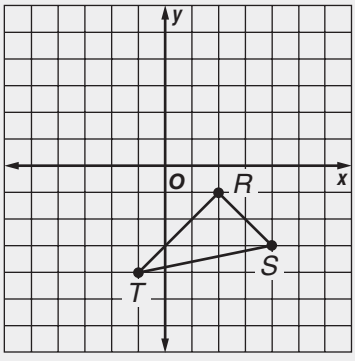
**2** **Translate triangle *MNO* 3 units to the right and 2 units down. Graph triangle *M′N′O′*.**




Move each vertex of the triangle ____ units right and ____ units down. Label the new vertices $M'$, $N'$, and $O'$.

Connect the new vertices to draw the triangle. The coordinates of the new triangle are $M'$ ____, $N'$ ____, and $O'$ ____.

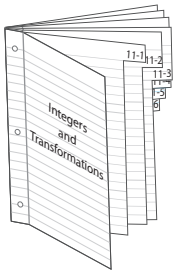
**Check Your Progress** Translate triangle *RST* 4 units to the left and 3 units up. Graph triangle $R'S'T'$.




FOLDABLES

## ORGANIZE IT

Under the Lesson 11-8 tab of your Foldable, record what you learn about translating figures. Include an example of a translation.

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## EXAMPLE Find Coordinates of a Translation

**3** **A rug had corners at ordered pairs (2, 4), (−1, 5), and (−4, −6). What will be the new ordered pairs if the rug is moved 3 units to the right and 4 units down?**

The vertices of the rug after the translation can be found by _____ 3 to the $x$-coordinates and _____ 4 from the $y$-coordinates.

| Original Coordinates | $(x + 3, y - 4)$ | New Coordinates |
|---|---|---|
| | | |
| | | |
| | | |

The new coordinates are _____, _____, and _____.

**Check Your Progress** Teresa is moving the desk in her office 3 units right and 2 units down. If the desk had original coordinates at $A(-2, 5)$, $B(3, 5)$, $C(3, 1)$, and $D(-2, 1)$, find the new vertices of the desk after the translation.

**HOMEWORK ASSIGNMENT**

Page(s):

Exercises:

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