# 4.1 Plot Points in a Coordinate Plane

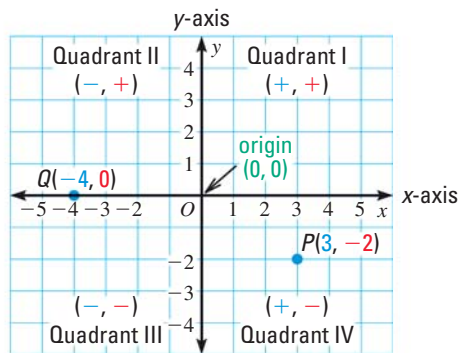| | |
|---|---|
| **Before** | You graphed numbers on a number line. |
| **Now** | You will identify and plot points in a coordinate plane. |
| **Why?** | So you can interpret photos of Earth taken from space, as in Ex. 36. |

**Key Vocabulary**
- **quadrants**
- **coordinate plane**, *p. 921*
- **ordered pair**, *p. 921*

In Chapter 1, you used a coordinate plane to graph ordered pairs whose coordinates were nonnegative. If you extend the *x*-axis and *y*-axis to include negative values, you divide the coordinate plane into four regions called **quadrants**, labeled I, II, III, and IV as shown.

Points in Quadrant I have two positive coordinates. Points in the other three quadrants have at least one negative coordinate.

**READING**

The *x*-coordinate of a point is sometimes called the *abscissa*. The *y*-coordinate of a point is sometimes called the *ordinate*.

For example, point *P* is in Quadrant IV and has an *x*-coordinate of 3 and a *y*-coordinate of −2. A point on an axis, such as point *Q*, is not considered to be in any of the four quadrants.



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## EXAMPLE 1  Name points in a coordinate plane

**Give the coordinates of the point.**

   **a.** *A*    **b.** *B*



**Solution**

   **a.** Point *A* is 3 units to the left of the origin and 4 units up. So, the *x*-coordinate is −3, and the *y*-coordinate is 4. The coordinates are (−3, 4).

   **b.** Point *B* is 2 units to the right of the origin and 3 units down. So, the *x*-coordinate is 2, and the *y*-coordinate is −3. The coordinates are (2, −3).

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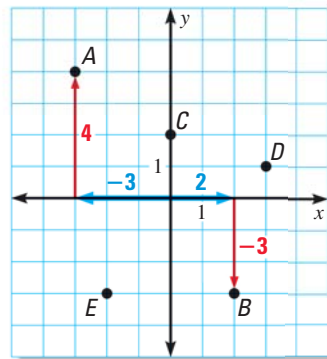
✓ **GUIDED PRACTICE**   for Example 1

   **1.** Use the coordinate plane in Example 1 to give the coordinates of points *C*, *D*, and *E*.

   **2.** What is the *y*-coordinate of any point on the *x*-axis?