

## EXAMPLE 2 Plot points in a coordinate plane

Plot the point in a coordinate plane. Describe the location of the point.

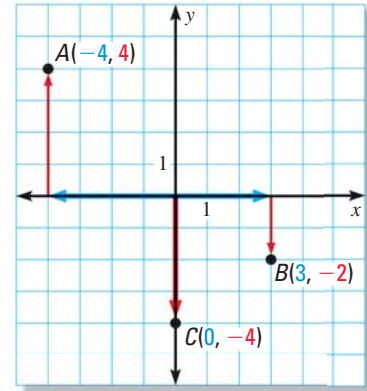
a.  $A(-4, 4)$

b.  $B(3, -2)$

c.  $C(0, -4)$

### Solution

- Begin at the origin. First move 4 units to the left, then 4 units up. Point  $A$  is in Quadrant II.
- Begin at the origin. First move 3 units to the right, then 2 units down. Point  $B$  is in Quadrant IV.
- Begin at the origin and move 4 units down. Point  $C$  is on the  $y$ -axis.



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## EXAMPLE 3 Graph a function

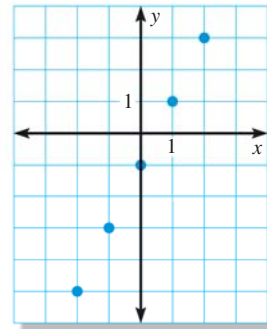
Graph the function  $y = 2x - 1$  with domain  $-2, -1, 0, 1,$  and  $2$ . Then identify the range of the function.

### Solution

**STEP 1** Make a table by substituting the domain values into the function.

$x$	$y = 2x - 1$
$-2$	$y = 2(-2) - 1 = -5$
$-1$	$y = 2(-1) - 1 = -3$
$0$	$y = 2(0) - 1 = -1$
$1$	$y = 2(1) - 1 = 1$
$2$	$y = 2(2) - 1 = 3$

**STEP 2** List the ordered pairs:  $(-2, -5), (-1, -3), (0, -1), (1, 1), (2, 3)$ . Then graph the function.



**STEP 3** Identify the range. The range consists of the  $y$ -values from the table:  $-5, -3, -1, 1,$  and  $3$ .

### ANALYZE A FUNCTION

The function in Example 3 is called a *discrete function*. To learn about discrete functions, see p. 223.



### GUIDED PRACTICE for Examples 2 and 3

Plot the point in a coordinate plane. Describe the location of the point.

3.  $A(2, 5)$

4.  $B(-1, 0)$

5.  $C(-2, -1)$

6.  $D(-5, 3)$

7. Graph the function  $y = -\frac{1}{3}x + 2$  with domain  $-6, -3, 0, 3,$  and  $6$ .

Then identify the range of the function.