#### DATE

# Finding Slope Given a Table or a Graph

The *slope* of a line is determined by the ratio  $\frac{change\ in\ y}{change\ in\ x}$  between any two points that lie on the line.

The slope is the *constant rate of change* of a line.

## **EXAMPLE A**

Use a graph to determine the slope of a line.

**Step 1:** *Identify two points on the line.* In this case, use (0, 2) and (2, 1).

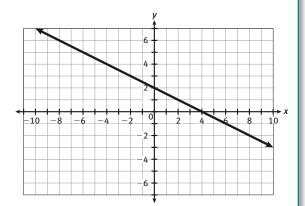
**Step 2:** Calculate the vertical change from one point to the next. In this case, you must count down 1 space to move from the point (0, 2) to the point (2, 1).

**Step 3:** Calculate the horizontal change from one point to the next. In this case, you must count right 2 spaces to move from the point (0, 2) to the point (2, 1).

**Step 4:** Write the ratio showing  $\frac{\text{vertical change}}{\text{horizontal change}}$  in simplest form.

In this case, the slope is represented by the ratio  $\frac{-1}{2}$ , or  $-\frac{1}{2}$ .

Solution: The slope is negative because the line falls from left to right.



#### **GUIDED PRACTICE**

The ratio of vertical change to horizontal change is the same between any two points on a line. Use two different points on the line above to show this is true.

#### **EXAMPLE B**

Use a table to determine the slope of a line.

**Step 1:** Identify the change in each consecutive pair of y-values in the table. In this case, the changes are 5, 5 and 10.

**Step 2:** : Identify the change in each consecutive pair of x-values in the table. In this case, the changes are 1, 1, and 2.

**Step 3:** Write ratios showing the corresponding  $\frac{\text{vertical change}}{\text{horizontal change}}$  in simplest form. In this case, the ratios  $\frac{5}{1}$ ,  $\frac{5}{1}$ , and  $\frac{10}{2}$  each simplify to  $\frac{5}{1}$ .

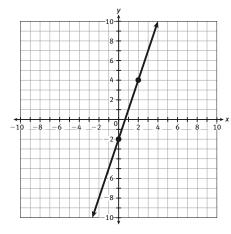
	X	у	
1 -	1	-3	
1<	>>2	2><	>5
1<	><3	7><	>5
2 <	5	17	>10

# Finding Slope Given a Table or a Graph (continued)

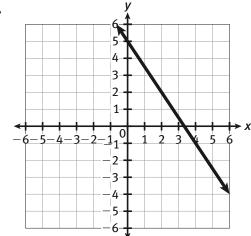
## **PRACTICE**

Determine the slope for each of the following.

1.



2.



3.

'	Х	у
	5	5
	7	3
	9	1
	11	-1

4.

•	Х	у
	2	-5
	4	6
	7	20
	11	40