Bell Work

Graph the equation.
$$2x + y = 6$$

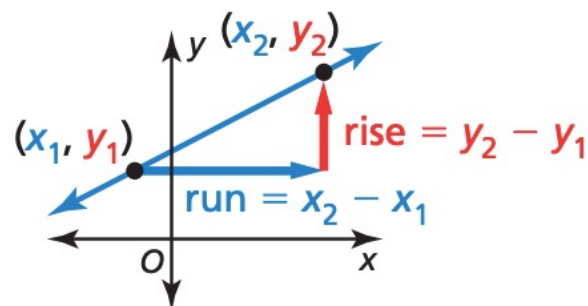# KEY IDEA

Slope

The **slope** m of a nonvertical line passing through two points (x_1, y_1) and (x_2, y_2) is the value of the ratio of the **rise** (change in y) to the **run** (change in x).

$$\text{slope} = m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

(x_2, y_2)

$\text{rise} = y_2 - y_1$

(x_1, y_1)

$\text{run} = x_2 - x_1$

When the line rises from left to right, the slope is positive.
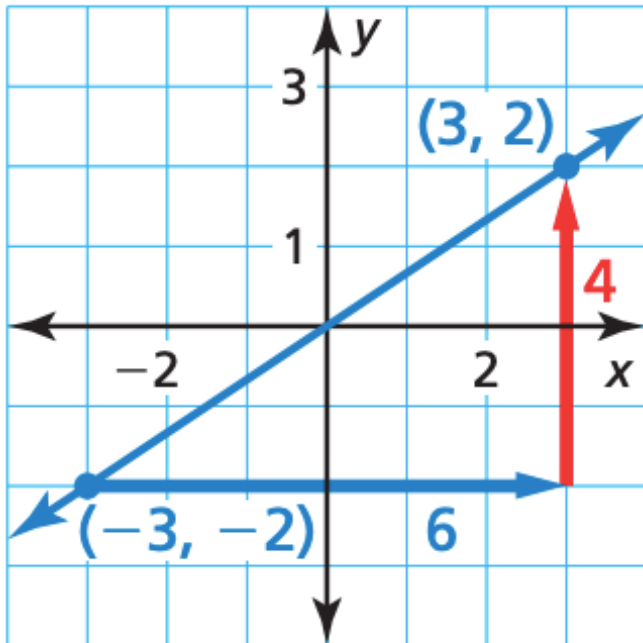When the line falls from left to right, the slope is negative.
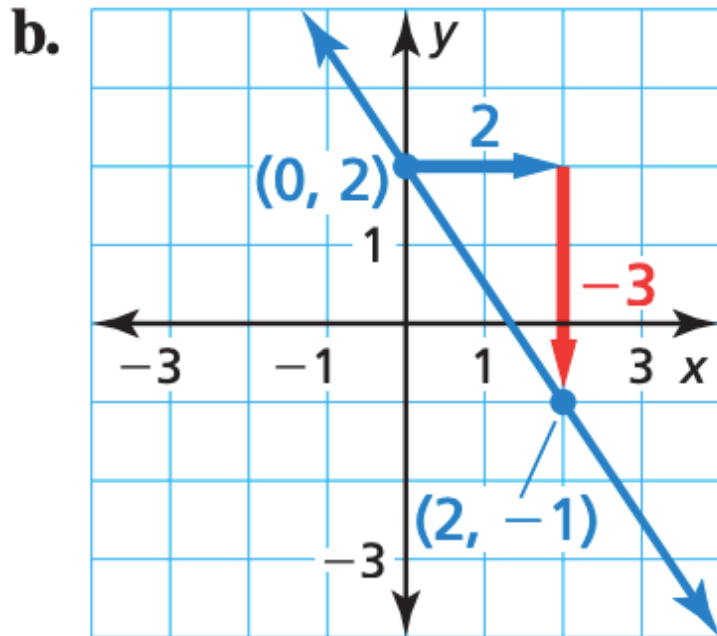
Find Slopes of Lines

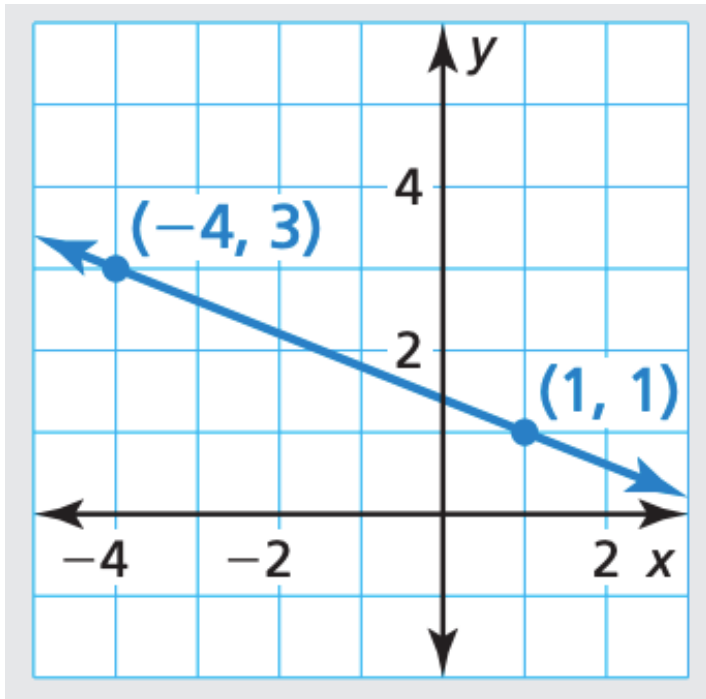Describe the slope of each line. Then find the slope.

a.

Find Slopes of Lines

Describe the slope of each line. Then find the slope.

b.

Find Slopes of Lines

Describe the slope of each line. Then find the slope.

Find Slopes from Tables

The points represented by each table lie on a line. How can you find the slope of each line from the table? What is the slope of each line?

x	y
4	20
7	14
10	8
13	2

Find Slopes from Tables

The points represented by each table lie on a line. How can you find the slope of each line from the table? What is the slope of each line?

x	−3	−1	0	3
y	−1	3	5	11

Find Slopes from Tables

The points represented by each table lie on a line. How can you find the slope of each line from the table? What is the slope of each line?
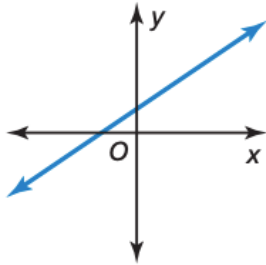
x	y
−1	2
1	2
3	2
5	2

x	y
−3	−3
−3	0
−3	6
−3	9

CONCEPT SUMMARY

Slope

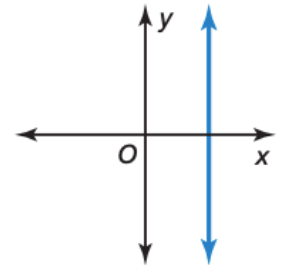| *Positive slope*	*Negative slope*	*Slope of 0*	*Undefined slope*

The line rises from left to right.
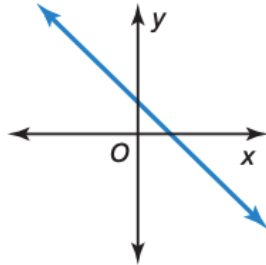
The line falls from left to right.
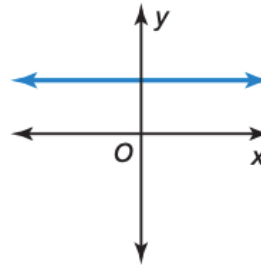
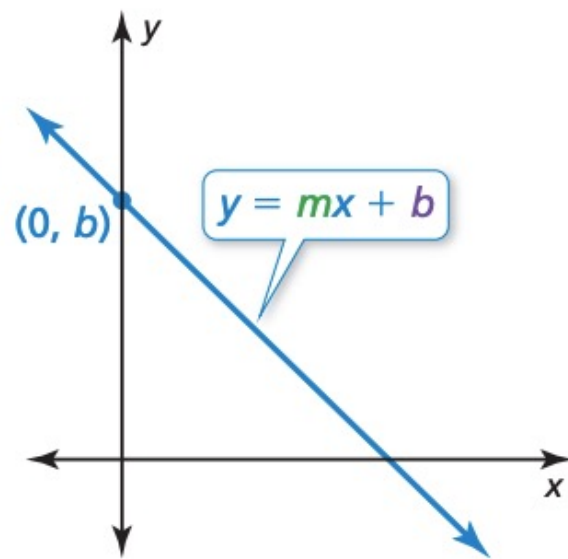The line is horizontal.

The line is vertical.

KEY IDEA

Slope-Intercept Form

Words A linear equation written in the form $y = mx + b$ is in **slope-intercept form**. The slope of the line is m, and the y-intercept of the line is b.

Algebra $y = mx + b$

slope

y-intercept

(0, b)

$y = mx + b$

A linear equation written in the form $y = 0x + b$, or $y = b$, is a **constant function**. The graph of a constant function is a horizontal line.

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.

$$y = 3x - 4$$

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.

$$y = 6.5$$

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.

$$-5x + y = -2$$

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.

$$\frac{3}{5}x - y = 1$$

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.

$$x + 2y = 6$$

Find the slope and the y-intercept of the graph of each linear equation. Then graph the equation.
$$y = -4x + 6$$