

**Lesson Summary**

The line joining two distinct points of the graph of the linear equation  $y = mx + b$  has slope  $m$ .

The  $m$  of  $y = mx + b$  is the number that describes the slope. For example, in the equation  $y = -2x + 4$ , the slope of the graph of the line is  $-2$ .

**Problem Set**

1. Solve the following equation for  $y$ :  $-4x + 8y = 24$ . Then, answer the questions that follow.
  - a. Based on your transformed equation, what is the slope of the linear equation  $-4x + 8y = 24$ ?
  - b. Complete the table to find solutions to the linear equation.

$x$	Transformed Linear Equation:	$y$

- c. Graph the points on the coordinate plane.
- d. Find the slope between any two points.
- e. The slope you found in part (d) should be equal to the slope you noted in part (a). If so, connect the points to make the line that is the graph of an equation of the form  $y = mx + b$  that has slope  $m$ .
- f. Note the location (ordered pair) that describes where the line intersects the  $y$ -axis.

2. Solve the following equation for  $y$ :  $9x + 3y = 21$ . Then, answer the questions that follow.
- Based on your transformed equation, what is the slope of the linear equation  $9x + 3y = 21$ ?
  - Complete the table to find solutions to the linear equation.

$x$	Transformed Linear Equation:	$y$

- Graph the points on the coordinate plane.
  - Find the slope between any two points.
  - The slope you found in part (d) should be equal to the slope you noted in part (a). If so, connect the points to make the line that is the graph of an equation of the form  $y = mx + b$  that has slope  $m$ .
  - Note the location (ordered pair) that describes where the line intersects the  $y$ -axis.
3. Solve the following equation for  $y$ :  $2x + 3y = -6$ . Then, answer the questions that follow.
- Based on your transformed equation, what is the slope of the linear equation  $2x + 3y = -6$ ?
  - Complete the table to find solutions to the linear equation.

$x$	Transformed Linear Equation:	$y$

- Graph the points on the coordinate plane.
- Find the slope between any two points.
- The slope you found in part (d) should be equal to the slope you noted in part (a). If so, connect the points to make the line that is the graph of an equation of the form  $y = mx + b$  that has slope  $m$ .
- Note the location (ordered pair) that describes where the line intersects the  $y$ -axis.

4. Solve the following equation for  $y$ :  $5x - y = 4$ . Then, answer the questions that follow.
- Based on your transformed equation, what is the slope of the linear equation  $5x - y = 4$ ?
  - Complete the table to find solutions to the linear equation.

$x$	Transformed Linear Equation:	$y$

- Graph the points on the coordinate plane.
- Find the slope between any two points.
- The slope you found in part (d) should be equal to the slope you noted in part (a). If so, connect the points to make the line that is the graph of an equation of the form  $y = mx + b$  that has slope  $m$ .
- Note the location (ordered pair) that describes where the line intersects the  $y$ -axis.