

## Section 6.1a – Equation of a Line in Slope y-intercept form

MPM1D

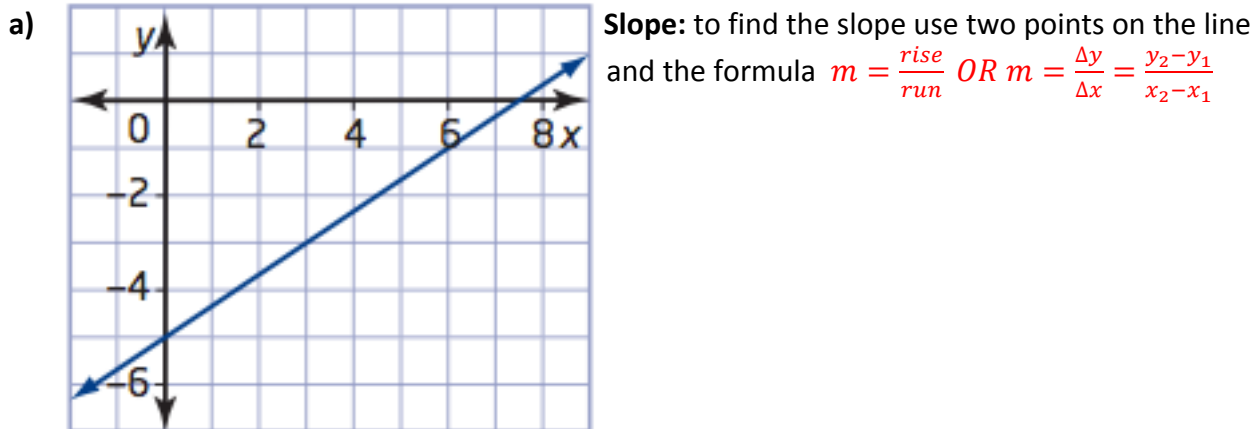
Jensen

**Learning Goals:** In this lesson students will be able to determine the equation of a line in the form  $y = mx + b$  from its graph. They will be able to use the formula  $\frac{y_2 - y_1}{x_2 - x_1}$  to calculate the slope of a line.

**Example 1:** Complete the following chart

Equation	Slope	y-intercept
$y = -2x - 5$		
$y = x + 2$		
$y = \frac{2}{5}x + 8$		
$y = -\frac{1}{2}x$		
$y = 4$		

**Example 2:** Identify the slope and y-intercept of each line



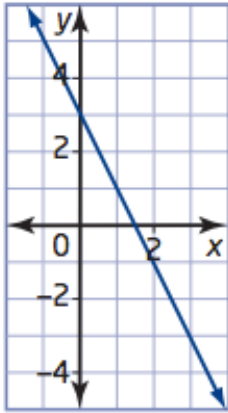
**y-intercept:** you can find the y-intercept by looking at the graph and checking where the line crosses the y-axis. (When  $x = 0$ ,  $y = ?$ )

Slope:

y-intercept:

Equation of the line:

b)

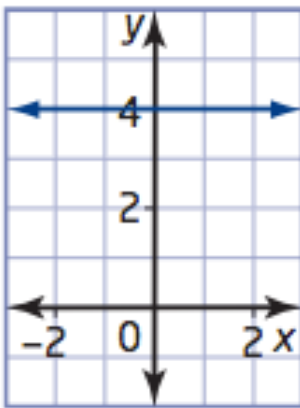


**Slope:** to find the slope use two points on the line and the formula  $m = \frac{\text{rise}}{\text{run}}$  OR  $m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

**y-intercept:** you can find the y-intercept by looking at the graph and checking where the line crosses the y-axis. (When  $x = 0$ ,  $y = ?$ )

<b>Slope:</b>	<b>y-intercept:</b>
<b>Equation of the line:</b>	

c)



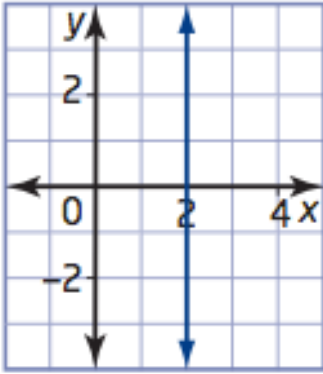
**Slope:** to find the slope use two points on the line and the formula  $m = \frac{\text{rise}}{\text{run}}$  OR  $m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

**y-intercept:** you can find the y-intercept by looking at the graph and checking where the line crosses the y-axis. (When  $x = 0$ ,  $y = ?$ )

<b>Slope:</b>	<b>y-intercept:</b>
<b>Equation of the line:</b>	

**Note:** all horizontal lines have a slope of \_\_\_\_\_ and an equation of the form \_\_\_\_\_, where  $h$  is the

d)



**Slope:** to find the slope use two points on the line and the formula  $m = \frac{\text{rise}}{\text{run}}$  OR  $m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

**y-intercept:** you can find the y-intercept by looking at the graph and checking where the line crosses the y-axis.

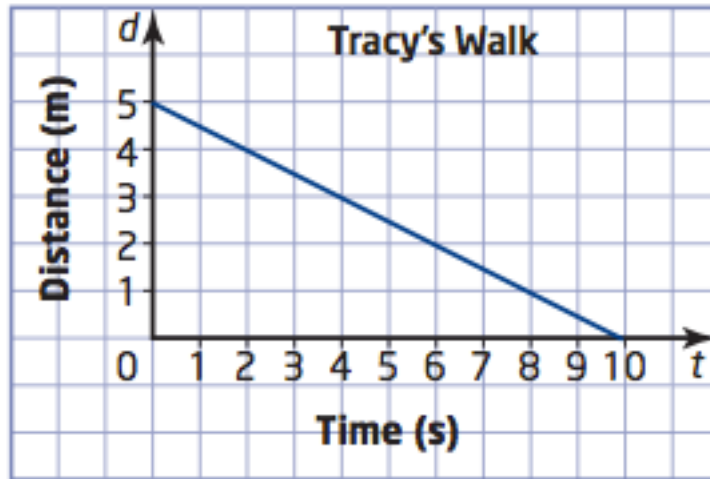
**Slope:**

**y-intercept:**

**Equation of the line:**

**Note:** All vertical lines have an \_\_\_\_\_ slope and an equation of the form \_\_\_\_\_, where  $a$  is the \_\_\_\_\_.

**Example 3:** Interpreting a Linear Relation



Identify the slope and the vertical intercept of the linear relation and explain what they mean.

**Slope:**

**y-intercept:**

The slope represents Tracy's \_\_\_\_\_. The negative value means that her distance from the sensor is \_\_\_\_\_. Tracy's speed toward the sensor was \_\_\_\_\_.

**y-intercept:**

The y-intercept of \_\_\_\_\_ means that Tracy started walking at a distance of \_\_\_\_\_ from the sensor.

**Equation of the relation:**