Lesson 1.6.1: Describing Graphs of Linear Equations Using the Slope Lesson 1.6.1: Describing Graphs of Linear Equations Using the Slope and Intercepts and Intercepts How to Describe a Graph Using the Slope? How to Describe a Graph Using the Slope? 1. Change the equation to the form y = mx + b. m is the slope and b is the 1. Change the equation to the form y = mx + b. m is the slope and b is the y-intercept. 2. Describe the graph using the slope. y-intercept. 2. Describe the graph using the slope. Value/Sign of mTrend of Graph Value/Sign of mTrend of Graph Positive Rises from left to right Positive Rises from left to right Negative Zero Falls from left to right Negative Falls from left to right Horizontal line Žero Horizontal line Undefined Vertical line Undefined Vertical line How to Describe a Graph Using the Intercepts? How to Describe a Graph Using the Intercepts? 1. Let y = 0 and solve for x to get the x-intercept a. 1. Let y = 0 and solve for x to get the x-intercept a. 2. Let x = 0 and solve for y to get the y-intercept b. 2. Let x = 0 and solve for y to get the y-intercept b. 3. Describe the graph using the intercepts. 3. Describe the graph using the intercepts. Signs/Values of a and bTrend of Graph Signs/Values of \boldsymbol{a} and \boldsymbol{b} Trend of Graph Same signs Falls from left to right Same signs Falls from left to right Different signs Rises from left to right Different signs Rises from left to right $a = \text{undefined}, b \in \mathbb{R}$ Horizontal line $a = \text{undefined}, b \in \mathbb{R}$ Horizontal line $a \in \mathbb{R}, b =$ undefined Vertical line $a \in \mathbb{R}, b =$ undefined Vertical line Practice Exercises 1.6.1 Practice Exercises 1.6.1 A. Determine the slope of each linear equation and describe the graph. A. Determine the slope of each linear equation and describe the graph. 1. y = 2x - 51. y = 2x - 53. -3y - 9 = 05. y = 2x - 63. -3y - 9 = 05. y = 2x - 6

2. 4x + 2y = 6

1. 4x + 2y = 8

2. -3y - 9 = 0

Activity 1.6.1

1. y = -3x - 5

2. 6x + 3y = 9

1. 6x + 3y = 12

2. -5y - 10 = 0

graph.

graph.

Lesson 1.6.1: Describing Graphs of Linear Equations Using the Slope

and Intercepts

B. Determine the intercepts of each linear equation and describe the

A. Determine the slope of each linear equation and describe the graph.

B. Determine the intercepts of each linear equation and describe the

5. y = 3x - 4

5. y = 3x - 2

5. y = 4x - 12

How to Describe a Graph Using the Slope? 1. Change the equation to the form y = mx + b. m is the slope and b is the y-intercept. 2. Describe the graph using the slope.

Value/Sign of m

Trend of Graph Rises from left to right Positive Negative Zero Falls from left to right Horizontal line Undefined Vertical line

How to Describe a Graph Using the Intercepts? Let y = 0 and solve for x to get the x-intercept a.

4. x = 4

3. x = 4

4. 2y - 6 = 0

3. -4y - 8 = 0

4. 4y - 16 = 0

4. x = -3

3. x = 7

2. Let x = 0 and solve for y to get the y-intercept b.

3. Describe the graph using the intercepts.

Signs/Values of a and bTrend of Graph Falls from left to right Same signs Rises from left to right Different signs $a = \text{undefined}, b \in \mathbb{R}$ Horizontal line $a \in \mathbb{R}, b = undefined$ Vertical line

Practice Exercises 1.6.1

A. Determine the slope of each linear equation and describe the graph.

1. y = 2x - 5

2. 4x + 2y = 6

2. -3y - 9 = 0

Activity 1.6.1

1. y = -3x - 5

2. 6x + 3y = 9

1. 6x + 3y = 12

2. -5y - 10 = 0

graph. 1. 4x + 2y = 8

graph.

3. -3y - 9 = 0

5. y = 2x - 6

2. 4x + 2y = 6

4. x = 4

B. Determine the intercepts of each linear equation and describe the graph.

1. 4x + 2y = 82. -3y - 9 = 0

5. y = 3x - 4

4. 2y - 6 = 0

Activity 1.6.1

A. Determine the slope of each linear equation and describe the graph. 3. -4y - 8 = 0

1. y = -3x - 5 $\vec{6}x + 3y = 9$

4. x = -3

5. y = 3x - 2

B. Determine the intercepts of each linear equation and describe the graph.

1. 6x + 3y = 122. -5y - 10 = 0 3. x = 74. 4y - 16 = 0 5. y = 4x - 12

k Lesson 1.6.1: Describing Graphs of Linear Equations Using the Slope and Intercepts

How to Describe a Graph Using the Slope?

4. x = 4

3. x = 4

4. 2y - 6 = 0

3. -4y - 8 = 0

4. 4y - 16 = 0

4. x = -3

3. x = 7

B. Determine the intercepts of each linear equation and describe the

A. Determine the slope of each linear equation and describe the graph.

B. Determine the intercepts of each linear equation and describe the

5. y = 3x - 4

5. y = 3x - 2

5. y = 4x - 12

- 1. Change the equation to the form y = mx + b. m is the slope and b is the y-intercept.
 2. Describe the graph using the slope.

Value/Sign of mTrend of Graph Rises from left to right Positive Negative Zero Falls from left to right Horizontal line Undefined Vertical line

How to Describe a Graph Using the Intercepts?

Let y = 0 and solve for x to get the x-intercept a.

2. Let x = 0 and solve for y to get the y-intercept b.

3. Describe the graph using the intercepts.

Signs/Values of a and bTrend of Graph Falls from left to right Same signs Rises from left to right Different signs $a = \text{undefined}, b \in \mathbb{R}$ Horizontal line $a \in \mathbb{R}, b =$ undefined Vertical line

Practice Exercises 1.6.1

A. Determine the slope of each linear equation and describe the graph.

1. y = 2x - 5

3. -3y - 9 = 0

5. y = 2x - 6

2. 4x + 2y = 6

4. x = 4

B. Determine the intercepts of each linear equation and describe the graph.

1. 4x + 2y = 8

3. x = 4

5. y = 3x - 4

2. -3y - 9 = 04. 2y - 6 = 0

Activity 1.6.1

A. Determine the slope of each linear equation and describe the graph.

 $\vec{6}x + 3y = 9$

3. -4y - 8 = 0

5. y = 3x - 2

1. y = -3x - 5

4. x = -3

B. Determine the intercepts of each linear equation and describe the graph.

1. 6x + 3y = 122. -5y - 10 = 0 3. x = 74. 4y - 16 = 0 5. y = 4x - 12