Lesson 1.6.2: Finding the Equation of a Line Given the Slope and a Point or Two Points

The equation of a line can be determined using the following formulae: 1. Point-Slope Form: $y - y_1 = m(x - x_1)$

2. Two-Point Form: $y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$

Practice Exercises 1.6.2

A. Find the equation of the line of the form y = mx + b given the slope and a point.

1. m=2; (0, 4) 2. m = -5; (-3, 9) 3. m = -1; (7, 2) 4. $m = \frac{2}{3}$; (0, 8)

5. $m = -\frac{7}{4}$; (-2, 8)

B. Find the equation of the line of the form y = mx + b that passes through the following pairs of points.

1. (3, 4) and (4, 7) 2. (3, -1) and (7, -5) 4. $\left(\frac{7}{2}, 1\right)$ and $\left(-\frac{1}{2}, 2\right)$ 5. $\left(-\frac{1}{2}, \frac{1}{3}\right)$ and (2, 3)

3. (-1, 10) and (0, 15)

C. Write the equation of the line with the given x-intercept and y-intercept.

1. a = 2; b = -32. a = -5; b = 8

3. a = -2; b = 64. (0,-2); (1,0)

5. (0,1); (3,0)

Activity 1.6.2

A. Find the equation of the line of the form y = mx + b given the slope and a point.

1. m = -2; (3, 0) 2. m = 4; (-2, 7)

3. m = 3; (6, 4) 4. $m = \frac{3}{2}$; (1, 7)

5. $m = -\frac{3}{4}$; (-1, 6)

B. Find the equation of the line of the form y = mx + b that passes through the following pairs of points.

1. (2, 3) and (5, 8)

4. $\left(\frac{1}{2}, 2\right)$ and $\left(-\frac{3}{2}, 1\right)$

2. (2, -3) and (6, -3) 3. (-2, 9) and (0, 10)

5. $\left(-\frac{1}{3}, \frac{3}{2}\right)$ and (1, 2)

C. Write the equation of the line with the given x-intercept and y-intercept.

1. a = 1; b = 5

5. (-6,0);(0,2)

2. a = 3; b = -4

3. (3,0); (0,3) 4. (-5,0); (0,-4)

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A. Find the equation of the line of the form y=mx+b given the slope and a point.

1. m=2; (0, 4) 2. m = -5; (-3, 9) 3. m = -1; (7, 2) 4. $m = \frac{2}{3}$; (0, 8)

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1. (3, 4) and (4, 7) 2. (3, -1) and (7, -5) 4. $\left(\frac{7}{2},1\right)$ and $\left(-\frac{1}{2},2\right)$

3. (-1, 10) and (0, 15)

5. $\left(-\frac{1}{2}, \frac{1}{3}\right)$ and (2, 3)

C. Write the equation of the line with the given x-intercept and y-intercept.

1. a = 2; b = -3

3. a = -2; b = 64. (0,-2); (1,0)

5. (0,1);(3,0)

2. a = -5; b = 8Activity 1.6.2

A. Find the equation of the line of the form y = mx + b given the slope and a point.

1. m = -2; (3, 0) 2. m = 4; (-2, 7)

3. m = 3; (6, 4) 5. $m = -\frac{3}{4}$; (-1, 6) 4. $m = \frac{3}{2}$; (1, 7)

B. Find the equation of the line of the form y = mx + b that passes through the following pairs of points.

1. (2, 3) and (5, 8) 2. (2, -3) and (6, -3) 4. $\left(\frac{1}{2}, 2\right)$ and $\left(-\frac{3}{2}, 1\right)$

3. (-2, 9) and (0, 10)

5. $\left(-\frac{1}{3}, \frac{3}{2}\right)$ and (1, 2)

C. Write the equation of the line with the given x-intercept and y-intercept.

1. a = 1; b = 52. a = 3; b = -4 3. (3,0);(0,3)4. (-5,0);(0,-4) 5. (-6,0);(0,2)

The equation of a line can be determined using the following formulae:

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- 1. Point-Slope Form: $y y_1 = m(x x_1)$
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Practice Exercises 1.6.2

 $\stackrel{\text{def}}{=}$ A. Find the equation of the line of the form y = mx + b given the slope and a point.

1. m=2; (0, 4)

3. m = -1; (7, 2) 5. $m = -\frac{7}{4}$; (-2, 8) 4. $m = \frac{2}{3}$; (0, 8)

2. m = -5; (-3, 9)

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1. (3, 4) and (4, 7)

4. $\left(\frac{7}{2},1\right)$ and $\left(-\frac{1}{2},2\right)$ 2. (3, -1) and (7, -5)

3. (-1, 10) and (0, 15)

5. $\left(-\frac{1}{2}, \frac{1}{3}\right)$ and (2, 3)

C. Write the equation of the line with the given x-intercept and y-intercept.

1. a = 2; b = -3

3. a = -2; b = 6

5. (0, 1); (3, 0)

2. a = -5; b = 84. (0,-2); (1,0)

Activity 1.6.2

A. Find the equation of the line of the form y = mx + b given the slope and a point.

1. m = -2; (3, 0) 2. m = 4; (-2, 7)

3. m = 3; (6, 4) 5. $m = -\frac{3}{4}$; (-1, 6) 4. $m = \frac{3}{2}$; (1, 7)

B. Find the equation of the line of the form y = mx + b that passes through the following pairs of points.

1. (2, 3) and (5, 8)

4. $\left(\frac{1}{2}, 2\right)$ and $\left(-\frac{3}{2}, 1\right)$

2. (2, -3) and (6, -3) 3. (-2, 9) and (0, 10)

5. $\left(-\frac{1}{3}, \frac{3}{2}\right)$ and (1, 2)

C. Write the equation of the line with the given x-intercept and y-intercept.

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5. (-6,0);(0,2)

3. (3,0); (0,3)4. (-5,0); (0,-4)2. a = 3; b = -4

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A. Find the equation of the line of the form y = mx + b given the slope and a point.

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1. (2, 3) and (5, 8)

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2. (2, -3) and (6, -3) 5. $\left(-\frac{1}{3}, \frac{3}{2}\right)$ and (1, 2)3. (-2, 9) and (0, 10)

C. Write the equation of the line with the given x-intercept and y-intercept. 1. a = 1; b = 5

3. (3,0);(0,3)4. (-5,0); (0,-4)2. a = 3; b = -4