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: $y - y_1 = \dfrac{y_2 - y_1}{x_2 - x_1}(x - x_1)$

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. $m = \dfrac{2}{3}$; (0, 8)
5. $m = -\dfrac{7}{4}$; (-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)
3. (-1, 10) and (0, 15)
4. $\left(\dfrac{7}{2}, 1\right)$ and $\left(-\dfrac{1}{2}, 2\right)$
5. $\left(-\dfrac{1}{2}, \dfrac{1}{3}\right)$ and $(2, 3)$

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

1. $a = 2; b = -3$
2. $a = -5; b = 8$
3. $a = -2; b = 6$
4. $(0, -2); (1, 0)$
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. $m = \dfrac{3}{2}$; (1, 7)
5. $m = -\dfrac{3}{4}$; (-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)
2. (2, -3) and (6, -3)
3. (-2, 9) and (0, 10)
4. $\left(\dfrac{1}{2}, 2\right)$ and $\left(-\dfrac{3}{2}, 1\right)$
5. $\left(-\dfrac{1}{3}, \dfrac{3}{2}\right)$ and $(1, 2)$

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

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

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