

Finding the Equation of a Line

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

1. Slope-Intercept Form: $y = mx + b$
2. Point-Slope Form: $y - y_1 = m(x - x_1)$
3. Two-Point Form: $y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$
4. Intercept Form: $\frac{x}{a} + \frac{y}{b} = 1$

Practice Exercises

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

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

Problem Set

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

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

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

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