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: $y - y_1 = \dfrac{y_2 - y_1}{x_2 - x_1}(x - x_1)$
4. Intercept Form: $\dfrac{x}{a} + \dfrac{y}{b} = 1$

Practice Exercises

A. Write the equation of the line in standard form given the slope and the y-intercept.

1. $m = 3, \ b = 2$
2. $m = \dfrac{3}{2}, \ b = -5$
3. $m = -6, \ b = -3$
4. $m = -1, \ b = \dfrac{1}{2}$
5. $m = \dfrac{7}{2}, \ b = \dfrac{3}{2}$

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

Problem Set

A. Write the equation of the line in standard form given the slope and the y-intercept.

1. $m = -2, \ b = 3$
2. $m = \dfrac{2}{3}, \ b = -3$
3. $m = -5, \ b = -1$
4. $m = -3, \ b = \dfrac{3}{2}$
5. $m = \dfrac{6}{5}, \ b = \dfrac{4}{3}$

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