

Objectives

- Find equations of lines using the Point-Slope Form.
- Applications

Exercises

- For each point-slope equation given, state the slope and a point on the graph. Then graph the line.
 - $y - 2 = -\frac{3}{2}(x - 7)$
 - $y - 5 = -\frac{4}{3}(x + 3)$
 - $y = \frac{2}{3}x$
- Find an equation of the line in slope-intercept form that has the given slope and contains the given point.
 - $m = -2$; $(-11, -12)$
 - $m = \frac{3}{2}$; $(5, -6)$
 - $m = \frac{2}{3}$; $(-8, 9)$
- Find an equation of the line with the given characteristics.
 - parallel to $2x - 5y = 10$ through $(-2, 8)$
 - perpendicular to $y = 7x - 9$ through $(2, 1)$
 - parallel to $3x - 5y = 1$ through $(1, 2)$
 - perpendicular to $2x - 3y = 9$ through $(1, 4)$
 - parallel to $y = -4$ through $(1, -3)$
 - perpendicular to $x = 7$ through $(-5, 0)$
- Find an equation of the line in slope-intercept form that contains the given points.
 - through $(10, 7)$ and $(7, 10)$
 - through $(5, -6)$ and $(-6, 5)$
 - through $(1, 3)$ and slope of 4
- Find an equation of each line.
 - horizontal line through $(0, 18)$
 - vertical line through $(12, 0)$
- In a country the number of students who completed high school and enrolled in college that same year increased from 1.4 million in 2002 to 1.9 million in 2006.
 - Find an equation for the line including the data points. Let x represent the number of years after 2000 and y the number of high school graduates (or the equivalent) who enrolled in college that year.
 - Estimate the number of high school graduates (or the equivalent) who enrolled in college in 2003 and 2015.

Answers:

- 1a) slope $-\frac{3}{2}$, $(7, 2)$ 1b) slope $-\frac{4}{3}$, $(-3, 5)$ 1c) $(0, 0)$, $(\frac{3}{2}, 0)$ 2a) $y = -2x - 34$ 2b) $y = \frac{2}{3}x - \frac{2}{3}$ 2c) $y = \frac{2}{3}x + \frac{2}{3}$ 3a) $y = \frac{5}{44}x + \frac{5}{44}$ 3b) $y = -\frac{1}{6}x + \frac{7}{6}$ 3c) $y = \frac{5}{7}x + \frac{5}{7}$ 4a) $y = -x + 17$ 4b) $y = -x + 1$ 5a) $y = 4x - 1$ 5b) $y = 18x - 12$ 5c) $y = 0$ 6a) $y = 0.125x + 1.15$ 6b) $y = 0.125(3) + 1.15 = 1.525$ million

