

Point-Slope Form: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$

Slope-Intercept Form: $y = mx + b$

Write an equation in point-slope, slope-intercept, and standard form for each line.

x, y
 $(-2, 3), m = 4$

$$y - 3 = 4(x + 2)$$

$$y - 3 = 4x + 8$$

$\begin{array}{r} +3 \\ +3 \end{array}$

$$y = 4x + 11$$

$\begin{array}{r} -4x \\ -4x \end{array}$

$-1(-4x + y) = (-11) \quad * A \text{ must ALWAYS be positive}$

$$4x - y = -11$$

Point-Slope: $y - 3 = 4(x + 2)$

Slope-Intercept: $y = 4x + 11$

Standard: $4x - y = -11$

x, y
 $(0, 2), m = \frac{1}{4}$

$$y - 2 = \frac{1}{4}(x - 0)$$

$$y - 2 = \frac{1}{4}x$$

$\begin{array}{r} +2 \\ +2 \end{array}$

$$y = \frac{1}{4}x + 2$$

$\begin{array}{r} -\frac{1}{4}x \\ -\frac{1}{4}x \end{array}$

* No Fractions Allowed

$$-4(-\frac{1}{4}x + y) = (-2) - 4$$

$$y - 2 = \frac{1}{4}x$$

Point-Slope: $y - 2 = \frac{1}{4}(x - 0)$

Slope-Intercept: $y = \frac{1}{4}x + 2$

Standard: $x - 4y = -8$

x, y
 $(2, 4), m = -\frac{3}{2}$

$$y - 4 = -\frac{3}{2}(x - 2)$$

$$y - 4 = -\frac{3}{2}x + 3$$

$\begin{array}{r} +4 \\ +4 \end{array}$

$$y = -\frac{3}{2}x + 7$$

$$+\frac{3}{2}x \quad +\frac{3}{2}x$$

$$2(\frac{3}{2}x + y) = (7)2$$

$$3x + 2y = 14$$

Point-Slope: $y - 4 = -\frac{3}{2}(x - 2)$

Slope-Intercept: $y = -\frac{3}{2}x + 7$

Standard: $3x + 2y = 14$

$$m = \frac{y-y}{x-x}$$

Write an equation in point-slope, slope-intercept, and standard form for each line.

$\begin{matrix} x & y & & x & y \\ (8, 1), & (-2, 9) \end{matrix}$
 $m = \frac{1-9}{8+2} = \frac{-8}{10} = \frac{-4}{5}$
 $(3, 0), (6, -3)$

$$y-1 = \frac{-4}{5}(x-8)$$

$$5(y-1) = \left(\frac{-4}{5}x + \frac{32}{5}\right)5$$

$$5y - \cancel{5} = -4x + 32$$

$$\frac{5y}{5} = \frac{-4x}{5} + \frac{32}{5}$$

$$y = \frac{-4}{5}x + \frac{37}{5}$$

$$5\left(\frac{4}{5}x + y\right) = \left(\frac{37}{5}\right)5$$

$$\frac{5y}{5} = \frac{-4x}{5} + \frac{37}{5}$$

Point-Slope: $y-1 = \frac{-4}{5}(x-8)$

Slope-Intercept: $y = \frac{-4}{5}x + \frac{37}{5}$

Standard: $4x + 5y = 37$

Point-Slope: _____

Slope-Intercept: _____

Standard: _____

$\begin{matrix} x & y & & x & y \\ (-1, 2), & (5, -10) \end{matrix}$
 $m = \frac{2+10}{-1-5} = \frac{12}{-6} = -2$

$$y-2 = -2(x+1)$$

$$y-2 = -2x-2$$

$$\frac{y}{+2} = \frac{-2x}{+2} + \frac{-2}{+2}$$

$$y = -2x + 0$$

$$2x + y = 0$$

Point-Slope: $y-2 = -2(x+1)$

Slope-Intercept: $y = -2x$

Standard: $2x + y = 0$