

Practice 2.2

Name: *Key*

1. Find the slope of the line through the points $(-5, -1)$ and $(2, 3)$.

$$\cancel{3 - (-1)} \quad \frac{3 + 1}{2 - (-5)} = \frac{4}{7}$$

2. Write an equation in all three forms for a line with slope 3 through $(9, -4)$.

Point-Slope Form: $y + 4 = 3(x - 9)$

Slope-Intercept Form: $y = 3x - 31$

Standard Form: $3x - y = 31$

$$\begin{array}{r} y + 4 = 3x - 27 \\ -4 \qquad -4 \\ \hline y = 3x - 31 \\ -3x \quad -3x \\ \hline -1(-3x + y = -31) \\ 3x - y = 31 \end{array}$$

3. Write in point-slope form an equation of the line through the points $(-3, 8)$ and $(7, 6)$. Use $(-3, 8)$ as the point for the equation.

$$y - 8 = -\frac{1}{5}(x + 3)$$

$$\frac{6 - 8}{7 + 3} = \frac{-2}{10} = -\frac{1}{5}$$

$$y - 8 = -\frac{1}{5}x + \frac{-3}{5} + \frac{40}{5}$$

Now write in slope-intercept form and standard form.

Slope-intercept: $y = -\frac{1}{5}x + \frac{37}{5}$ (or)

Standard: ~~Equation~~ $1x + 5y = 37$

$$\begin{aligned} y &= -\frac{1}{5}x + 7.4 \\ \frac{5}{1} \left(y = -\frac{1}{5}x + \frac{37}{5} \right) \\ 5y &= -\frac{5}{5}x + \frac{185}{5} \\ 5y &= -1x + 37 \\ +1x \quad +1x \end{aligned}$$

4. Write the equation $3x - 12y = 6$ in slope-intercept form. What is the slope? What is the y-intercept?

$$\begin{array}{r} 3x - 12y = 6 \\ -3x \qquad -3x \\ \hline -12y = \frac{-3x + 6}{-12} \end{array}$$

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

Slope = $\frac{1}{4}$
y-int = $(0, -\frac{1}{2})$