

Point-Slope Form

An equation of the form $y - y_1 = m(x - x_1)$ is called the **point-slope form** for the equation of a line that contains the point (x_1, y_1) and has slope m .

Slope-Intercept Form of the Equation of a Line

The **slope-intercept form** of the equation of a nonvertical line with slope m and y-intercept b is

$$y = mx + b$$

Graphing $y = mx + b$ Using the Slope and y-intercept

1. Plot the point containing the y-intercept on the y-axis. This is the point $(0, b)$.
2. Obtain a second point using the slope, m . Write m as a fraction, and use rise over run, starting at the point containing the y-intercept, to plot this point.
3. Use a straightedge to draw a line through the two points. Draw arrowheads at the ends of the line to show that the line continues indefinitely in both directions.

Example 2: Use the given conditions to write an equation for each line in point-slope form and slope-intercept form.