Equations of Lines
Preliminaries and Objectives

Preliminaries
- Slope-Intercept Form of a Line
- Point-Slope Form of a Line

Objectives
- Review the methods to determine the equation of a line
We may be given the slope

If given two points, use the slope formula

\[ m = \frac{y_2 - y_1}{x_2 - x_1} \]

Parallel lines have the same slope

If \( m \) is the slope of a line, then \(-\frac{1}{m}\) is the slope of a line perpendicular to the first line
Points on Lines

- Given a point \((x_0, y_0)\), use the point-slope form

  \[(y - y_0) = m(x - x_0)\]

- If the \(y\)-intercept \(= b\), use the slope-intercept form

  \[y = mx + b\]

- If the \(y\)-intercept \(= b\), the line goes through the point \((0, b)\)
- If the \(x\)-intercept \(= a\), the line goes through the point \((a, 0)\)