Equations of Lines

UNIVERSITY OF MINNESOTA

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

Slope

- 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 $-\dfrac{1}{m}$ 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 $(a, 0)$