Defn  The **slope** of a line passing through points \((x_1, y_1) \& (x_2, y_2)\) is
\[
m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}
\]

Notes: 1) A horizontal line has slope 0.
2) A vertical line has an undefined slope.

Defn (Point-Slope Formula)
The equation of a line with slope \(m\) passing through point \((x_1, y_1)\) is
\[
y - y_1 = m(x - x_1)
\]

Defn (Slope-Intercept Formula)
An equation for a line with slope \(m\) \& y-intercept \(b\) is
\[
y = mx + b
\]

Defn 1) Two lines are **parallel** \((\parallel)\) if their slopes are equal \((L_1 \parallel L_2 \iff m_1 = m_2)\)
2) Two lines are **perpendicular** \((\perp)\) if their slopes are negative reciprocals (i.e. \(L_1 \perp L_2 \iff m_1 = -\frac{1}{m_2} \implies m_1 \cdot m_2 = -1\))