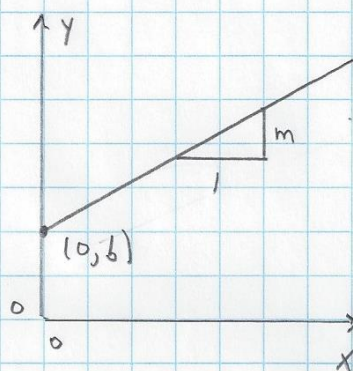


1A.1. Equations of Lines

1 of 2



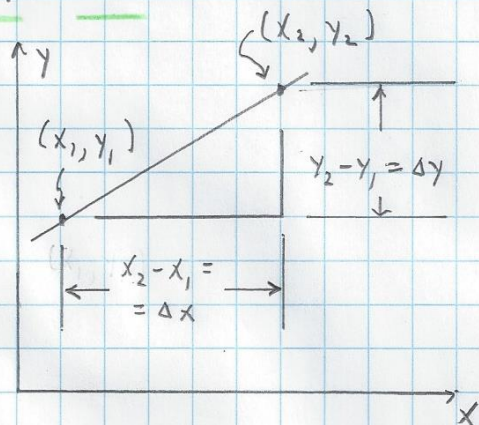
$$y = mx + b$$

slope-intercept form

$$m \equiv \text{slope} = \frac{\text{rise}}{\text{run}}$$

b \equiv y-intercept

Slope Formula



$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$$

Δ \equiv difference

Example #1. Find the equation of the line which has slope $-\frac{1}{3}$ and which passes through the point (6, 8).

SOLUTION:

$$y = mx + b, \quad y = -\frac{1}{3}x + b, \quad 8 = -\frac{1}{3}(6) + b$$

$$8 = -2 + b, \quad b = 10, \quad y = -\frac{1}{3}x + 10 \leftarrow$$

1A.1. Equations of Lines

2 of 2

Example #2. Find the equation of the line which passes through the two points $(-2, -1)$ and $(4, 8)$.

SOLUTION:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - (-1)}{4 - (-2)} = \frac{9}{6} = \frac{3}{2}, \quad y = mx + b,$$

$$y = \frac{3}{2}x + b, \quad 8 = \frac{3}{2}(4) + b, \quad 8 = 6 + b, \quad b = 2, \quad y = \frac{3}{2}x + 2 \leftarrow$$