

$$y = mx + b.$$

$$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$b = y$ -intercept.

eg Find eq. of line through $(-2, 1)$ and $(2, 3)$.

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

$\Rightarrow y = \frac{1}{2}x + b.$ Sub either point; say $x = -2, y = 1$

$$1 = \frac{1}{2}(-2) + b \Rightarrow 1 = -1 + b \Rightarrow b = 2$$

$$\Rightarrow \boxed{y = \frac{1}{2}x + 2}$$