

## Residual Sum of Squares (RSS)

$$\sum_{i=1}^n (y_i - \hat{y}_i)^2 \rightarrow \min \quad | \quad \hat{y}_i = b_0 + b_1 x_i$$

$$S(b_0, b_1) = \sum_{i=1}^n (y_i - b_0 - b_1 x_i)^2 \rightarrow \min_{b_0, b_1}$$

$$\frac{\partial S(b_0, b_1)}{\partial b_0} = -2 \sum_{i=1}^n (y_i - b_0 - b_1 x_i) \doteq 0$$

$$\frac{\partial S(b_0, b_1)}{\partial b_1} = -2 \sum_{i=1}^n (y_i - b_0 - b_1 x_i) x_i \doteq 0$$

