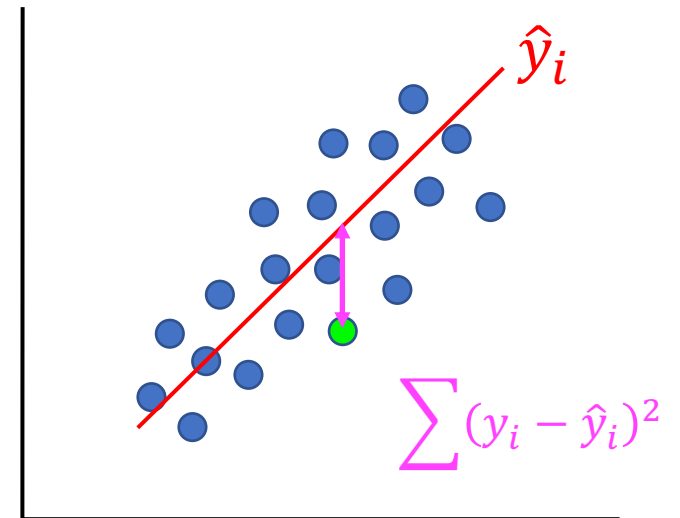
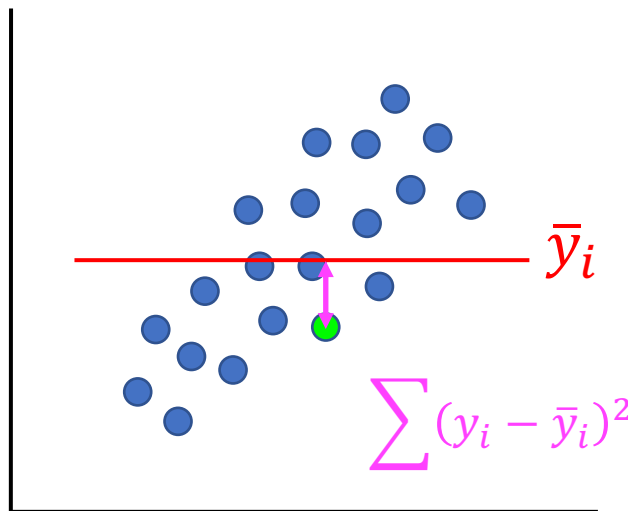
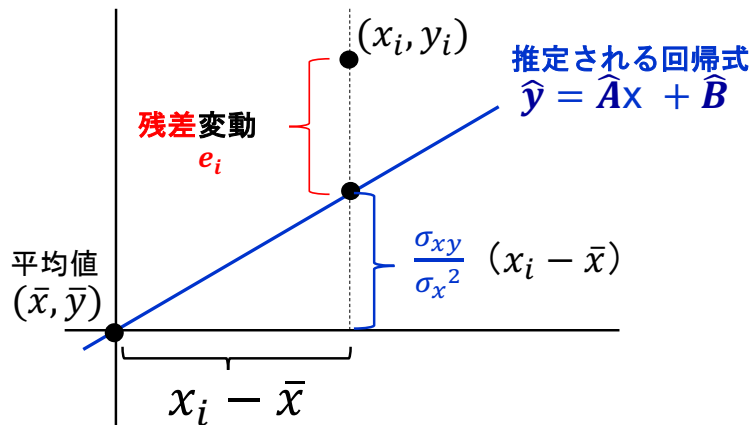


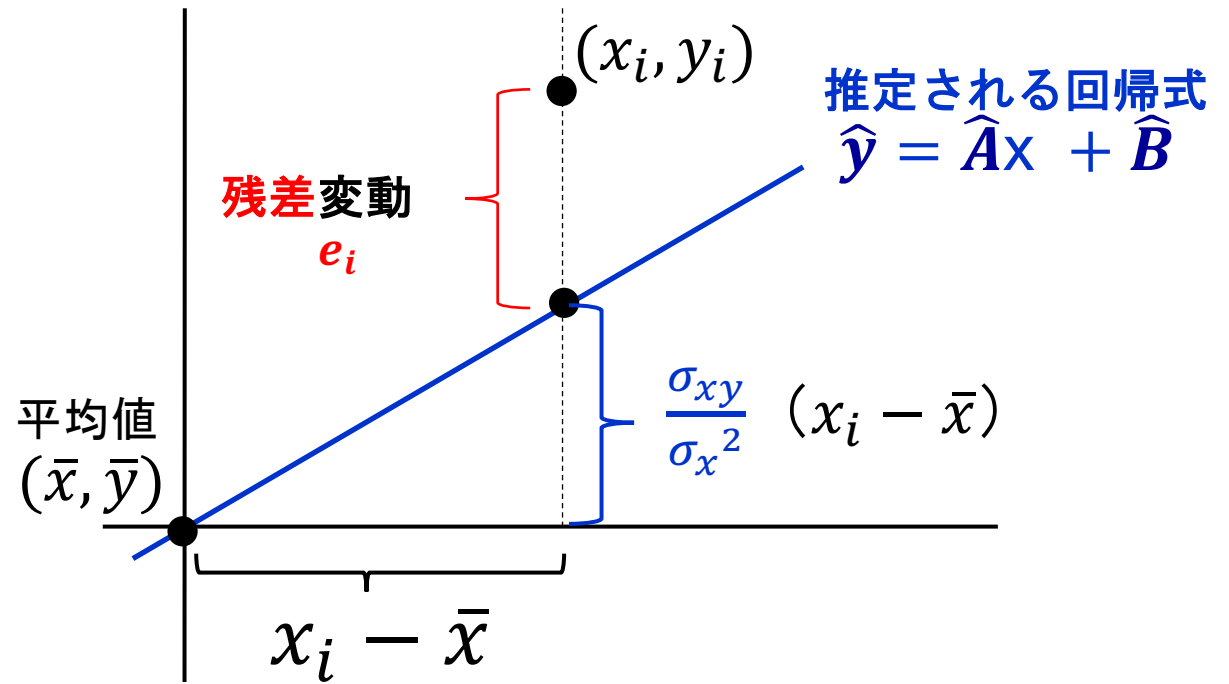
回帰分析においてモデルの良し悪しを評価するには？

評価指標	算出式	意味
MAE(Mean Absolute Error)	$\frac{1}{n} \sum \hat{y}_i - y_i $	予測値と実測値との差の絶対値
MSE(Mean Square Error)	$\frac{1}{n} \sum (\hat{y}_i - y_i)^2$	予測値と実測値との差の二乗
RMSE(Root Mean Square Error)	$\sqrt{\frac{1}{n} \sum (\hat{y}_i - y_i)^2}$	MSEの平方根
寄与率(決定係数)	$1 - \frac{\sum (y_i - \hat{y}_i)^2}{\sum (y_i - \bar{y}_i)^2}$	回帰式の当てはまりを0~1で評価



決定係数 R^2

回帰式への
当てはまり度



$$y_i - \bar{y} = \frac{\sigma_{xy}}{\sigma_x^2} (x_i - \bar{x}) + e_i$$

$$\sum_{i=1}^n (y_i - \bar{y})^2 = \left(\frac{\sigma_{xy}}{\sigma_x^2}\right)^2 \sum_{i=1}^n (x_i - \bar{x})^2 + \sum_{i=1}^n e_i^2$$

$$R^2 = \frac{\left(\frac{\sigma_{xy}}{\sigma_x^2}\right)^2 \sum_{i=1}^n (x_i - \bar{x})^2}{\sum_{i=1}^n (y_i - \bar{y})^2} = 1 - \frac{\sum_{i=1}^n e_i^2}{\sum_{i=1}^n (y_i - \bar{y})^2}$$

$$R^2 = \frac{\text{回帰変動の平方和}}{\text{全体変動の平方和}} = 1 - \frac{\text{残差変動の平方和}}{\text{全体変動の平方和}}$$