Numerical Exercise (Let's Solve Together)

Observation	1st sibling age (X)	2nd sibling age (Y)
1	20	18
2	18	16
3	20	16
4	20	18

$$\hat{\alpha} = \bar{Y} - \hat{\beta}\bar{X}$$

$$\hat{\beta} = \frac{\sum_{i=1}^{n}(Y_i - \overline{Y})(X_i - \overline{X})}{\sum_{i=1}^{n}(X_i - \overline{X})^2}$$

$$\text{RMSE} = \sqrt{\frac{1}{n}\text{SSR}} = \sqrt{\frac{1}{n}\sum_{i=1}^{n}\hat{\epsilon}_i^2}$$

$$\text{TSS} = \sum_{i=1}^{n}(Y_i - \overline{Y})^2 \qquad R^2 = 1 - \frac{SSR}{TTS}$$

- Predict Y using X: $\hat{\alpha}, \hat{\beta}$
- SSR
- RMSE
- TTS
- R^2