

Numerical Summaries

A list of numbers can be described as follows:

$$\begin{aligned}n &= \text{size of the list} \\i &= \text{index from 1 to } n \\x_i &= i^{\text{th}} \text{ number on the list.}\end{aligned}$$

The average of a list of numbers can be expressed as:

$$\begin{aligned}\bar{x} &= \frac{1}{n}(x_1 + x_2 + \cdots + x_n) \\&= \frac{1}{n} \sum_{i=1}^n x_i\end{aligned}$$

The SD or root mean square error of a list of numbers can be expressed as:

$$SD(x) = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}$$

Refresher on notation

1. $\sum_{i=1}^4 i$

2. $(\sum_{i=1}^4 i)^2$

3. $\sum_{i=1}^4 (i)^2$

4. $\sum_{i=1}^4 2i$

5. $\sum_{i=1}^4 (2 + i)$