

$$X = \{ 43.1, 48.9, 42.6, 43.7, 41.0 \}$$

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 x_1 x_2 x_3 x_4 x_5

X is a sample of 5 outcomes

$$\begin{aligned} \sum_{i=1}^5 x_i &= x_1 + x_2 + x_3 + x_4 + x_5 \\ &= 43.1 + 48.9 + 42.6 + 43.7 + 41.0 \\ &= 219.3 \end{aligned}$$

You can add up the outcomes in sample X .

$$\begin{aligned} \sum_{i=1}^5 x_i^2 &= x_1^2 + x_2^2 + x_3^2 + x_4^2 + x_5^2 \\ &= (43.1)^2 + (48.9)^2 + (42.6)^2 + (43.7)^2 + (41.0)^2 \\ &= 9654.27 \end{aligned}$$

You can add up the squared outcomes in sample X .

So, the mean of sample X is:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = \frac{1}{n} (x_1 + x_2 + \dots + x_n)$$

and the variance of sample X is:

$$\begin{aligned} s^2 &= (n-1)^{-1} \sum_{i=1}^n (x_i - \bar{x})^2 \\ &= \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2 \\ &= \frac{1}{n-1} \left[(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots + (x_n - \bar{x})^2 \right] \end{aligned}$$

Since sample X has 5 outcomes, then $n=5$.

and the standard deviation of sample X is:

$$s = \sqrt{s^2} = \sqrt{\frac{1}{n-1} \left[(x_1 - \bar{x})^2 + \dots + (x_n - \bar{x})^2 \right]}$$