population variance

$$\sigma^2 = \frac{1}{N} \sum_i (x_i - \mu)^2 \qquad \text{(definitional formula)}$$

$$= \frac{1}{N} \left(SS - \frac{S}{N} \right) \qquad \text{(computational formula)}$$

$$\text{where} \quad S = \sum_i x_i \quad \text{and} \quad SS = \sum_i x_i^2$$

sample variance

$$s^2 = \frac{1}{n-1} \sum_i (x_i - \bar{x})^2 \qquad \text{(definitional formula)}$$

$$= \frac{1}{n-1} \left(SS - \frac{S}{n} \right) \qquad \text{(computational formula)}$$

population standard deviation and sample standard deviaton

The standard deviation is the square root of the variance. So we take the square root of the above formulas to find the population standard deviation σ and the sample standard deviation s.