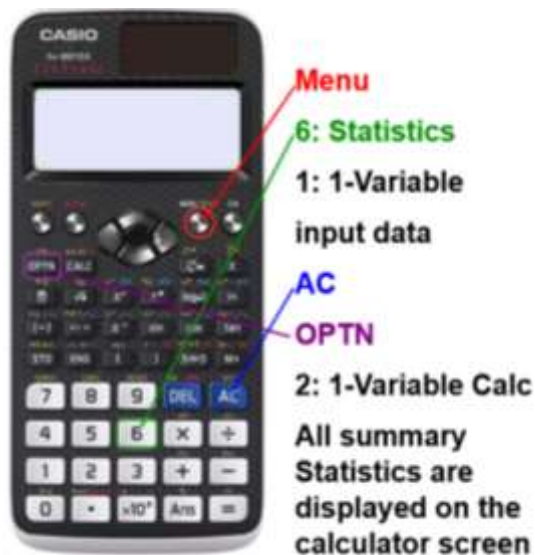
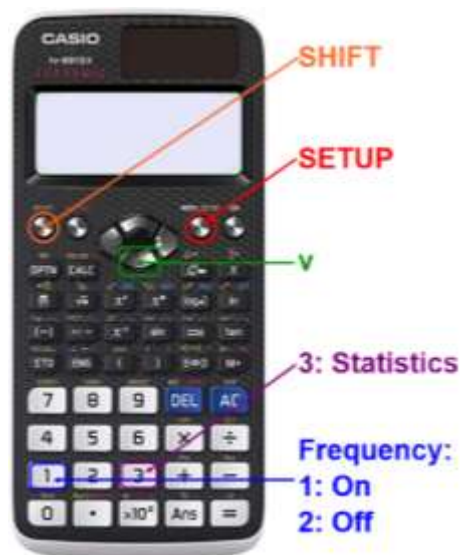


Variance and Standard Deviation using the Casio ClassWiz



Variance and Standard Deviation

$\sum x$ = the sum of x

$\sum x^2$ = the sum of x^2

n = total number of observations

$\sigma^2 x$ = population variance

σx = population standard deviation

$s^2 x$ = sample variance

$s x$ = sample standard deviation

Population Variance

$$\frac{\sum x^2}{N} - \mu^2 = \frac{1}{N} \sum (x - \mu)^2$$

Population Standard Deviation

$$\sqrt{\frac{\sum x^2}{N} - \mu^2} = \sqrt{\frac{1}{N} \sum (x - \mu)^2}$$

Sample Variance

$$\frac{1}{n-1} \left(\sum x^2 - \frac{(\sum x)^2}{n} \right) = \frac{1}{n-1} \sum (x - \bar{x})^2$$

Sample Standard Deviation

$$\sqrt{\frac{1}{n-1} \left(\sum x^2 - \frac{(\sum x)^2}{n} \right)} = \sqrt{\frac{1}{n-1} \sum (x - \bar{x})^2}$$