

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

Standard deviation is just another way of characterizing **variance**.

We take the square root of the variance because this provides a “unit of measurement” that’s more interpretable.

So, if the variance is 9 units^2 , then standard deviation is 3 units , a value we can more readily use and interpret in our analyses.

HOWEVER, the formulae we use for a sample and a population are different!

Most researchers almost never work with population data.

We use samples to infer the population's variance.

	<i>Population</i>	<i>Estimate Based on a Sample</i>
Variance	$\sigma^2 = \frac{\Sigma(X - \mu)^2}{N}$ <p>where Σ = to sum X = a score in the distribution μ = the population mean N = the number of cases in the population</p>	$s^2 = \frac{\Sigma(X - \bar{X})^2}{n-1}$ <p>where Σ = to sum X = a score in the distribution \bar{X} = the sample mean n = the number of cases in the sample</p>
Standard Deviation	$\sigma = \sqrt{\frac{\Sigma(X - \mu)^2}{N}}$ <p>where Σ = to sum X = a score in the distribution μ = the population mean N = the number of cases in the Population</p>	$s = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n-1}}$ <p>where Σ = to sum X = a score in the distribution \bar{X} = the sample mean n = the number of cases in the sample</p>

