

Formulas and More

Notation/Formulas:

	Population	Sample
Size	N	n
Mean	$\mu = \frac{\sum x}{N}$	$\bar{x} = \frac{\sum x}{n}$
Variance	$\sigma^2 = \frac{N \sum x^2 - (\sum x)^2}{N^2}$	$s^2 = \frac{n \sum x^2 - (\sum x)^2}{n(n-1)}$
Standard deviation	$\sigma = \sqrt{\sigma^2}$	$s = \sqrt{s^2}$

Z-Score:

Population	Sample
$Z = \frac{x - \mu}{\sigma}$	$Z = \frac{x - \bar{x}}{s}$

Usual Range/Ordinary Values:

Population	Sample
$[\mu - 2\sigma, \mu + 2\sigma]$	$[\bar{x} - 2s, \bar{x} + 2s]$
$-2 \leq Z \leq 2$	$-2 \leq Z \leq 2$

Range rule of Thumb: $s \approx \frac{\text{Range}}{4}$