Three Standard Deviations

Big S = $\sqrt{\frac{\Sigma(X_i-\bar{X})^2}{N}} = S$ Sample

SIGMA = $\sqrt{\frac{\Sigma(X_i-\mu)^2}{N}} = \sigma$ Population

Little s = $\sqrt{\frac{\Sigma(X_i-\bar{X})^2}{N-1}} = \hat{s}$ estimate $\rightarrow \sigma$

Short Cut Formulas –What you should use form this point on.

Raw Score –

	X^2
10	
8	
7	
6	
4	
$\Sigma X=$	$\Sigma X^2=$

$s = \sqrt{\frac{\Sigma X_i^2 - \frac{(\Sigma X_i)^2}{N}}{N-1}}$

Simple Frequency-

X	F	X^2	FX^2	FX
12	2			
11	2			
10	4			
9	7			
8	4			
6	2			
5	1			
			ΣFX^2	ΣFX

$s = \sqrt{\frac{\Sigma f X_i^2 - \frac{(\Sigma f X_i)^2}{N}}{N-1}}$

What's $\sum FX^2$ versus $(\sum FX)^2$?

******Only difference for big S and Sigma is "n" in denominator not " n-1"******

Grouped-

$$\sqrt{\frac{\sum f X^2_{mid} - \frac{(\sum f X_{mid})^2}{N}}{N-1}} = s$$

Class interval	Freq	X^{mid2}	FX^{mid2}	FX^{mid}
15-9	3			
10-14	6			
5-9	1			