## VISUAL SUMMARY

Finding the Variance and Standard Deviation of a Grouped Frequency Distribution
Before You Begin: Compute the mean of the grouped frequency distribution.

Compute the deviation score for each class interval by subtracting the mean from the midpoint:
( $x=$ midpoint - mean $)$

Square each deviation score: $\left(x^{2}\right)$

Multiply each squared deviation score by the frequency in that class interval: $\left(F \cdot x^{2}\right)$


Sum these products:

$$
\Sigma\left(F \cdot x^{2}\right)
$$

Divide the sum by the number of scores minus 1 to compute the variance:

$$
S^{2}=\frac{\Sigma\left(F \cdot x^{2}\right)}{n-1}
$$

The standard deviation is the square root of the variance:
$S=\sqrt{S^{2}}=\sqrt{\frac{\Sigma\left(F \cdot x^{2}\right)}{n-1}}$

