2.11: Formula Review

2.3: Measures of the Location of the Data

$i = \left(\frac{k}{100}\right)(n+1)$

where $i =$ the ranking or position of a data value,

$k =$ the kth percentile,

$n =$ total number of data.

Expression for finding the percentile of a data value: $\left(\frac{x+0.5y}{n}\right)(100)$

where $x =$ the number of values counting from the bottom of the data list up to but not including the data value for which you want to find the percentile,

$y =$ the number of data values equal to the data value for which you want to find the percentile,

$n =$ total number of data

2.4: Measures of the Center of the Data

$\mu = \frac{\sum fm}{\sum f}$ Where $f =$ interval frequencies and $m =$ interval midpoints.

The arithmetic mean for a sample (denoted by $\bar{x}$) is $\bar{x} = \frac{\text{Sum of all values in the sample}}{\text{Number of values in the sample}}$

The arithmetic mean for a population (denoted by μ) is $\mu = \frac{\text{Sum of all values in the population}}{\text{Number of values in the population}}$

2.6: Geometric Mean

The Geometric Mean: $\tilde{x} = \left(\prod_{i=1}^{n} x_i\right)^{\frac{1}{n}} = \sqrt[n]{x_1 \cdot x_2 \cdots x_n} = (x_1 \cdot x_2 \cdots x_n)^{\frac{1}{n}}$

2.7: Skewness and the Mean, Median, and Mode

Formula for skewness: $a_3 = \sum \frac{(x_i - \bar{x})^3}{ns^3}$

Formula for Coefficient of Variation: $CV = \frac{s}{\bar{x}} \cdot 100$ conditioned upon $\bar{x} \neq 0$

$s_x =$ sample standard deviation

$\bar{x} =$ sample mean