

Statistics: Review Sheet

Describing Distributions Numerically

Otherwise known as Computing Center, Shape & Spread



- Compute the 5 Number Summary & Build a Box Plot
- Compute the 4 "Centers" of Distribution
 - Mean, Median, Mode , & Mid-Range
- Compute the "Spread" of the Distribution
 - Range, Standard Deviation, & IQR
- Check for Outliers (using the 1.5 IQR Rule)
- Know what Percentiles, Deciles and Quartiles are.

Box Plot
Decile
Five-number Summary
IQR
Lower Hinge
Upper Hinge
Mean
Median
Midrange
Mode
Modal Class
Outlier
Percentiles
Quartiles
Standard Deviation
Stem & Leaf Plot
Variance
Weighted Mean

Important Formulas

Range

$$R = Max - Min$$

Mid Range

$$MR = \frac{Min + Max}{2}$$

Mean of Finite or Individual Data

$$\bar{x} = \frac{\sum x}{n}$$

Mean of "Grouped" Data

$$\bar{x} = \frac{\sum X_m \cdot f}{n}$$

"Weighted" Mean

$$\bar{x} = \frac{\sum w \cdot X}{\sum w}$$

Median of Grouped Data

$$MD = \frac{(\frac{n}{2}) - cf_{pre}}{f_{mc}} \cdot w + Lcb_{mc}$$

Interquartile range (IQR)

$$IQR = Q_3 - Q_1$$

Corresponding value for a given Percentile

$$c = \frac{np}{100}$$

Percentile for a given value

$$P_x = \frac{\# \text{ of values below} + 0.5}{n} \cdot 100\%$$

Outlier Check

$$O_{max} = Q_3 + IQR \cdot 1.5$$

$$O_{min} = Q_1 - IQR \cdot 1.5$$

Variance

$$\sigma^2 = \frac{\sum (x - \bar{x}) \cdot f}{n}$$

Percentile of "Grouped" Data

$$P = \frac{(\frac{np}{100}) - cf_{pre}}{f_{pc}} \cdot w + Lcb_{pc}$$

Standard Deviation

$$\sigma = \sqrt{\frac{\sum (x - \bar{x}) \cdot f}{n}}$$

