



MATH225

Quartiles S Box Plots

Fractals

Fractals are numbers that partition, or divide, an ordered data set into equal parts.

Quartiles

Divide an ordered data set into **4** equal parts.

- a) Arrange data from least to greatest.
- b) Find the Median = Q_2
- c) Even amount of data points—split the data into two equal groups and find the median of the lower half = Q_1 . Find the median of the upper half = Q_3 .

Odd amount of data points—split the data into two equal groups...do NOT use the median. Find the median of the lower half = Q_1 . Find the median of the upper half = Q_3 .

Interquartile Range—is a measure of variation that gives the range of the middle 50% of the data. It is the difference between the third and first quartiles.

$$IQR = Q_3 - Q_1$$

Review: Outlier: Data value far removed from data set

IQR Rule: A data value is an outlier if it is above Q_3 by an amount greater than $1.5(IQR)$ or below Q_1 by an amount greater than $1.5(IQR)$.

$$1. \ IQR = Q_3 - Q_1 \qquad 2. \ LF = Q_1 - 1.5 * IQR \qquad 3. \ UF = Q_3 + 1.5 * IQR$$

Example: Identify any outliers (using the $1.5 \times IQR$ rule).

54, 63, 49, 39, 86, 97, 36, 45, 87, 57, 65, 60, 32, 11, 56