

Mean, Median, Mode, Range, Interquartile Range

Mean

The "Mean" is the average of a set of numbers.

The "Mean" is computed by adding all of the numbers in the data together and dividing by the number of elements contained in the data set.

Example: Data Set = 2, 5, 9, 7, 5, 4, 3
Number of Elements in Data Set = 7
Mean = $(2 + 5 + 9 + 7 + 5 + 4 + 3) / 7 = 5$

Median

The "Median" is the middle value of a set of **ordered** numbers.

The "Median" of a data set is dependent on whether the number of elements in the data set is odd or even. First reorder the data set from the smallest to the largest. If the number of elements is odd, then the Median is the element in the middle of the data set. If the number of elements is even, then the Median is the average of the two middle terms.

Example: Odd Number of Elements
Data Set = 2, 5, 9, 7, 5, 4, 3
Reordered = 2, 3, 4, 5, 5, 7, 9 - the middle term is 5
Median = 5

Example: Even Number of Elements
Data Set = 2, 5, 9, 3, 5, 4
Reordered = 2, 3, 4, 5, 5, 9 - the middle terms are 4 and 5
Median = $(4 + 5) / 2 = 4.5$ - the median is the average of the two middle terms

Mode

The "Mode" for a set of data is the value that occurs most often.

It is not uncommon for a data set to have more than one mode. This happens when two or more elements occur with equal frequency in the data set.

Example: One Mode
Data Set = 2, 5, 9, 7, 5, 4, 3
Mode = 5

Examples: Two Modes
Data Set = 2, 5, 2, 3, 5, 4, 7
Modes = 2 and 5

Example: Three Modes
Data Set = 2, 5, 2, 7, 5, 4, 7
Modes = 2, 5, and 7

Range

The "Range" is the difference between the largest value and smallest value in a set of data.

First reorder the data set from smallest to largest then subtract the first element from the last element.

Example:

Data Set = 2, 5, 9, 7, 5, 4, 3

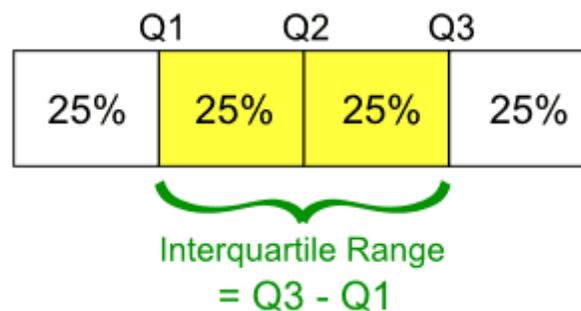
Reordered = 2, 3, 4, 5, 5, 7, 9

Range = (9 - 2) = 7

Interquartile Range

The "Interquartile Range" is the difference between smallest value and the largest value of the middle 50% of a set of data.

The "Interquartile Range" is from Q1 to Q3:



To find the interquartile range of a set of data:

- First put the list of numbers in order
- Then cut the list into four equal parts
- The quartiles are the "cuts"
- The interquartile range is the distance between the two middle sets of data