

Five Number Summary

There are a variety of descriptive statistics. Numbers such as the [mean](#), [median](#), [mode](#), [skewness](#), and [standard deviation](#), to name a few, each tell us something about our data. Rather than looking at these [descriptive statistics](#) individually, sometimes combining them helps to give us a more complete picture. With this end in mind, the five number summary is a convenient way to combine five descriptive statistics. It is intended to help us know the center of our data, as well as how spread out the data points are.

The five number summary consists of the following:

- The minimum – this is the smallest value in our data set.
- The first quartile – this number is denoted Q_1 and 25% of our data falls below the first quartile.
- The median – this is the midway point of the data. 50% of all data falls below the median.
- The third quartile – this number is denoted Q_3 and 75% of our data falls below the third quartile.
- The maximum – this is the largest value in our data set.

An Example

For the following set of 20 data points:

1, 2, 2, 3, 4, | 6, 6, 7, 7, 7, | 8, 11, 12, 15, 15, | 15, 17, 17, 18, 20

A five number summary is:

Min	Q1	Med	Q3	Max
1	5	7.5	15	20

The mean and [standard deviation](#) can also be used together to convey the center and the spread of a set of data. However, both of these statistics are susceptible to [outliers](#). The median, first quartile and third quartile are not as heavily influenced by outliers.

References:

<http://statistics.about.com/od/Descriptive-Statistics/a/What-Is-A-Five-Number-Summary.htm>

Hyndman, R. J. and Fan, Y. (1996) Sample quantiles in statistical packages, *American Statistician*, 50:361–365