

## Median

### First Quartile

For a data set with median  $M$ , the first quartile is the median of the data values less than  $M$ . Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the first quartile is 6.

A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the median is 11

### Third Quartile

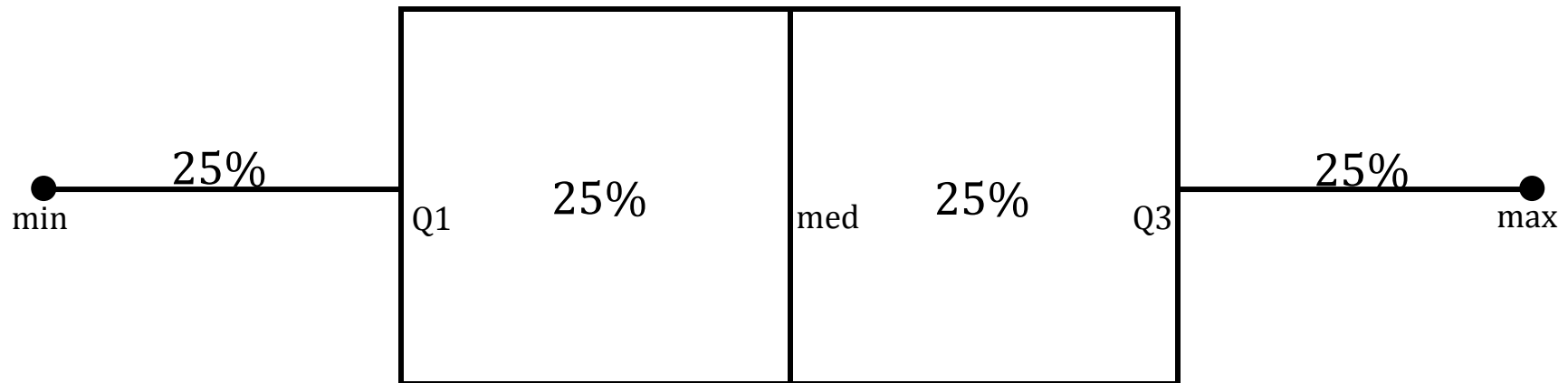
For a data set with median  $M$ , the third quartile is the median of the data values greater than  $M$ . Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the third quartile is 15.

### Upper Extreme (maximum)

The largest amount; the greatest number in a set of data.

### Lower Extreme (minimum)

The smallest amount; the smallest number in a set of data.



**Box plot (box-and-whisker plot):** A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.

Upper Extreme  
max

Third Quartile  
Q3

median  
med

First Quartile  
Q1

Lower Extreme  
min

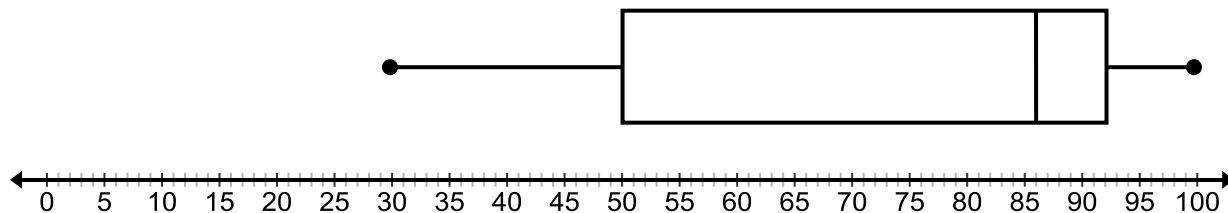
**Outlier:** A piece of numerical data that is much smaller or larger than the rest of the data in the set.

**Interquartile Range:** A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the interquartile range is  $15 - 6 = 9$ .

**Example:** Given the following test scores create a box plot of the data and label the min, Q1, med, Q3, and max.

{30, 42, 50, 67, 85, 87, 90, 92, 98, 100}

min = 30  
Q1 = 50  
med = 86  
Q3 = 92  
max = 100



# BOX PLOTS

