

Where is the data? Percentiles

The median, Q_2 is also called the 50th percentile, Q_1 is the 25th percentile and Q_3 is the 75th percentile. The IQR section contains 50% of the data.

Box-Whisker Plot Online Generator

<http://www.alcula.com/calculators/statistics/box-plot/>

OR <http://bit.ly/1ne1RZY>

Modified Box-Whisker Plot

If any value is 1.5 times the box length (IQR) above Q_3 or below Q_1 that is $Q_1 - 1.5 \times IQR$ or $Q_3 + 1.5 \times IQR$ it can be considered to be an **outlier**. Outliers are shown on a box-whisker plot as individual points.

Consider the following data set with the clear outlier at the end. The calculated information is given from the online applet above along with the box-whisker plot showing the outlier.

12, 12, 13, 14, 16, 21, 23, 26, 32, 34, 65

Sample size: 11

Median (Q_2): 21

Minimum: 12

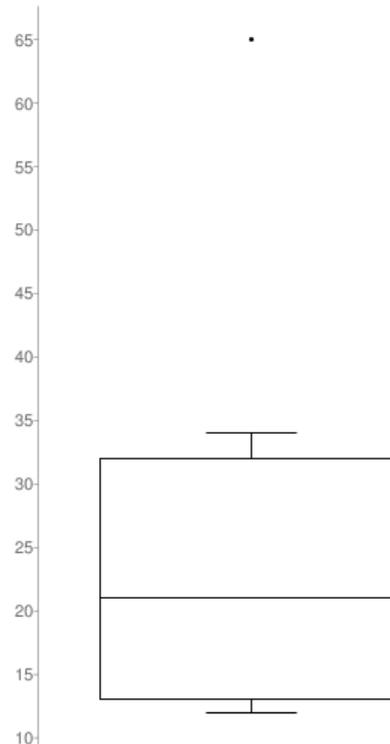
Maximum: 65

First quartile (Q_1): 13

Third quartile (Q_3): 32

Interquartile Range (IQR): 19

Outlier: 65



Example (Try This):

Consider the following data which represents the time in seconds it takes a group of students to do twenty push-ups. Calculate the median, range, Q_1 , Q_3 , and IQR for this data. Are there any outliers? Make a sketch of the box-whisker plot below. After you have done this check your work with the online applet.

39, 51, 35, 22, 28, 67, 57, 42, 56, 74, 51, 87, 99, 48, 36, 28, 57, 23, 53, 74

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List the data in order:

Median, $Q_2 =$

Range:

$Q_1 =$

$Q_3 =$

IQR =

Look for outliers:

Above? $Q_3 + 1.5 \times IQR =$

Below? $Q_1 - 1.5 \times IQR =$