

Drawing Box and Whisker Plots

A Box and Whisker plot is a statistical diagram used to display and compare discrete and continuous data.

The statistics needed to plot a Box and Whisker plot are:

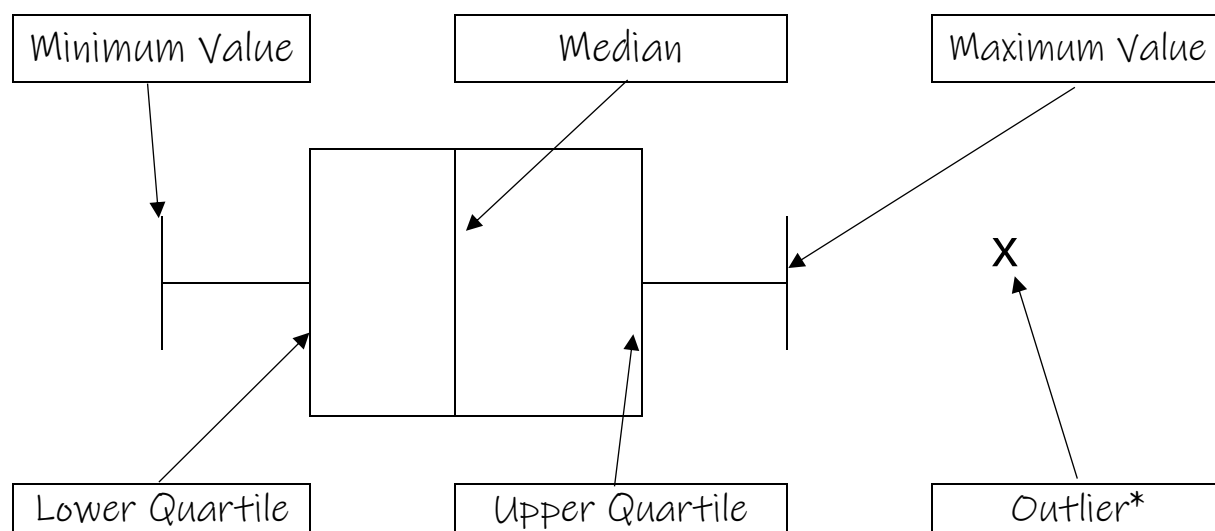
- Minimum Value Q_0
- Lower Quartile ($1/4 (n+1)^{th}$ value) Q_1
- Median ($1/2 (n+1)^{th}$ value) Q_2
- Upper Quartile ($3/4 (n+1)^{th}$ value) Q_3
- Maximum Value Q_4

These values can be obtained from raw data sets or cumulative frequency diagrams

REMINDER:

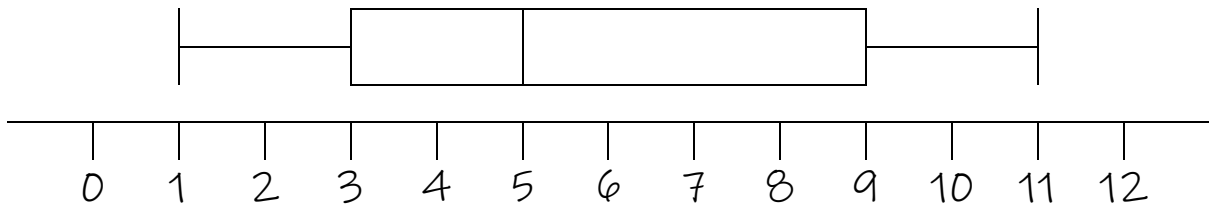
The range is the maximum value – minimum value

The IQR is the upper quartile – lower quartile

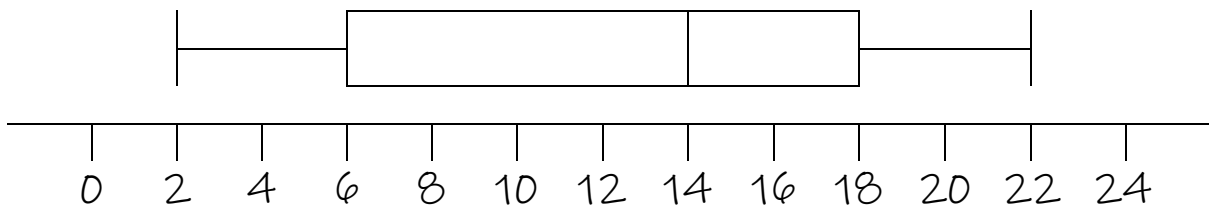


** See outliers for separate notes on this*

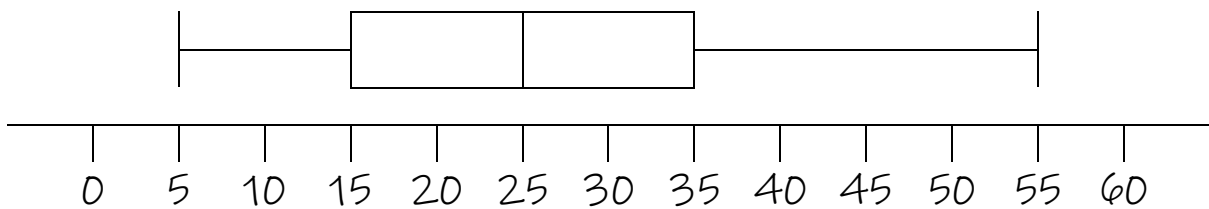
For each of the following Box and Whisker Plots, State the values of each of the 5 quartiles, calculate the range and IQR



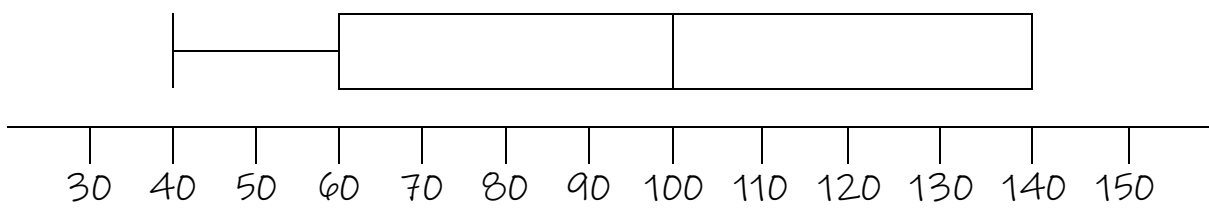
$Q_0 =$ _____ $Q_1 =$ _____ $Q_2 =$ _____ $Q_3 =$ _____
 $Q_4 =$ _____ Range = _____ IQR = _____



$Q_0 =$ _____ $Q_1 =$ _____ $Q_2 =$ _____ $Q_3 =$ _____
 $Q_4 =$ _____ Range = _____ IQR = _____

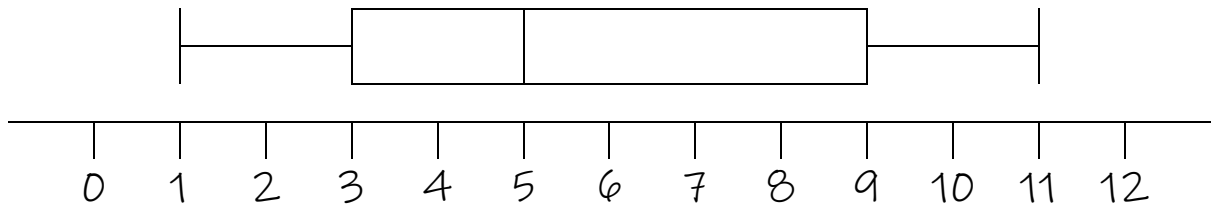


$Q_0 =$ _____ $Q_1 =$ _____ $Q_2 =$ _____ $Q_3 =$ _____
 $Q_4 =$ _____ Range = _____ IQR = _____



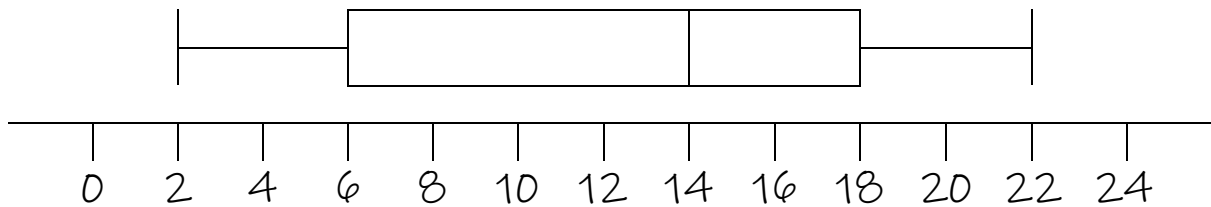
$Q_0 =$ _____ $Q_1 =$ _____ $Q_2 =$ _____ $Q_3 =$ _____
 $Q_4 =$ _____ Range = _____ IQR = _____

Solutions



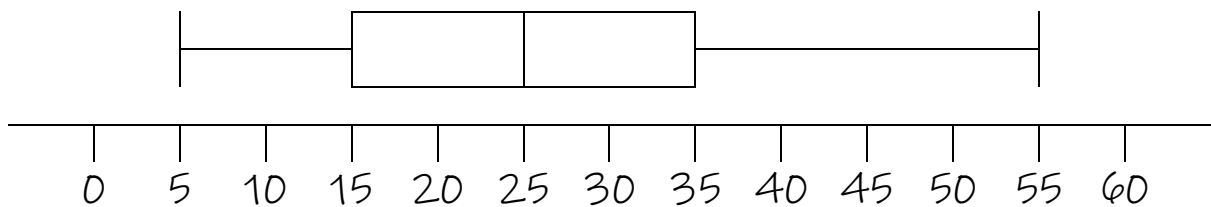
$$Q_0 = \underline{1} \quad Q_1 = \underline{3} \quad Q_2 = \underline{5} \quad Q_3 = \underline{9}$$

$$Q_4 = \underline{11} \quad \text{Range} = \underline{11 - 1 = 10} \quad \text{IQR} = \underline{9 - 3 = 6}$$



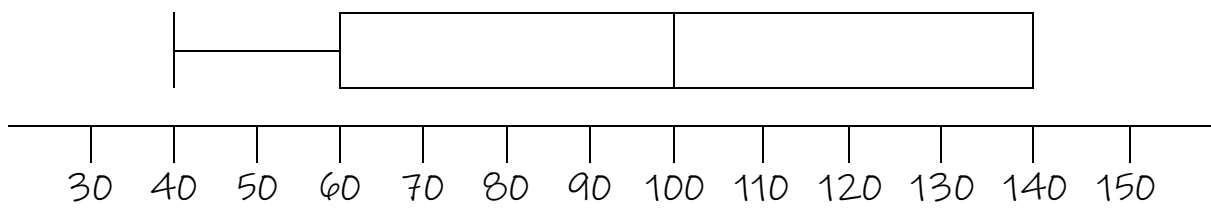
$$Q_0 = \underline{2} \quad Q_1 = \underline{6} \quad Q_2 = \underline{14} \quad Q_3 = \underline{18}$$

$$Q_4 = \underline{22} \quad \text{Range} = \underline{22 - 2 = 20} \quad \text{IQR} = \underline{18 - 6 = 12}$$



$$Q_0 = \underline{5} \quad Q_1 = \underline{15} \quad Q_2 = \underline{25} \quad Q_3 = \underline{35}$$

$$Q_4 = \underline{55} \quad \text{Range} = \underline{55 - 5 = 50} \quad \text{IQR} = \underline{35 - 15 = 20}$$



$$Q_0 = \underline{40} \quad Q_1 = \underline{60} \quad Q_2 = \underline{100} \quad Q_3 = \underline{140}$$

$$Q_4 = \underline{140} \quad \text{Range} = \underline{140 - 40 = 100} \quad \text{IQR} = \underline{140 - 60 = 80}$$