Box Plots

The **box plot** (a.k.a. box and whisker diagram) is a standardized way of displaying the distribution of data based on the five number summary: minimum, first quartile, median, third quartile, and maximum.

> *Remember:*
> **Median**: Middle number (when data is in order)
> **First/Lower Quartile** (Q_1): The median of the lower half
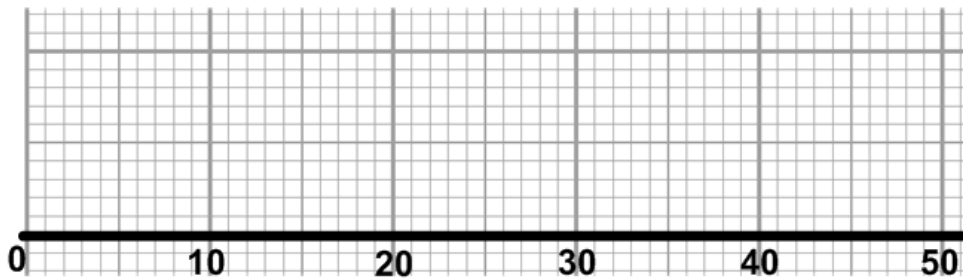> **Third/Upper Quartile** (Q_3): The median of the upper half

To make a box plot:

The 1ˢᵗ quartile and 3ʳᵈ quartile make up the outsides of the box. A vertical line in the box represents the median. The whiskers should extend to the minimum and maximum points.

Example 1.

Data points: 6   19   26   35   37   41   45

Min: 6   Lower Quartile(Q1): 19   Median: 35   Upper Quartile(Q3): 41   Max: 45

Example 2.

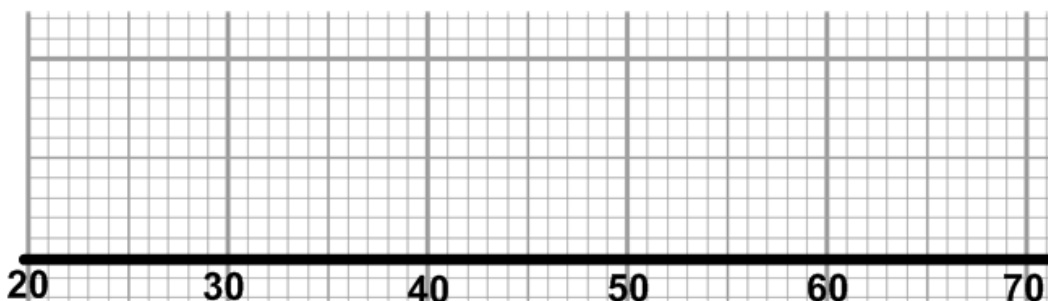Data points: 44   68   29   38   40   57   34   51   35   49

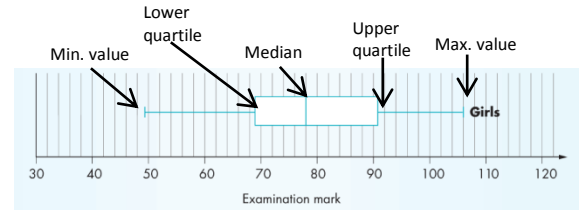Put in order first: 29   34   35   38   40   44   49   51   57   68

Min: 29   Lower Quartile(Q1): 35   Median: 42   Upper Quartile(Q3): 51   Max: 68

Box Plots

Organize the data.
Find the 5 key features.
Draw the box plot.
Make sure the box plot is drawn to scale.

1. Data points: 73   77   54   46   69   92   85   50   83   55   87   62

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

2. Data points: 59   39   49   37   66   30   45   56   41

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

Make a blot plot by entering the data into the graphing calculator.

1. Percentages from a Stats test: 90   59   50   90   84   94   70

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

Box Plots

2. Minutes spent on the computer daily: 35   40   50   70   25   35   30   40   55   65

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

3. Minutes it took to finish their math test: 48   28   45   24   37   38   24   16   35   44   32   42

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

4. Time spent studying for science finals: 42   65   36   40   52   55   36   30

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max:

5. Weight of boys on a basketball team: 139 145 159 163 165 162 174 132 140 152 164 160 142

Min: Lower Quartile(Q1):   Median: Upper Quartile(Q3):   Max: