

Chapter 12 Lesson 3

Box Plots

Vocabulary:

Box plot (box and whisker plot) - uses a number line to show the distribution of a set of data by using median, quartiles, and extreme values.

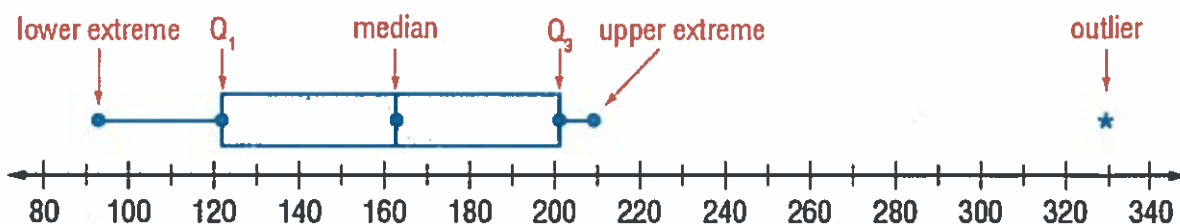
Lower extreme - smallest number on the box plot (not including outliers)

Upper extreme - largest number on the box plot (not including outliers)

1st quartile - the number that is half way between the LOWER EXTREME & the MEDIAN

3rd quartile - the number that is half way between the MEDIAN & the THIRD QUARTILE

Interquartile range - range between the quartile and the median



How to draw a box plot:

1. Arrange the data in numerical order
2. Draw a number line that will include all the data
3. Find the median, both extremes, and the 1st and 3rd quartiles
4. Mark all 5 pieces of information above the number line
5. Draw a box around both quartiles, then draw a vertical line through the median
6. Draw lines out to each extreme to make the whiskers
7. Create a title

$$\text{1st} = \frac{82 - 56}{2} = 13$$

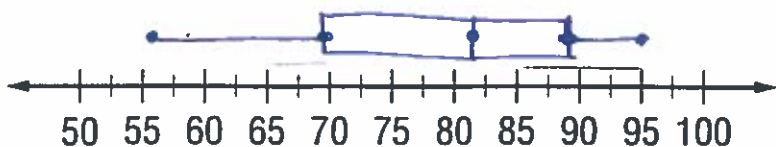
$$56 + 13 = 69$$

$$\text{3rd} = \frac{95 - 82}{2} = 13$$

$$82 + 13 = 95$$

Examples:

Greyhounds Basketball Scores
86 83 56 73 81 64 95 84 79 90



Median - 82

Lower extreme - 56

Upper extreme - 95

1st quartile - 69

3rd quartile - 88.5

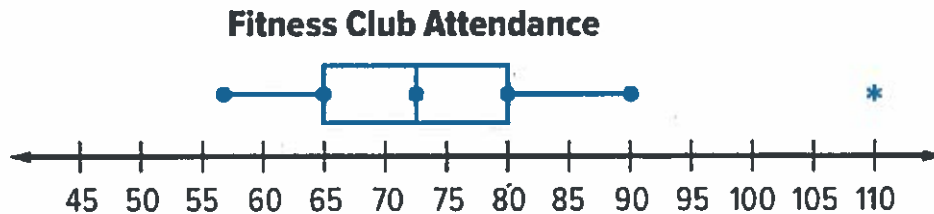
Outlier - none

Numbers least to greatest:

56, 64, 73, 79, 81, 83, 84, 86, 90, 95

Interpreting box plots

The box plot below shows the daily attendance at a fitness club. Find the median and the measures of variability. Then describe the data.



Median - 72.5

1st quartile - 65

Lower extreme - 56

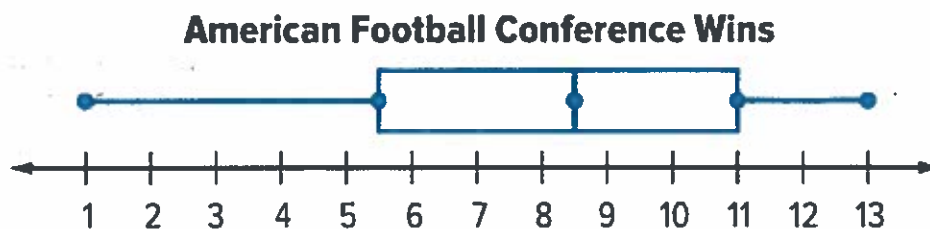
3rd quartile - 80

Upper extreme - 90

Outlier - 110

Description of the data - The median is 72.5. The 1st quartile is 65 & the 3rd quartile is 80. The outlier is 110. Both whiskers are about the same size. Therefore without the outlier the data is spread evenly below & above the quartiles.

The number of games won in the American Football Conference in a recent year is displayed below. Find the median and the measures of variability. Then describe the data.



Median - 8.5

1st quartile - 5.5

Lower extreme - 1

3rd quartile - 11

Upper extreme - 13

Outlier - none

Description of the data - The median is 8.5. the 1st quartile is 5.5 & the 3rd quartile is 11. There are no outliers. The left side of the data is more spread out where as the right side is more concentrated.