

1.) Roberto and Mary were comparing test scores in their math class. Roberto had three tests of 85, 95, and 77. Mary had three test scores of 95, 79, and 86. What is the difference between Mary and Roberto's ranges?

$$R: 95 - 77 = 18$$

$$M: 95 - 79 = 16$$



2.) At the Holiday Valley Ski Resort, skis cost \$16 to rent and snowboards cost \$19. If 28 people rented on a certain day and the resort earned \$478, how many skis and snowboards were rented?

$$x = \text{skis}$$

$$y = \text{snowboards}$$

$$16x + 19y = 478$$

$$x + y = 28$$

$$\textcircled{1} y = -x + 28$$

$$\textcircled{2} 16x + 19(-x + 28) = 478$$

$$16x - 19x + 532 = 478$$

$$-3x + 532 = 478$$

$$\begin{array}{r} -532 \\ -532 \end{array}$$

$$\hline -3x = -54$$

$$\begin{array}{r} -3 \\ -3 \end{array}$$

$$x = 18$$

18 skis
10 snowboards

Instagram 7, 3, 6, 10, 6, 2, 18, 3, 3

Phone Calls, 1

Snapchat 21, 9, 10, 18, 3, 4, 17, 6

Text Messages 3, 3, 2, 5, 4, 2, 2, 2, 10, 3

YouTube 2, 1, 2, 1, 3, 2

Sneaker Crush

Remind

Face Time

News 1

Email - 4

Twitter - 1, 2

1st Block

Instagram 3, 1, 4, 2, 2, 9, 5, 12

Phone Calls, 1, 1, 1

Snapchat 1, 2, 1, 20, 4, 5, 1

Text Messages, 1, 4, 1, 4, 4, 4, 3, 3, 5

YouTube, 3, 1, 2, 45, 3, 1

Shoe App 1

Remind

Face Time

News 2, 1, 7

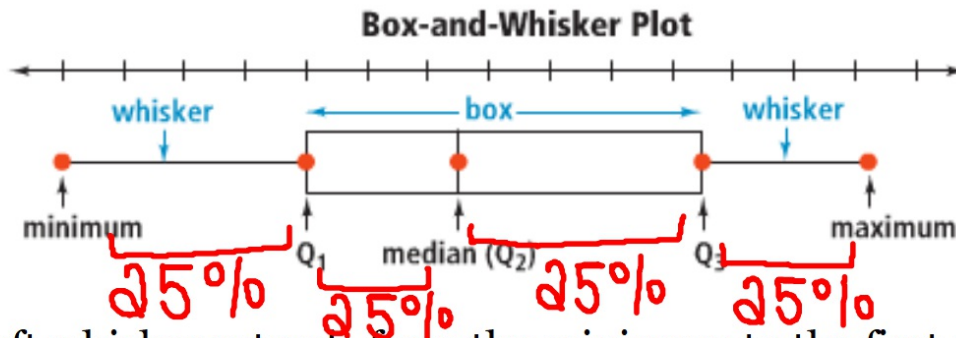
2nd Block

Box-and-Whisker Plots

- Separating data into subsets is a useful way to summarize and compare data sets
- A box-and-whisker plot displays the maximum, minimum, and quartiles of the data set.
↳ Q1, Q2, Q3
- Be sure to order the data from least to greatest.
- Quartiles are values that divide the data set into four equal parts.

Box-and-Whisker Plots

- The median (or second quartile) separates the data into upper and lower halves.
- The lower quartile is the median of the lower half of the data. Q_1
- The upper quartile is the median of the upper half of the data. Q_3
- The inter quartile range is the difference between the third and first quartiles.



The left whisker extends from the minimum to the first quartile. It represents 25% of the data.

The box extends from the first quartile to the third quartile and has a vertical line through the median. The length of the box represents the interquartile range. It contains 50% of the data.

The right whisker extends from the third quartile to the maximum. It represents 25% of the data.

Example:

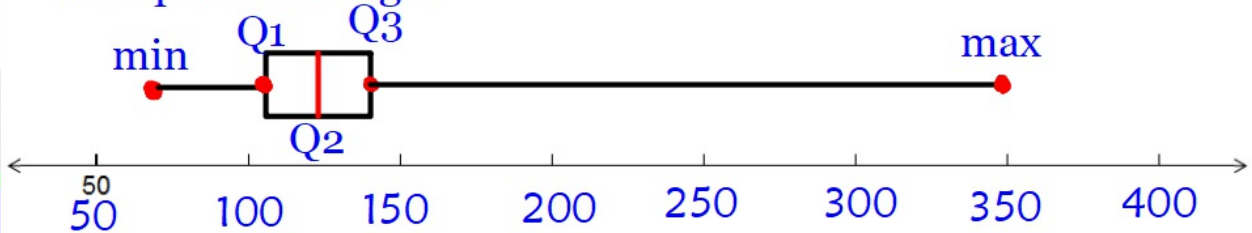
Create a box and whisker plot using the following data:

~~125, 80, 140, 135, 126, 140, 350, 75~~
~~75, 80, 125, 126, 135, 140, 140, 350~~

Minimum: 75
Q1: 102.5
Q2: 130.5
Q3: 140
Maximum: 350
Range: 275

$$\frac{120+135}{2}$$

Interquartile Range:



What percentage of the data is between ^{Q1}102.5 and ^{Q2}130.5?

25%

You Try:

Create a box and whisker plot using the following data:

95, 85, 75, 85, 65, 60, 100, 105, 75, 85, 75

Minimum: 60

Q1: 75

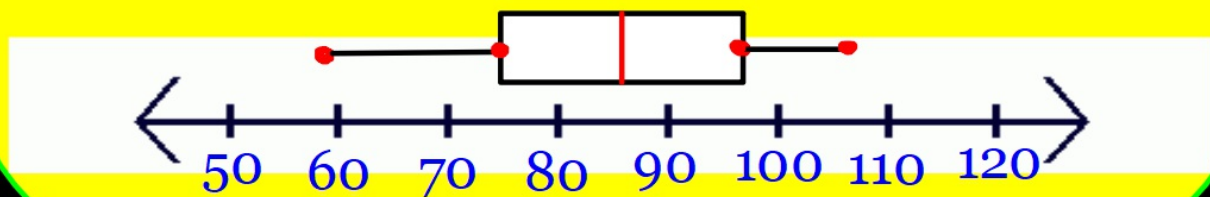
Q2: 85

Q3: 95

Maximum: 105

Range: 45

Interquartile Range: 20



What percentage of the data is between 95 and 105?

25%

Outliers:

An outlier is a data value that is much higher or lower than the other data values in the set.

For example, in the data set 2, 5, 3, 7, 12, the outlier is 12.

What effect does an outlier have on a box-and-whisker plot?

Outliers

Example: Create a box-and-whisker plot for the following data set:

280, 220, 224, 270, 410, 290, 230, 220

- What value is the outlier in this data set? 410
- How does it change the shape of the box-and-whisker plot? SKewed Right, long whisker
- Does it change the center? no, it impacts the mean.
- Does it change the spread of the data? spread

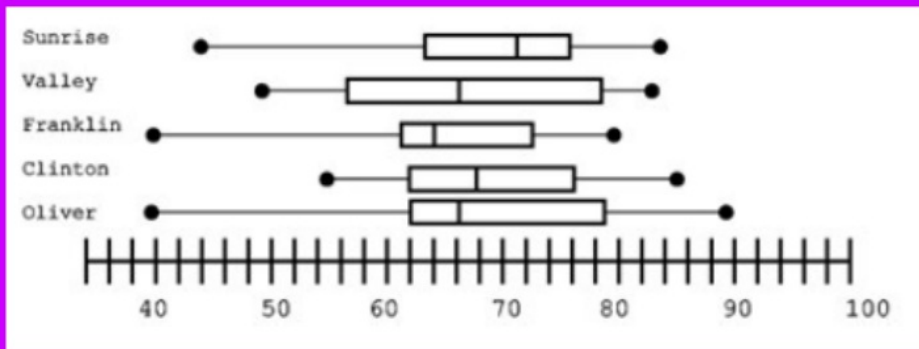
IQR

no!



Making Comparisons Using Box-and-Whisker Plots

The box-and-whisker plots show the Test Scores of five schools that have written a common exam.



Which school has the highest median score?

SUNRISE

Which school scored the highest on the common written exam?

OLIVER

At which school are the median and low score the closest?

Clinton