

January 24, 2020

1) Notes

2) CALC



Woke Shower Thoughts
@ShowerWoke



Because of shoes, many places on Earth have never actually been touched by humans.

Statistical Reasoning

Measures of Center and Spread, Outliers, and Boxplot Notes

Measures of Center: Measures the middle of the data**Mean:** the average of the data (also seen as \bar{X} , said x -bar) $\frac{\text{sum of the data values}}{\text{total number of data values}}$ **Median:** (Q_2) the middle value of the data (order in least to Greatest)**Lower Quartile (Q_1)** is the middle of the lower half.**Upper Quartile (Q_3)** is the middle of the upper half.****Data MUST be in order before you can find each quartile. ******Ex 1)** When there are an odd number of data values, the median is the middle value.10 14 18 22 27 31 34

Median = 22

Ex 2) When there are an even number of data values, the median is the average of the 2 middle values.~~1, 1, 3, 4, 5, 7, 9~~2, 2, 4, 6, 8, 9, 11, 13

$$\frac{6+8}{2} = 7$$

Median = 7

Mode: the data that appears the most (there can be no mode or there can be more than one mode).**Ex 3)** Find mean, median, Q_1 , Q_3 , and mode: 65 68 71 77 81 82 86 88 93 93 95 97Mean: 83 Median: 84

$$\frac{82+86}{2} = 84$$

 Q_1 : 74 Q_3 : 93

$$\frac{71+77}{2} = 74$$

Mode: 93**Measures of Spread:** describes the variability of the data values.**Range:** the max. value minus the min. value.

Find the range of example 3.

$$97 - 65 = \boxed{32 = \text{Range}}$$

Interquartile Range: $IQR = Q_3 - Q_1$ Half of all the data lies between Q_1 and Q_3 . The interquartile range tells you how far from the middle to look for half the data.Find the IQR of example 3. $Q_1 = 74$ $Q_3 = 93$

$$IQR = 93 - 74 = 19$$

The five number summary includes the following measures: min, max, Q_1, Q_2, Q_3

Outliers: A data observation that falls abnormally high or low compared to the other data points in the set.

Outliers Above = $Q_3 + 1.5(IQR)$

Upper Fence

Outliers Below = $Q_1 - 1.5(IQR)$

Lower Fence

The five number summary and boxplots.

Ex 4) Give the five number summary and draw a boxplot using the data:

27, 3, 16, 19, 23, 23, 24, 27

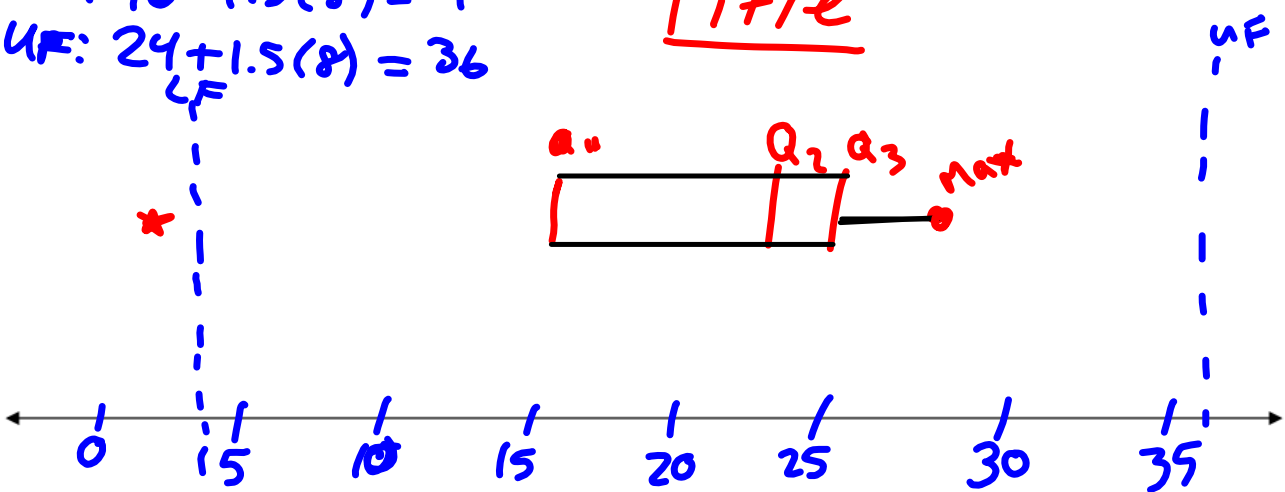
$Q_2 = 23$ $Q_1 = 16$ $Q_3 = 24$ max = 27 min = 3 Range = 24 IQR = 8

Mean = 19.3 Mode = 23 Outlier(s) = 3

$27 - 3 = 24$ $24 - 16 = 8$

LF: $16 - 1.5(8) = 4$
 UF: $24 + 1.5(8) = 36$

Title



Ex 5) Give the five number summary and draw a boxplot. Age of teachers at Wayside High School:

22, 23, 28, 29, 32, 33, 35, 35, 36, 38, 40, 40, 45, 59, 65

$Q_2 = 35$ $Q_1 = 29$ $Q_3 = 40$ max = 65 min = 22 Range = 43 IQR = 11

Mean = 37.3 Mode = 35, 40 Outlier(s) = 59, 65

$65 - 22 = 43$ $40 - 29 = 11$

LF: $29 - 1.5(11) = 12.5$

UF: $40 + 1.5(11) = 56.5$

Teacher Ages

