

07/12/2019

Center Measure of Central Tendency	Variation
Middle	Range
Mean (Average)	Std Deviation
Median (1/2 way marks)	IQR
Mode (most occurring)	

Example

Quiz Score

10, 6, 8

$$\text{mean, } \bar{x} = \frac{10+6+8}{3} = 8$$

Median

Sort

$$n=3$$

Mode

None

The Average of quiz is 8 points.

Mode Interpretation

Half of the sample made below 8 points and
half of the sample made above 8 points.

Ex 2, S: 10, 2, 8, 6

$$\bar{X} = \frac{10+2+8+6}{4} = 6.5$$

$$M = 2, 6, 8, 10, \quad \frac{6+8}{2} = 7$$

mode = None.

Sample, $n=10$ (Σf)

$$\bar{X} = \frac{22+26+\dots+14}{10} = 19.6$$

On average in a sample 10
lib arts colleges pay \$1900
per yr.

$$M = 19.5$$

Mode = 19 & 20

Half of the students in a sample of 10
lib arts colleges pay below \$19500
per year and another half is above.

The most occurring cost of education
in a sample of 10 lib arts colleges is
\$19000 & 20000\$.

Since \bar{x} & M are so close (within 5 units) you report mean as the best ~~summary~~ representation of a center.

Population

Mean $\mu = 61.15$ min

Median $M = 55$ min

Mode = 80 & 125 min

Interpretation

Mean: Average the duration, ^{all} power failures at a residence in the last 10 yrs was about 61 min.

Median: Half of all power failure at the residence last less than 61 min, and the other half last for more than 55 mins.

Mode: the most occurring power f at a residence lasted for 80 min and 125 min in the last 10 yrs.

Report Median of 55 min as the best representation of a center since all were more than 5 min away from each other.

$$\bar{x} = \frac{\sum (f \cdot x)}{\sum f}$$

\nearrow class midpoint
 \searrow Total

<u>IQ score</u>	<u>Freq</u>	<u>class midpoint</u>	<u>f * x</u>
50-59	2	$x = \frac{50+69}{2} = 59.5$	119
70-89	33	79.5	2623.5
90-109	35	99.5	3482.5
110-129	7	119.5	836.5
130-149	1	139.5	139.5
	<u>$\sum f = 78$</u>		<u>$\sum fx = 7201$</u>

$$\bar{x} = \frac{\sum fx}{\sum f} = \frac{7201}{78} \approx 92.32$$

The mean of IQ scores for the given sample was about 92.32 points.