

Mean Absolute Deviation (MAD)

Another measure of variability is called the mean absolute deviation. The mean absolute deviation (MAD) is the average distance that each value is away from the mean.

The _____ the MAD, the _____ the variability there is in the data (the data are more spread out).

The MAD helps determine whether the set's mean is a useful indicator of the values within the set.

The _____ the MAD, the _____ relevant the mean is as an indicator of the values within the set.

To find the MAD:

1. Find the mean
2. Subtract each data value from the mean
3. Take the absolute value of each value from step #2.
4. Add up all values from step #3.
5. Divide by the number of data values.

EX. Find the MAD (Mean Absolute Deviation) of the numbers shown below.

80, 76, 63, 92, 47, 82 and 76.

MAD worksheet

x	\bar{x}	$x - \bar{x}$	$ x - \bar{x} $
80			
76			
63			
92			
47			
82			
76			

SUM: _____

$$MAD = \frac{\text{sum}}{n} =$$

1. Find the mean, median, Interquartile Range (IQR), and the Mean Absolute Deviation (MAD) of the numbers shown below.

4, 12, 5, 7, 11, 3, 6, and 12

Mean = _____ Median = _____ IQR = _____ MAD = _____

Do the Work:

Mean: Add and Divide

Median: Put Numbers in Order and Find the Middle Number

IQR: Find the Median of the Lower Half of Number and the Upper Half of Number and Subtract

MAD Worksheet

x	\bar{x}	$x - \bar{x}$	$ x - \bar{x} $

SUM: _____

$$MAD = \frac{sum}{n} =$$

Which measure of central tendency and measure of variability describe the data best?

Mean Absolute Deviation (MAD)

Another measure of variability is called the mean absolute deviation. The mean absolute deviation (MAD) is the average distance that each value is away from the mean.

* The larger the MAD, the greater the variability there is in the data (the data are more spread out).

The MAD helps determine whether the set's mean is a useful indicator of the values within the set.

* The larger the MAD, the less relevant the mean is as an indicator of the values within the set.

To find the MAD:

1. Find the mean
2. Subtract each data value from the mean
3. Take the absolute value of each value from step #2.
4. Add up all values from step #3.
5. Divide by the number of data values.

EX. Find the MAD (Mean Absolute Deviation) of the numbers shown below.

80, 76, 63, 92, 47, 82 and 76.

5/16/17 MAD worksheet

x	\bar{x}	$x - \bar{x}$	$ x - \bar{x} $
80	73.7	$80 - 73.7 = 6.3$	6.3
76		$76 - 73.7 = 2.3$	2.3
63		$63 - 73.7 = -10.7$	10.7
92		$92 - 73.7 = 18.3$	18.3
47		$47 - 73.7 = -26.7$	26.7
82		$82 - 73.7 = 8.3$	8.3
76		$76 - 73.7 = 2.3$	2.3

total = 516

~~mean~~

SUM: 74.9

$$MAD = \frac{\text{sum}}{n} = \frac{74.9}{7} = \boxed{10.7}$$

1. Find the mean, median, Interquartile Range (IQR), and the Mean Absolute Deviation (MAD) of the numbers shown below.

^{4.5} 3, 4 | ^{11.5} 5, 6 | 7, 11 | 12, 12
~~4~~, 12, ~~5~~, ~~7~~, 11, ~~8~~, ~~6~~, and 12

Mean = 7.5 Median = 6.5 IQR = 7 MAD = 3.125
 $11.5 - 4.5$

Do the Work:

Mean: Add and Divide

(7.5)

outliers? NO

$4.5 - 1.5(87) = -6$

$11.5 + 1.5(37) = 22$

Median: Put Numbers in Order and Find the Middle Number

(6.5)

IQR: Find the Median of the Lower Half of Number and the Upper Half of Number and Subtract (7)

MAD Worksheet

x	\bar{x}	$x - \bar{x}$	$ x - \bar{x} $
3	7.5	3-7.5	4.5
4		4-7.5	3.5
5		5-7.5	2.5
6		6-7.5	1.5
7		7-7.5	0.5
11		11-7.5	3.5
12		12-7.5	4.5
12	✓	12-7.5	4.5

SUM: 25

$MAD = \frac{\text{sum}}{n} = \frac{25}{8} = \boxed{3.125}$

T: 60

25

Which measure of central tendency and measure of variability describe the data best?

↓
Mean

↓
MAD

(no outliers)