

Lesson 4.4 Measures of Variability: Mean Absolute Deviation

The **mean absolute deviation** (MAD) of a data set is a value that shows if the data set is consistent. The closer the mean absolute deviation of a data set to zero, the more consistent it is.

17, 19, 8, 32, 21, 24, 19

Step 1: Put the data set in order from least to greatest.

8, 17, 19, 19, 21, 24, 32

Step 2: Find the mean of the data set.

Mean = 20

Step 3: Find the absolute value of the difference between the mean and each value in the set.
(For example, $20 - 8 = 12$; $|12| = 12$)

12, 3, 1, 1, 1, 4, 12

Step 4: Find the mean of those absolute values.

Mean = 8.71

Step 5: The mean absolute deviation of this data set is 8.71.
This tells us that the values in the set are on average about 8.71 away from the middle.

MAD = 8.71

Find the mean absolute deviation of each data set. Round each answer to two decimal places.

a

1. 10, 16, 18, 15, 15, 10, 23

mean: _____

value differences:

MAD: _____

b

41, 56, 38, 45, 55, 51, 52

mean: _____

value differences:

MAD: _____

2. 10, 12, 18, 25, 25, 11, 22

mean: _____

value differences:

MAD: _____

22, 33, 44, 55, 66, 88, 55, 55, 11, 22

mean: _____

value differences:

MAD: _____

Lesson 4.5 Using Measures of Variability

The **range** of a data set is the difference between the largest value and smallest value contained in the data set.

The **interquartile range** (IQR) of a data set is the difference between the median of the lower half of a data set and the median of the upper half of the same data set.

The **mean absolute deviation** (MAD) of a data set is a value that helps understand if the data set is consistent. If the mean absolute deviation of a data set is close to zero, the data set is more consistent.

Complete the table by listing the measures of variability for each data set. Round answers to two decimal places.

Data	Range	IQR	MAD
1. 43, 48, 80, 53, 59, 65, 58, 66, 70, 50, 76, 62	_____	_____	_____
2. 12, 47, 26, 25, 38, 45, 35, 35, 41, 39, 32, 25, 18, 30	_____	_____	_____
3. 99, 45, 23, 67, 45, 91, 82, 78, 62, 51	_____	_____	_____
4. 10, 2, 5, 6, 7, 3, 4	_____	_____	_____
5. 23, 56, 45, 65, 59, 55, 61, 54, 85, 25	_____	_____	_____
6. 55, 63, 88, 97, 58, 90, 88, 71, 65, 77, 75, 88, 95, 86	_____	_____	_____