

Mean Absolute Deviation Worksheet Answer Key PDF

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Part 1: Building a Foundation

What does Mean Absolute Deviation (MAD) measure in a data set?

undefined. A) The sum of all data points

undefined. B) The average distance between each data point and the mean ✓

undefined. C) The highest value in the data set

undefined. D) The lowest value in the data set

MAD measures the average distance between each data point and the mean.

Which of the following are steps in calculating the Mean Absolute Deviation?

undefined. A) Find the mean of the data set ✓

undefined. B) Square each data point

undefined. C) Calculate the absolute deviation of each data point ✓

undefined. D) Average the absolute deviations ✓

The steps include finding the mean, calculating absolute deviations, and averaging them.

Explain why the Mean Absolute Deviation is considered less sensitive to outliers compared to standard deviation.

MAD is less sensitive to outliers because it uses absolute values, which do not square the deviations, thus reducing the impact of extreme values.

List the four main steps involved in calculating the Mean Absolute Deviation.

1. Step 1

Find the mean of the data set.

2. Step 2

Calculate the deviation of each data point from the mean.

3. Step 3

Take the absolute value of each deviation.

4. Step 4

Average the absolute deviations.

The four main steps are: find the mean, calculate deviations, take absolute values, and average the absolute deviations.

Part 2: Comprehension and Application

Why is the absolute value used in calculating MAD?

undefined. A) To simplify the calculation

undefined. B) To ensure all deviations are positive ✓

undefined. C) To ignore the mean

undefined. D) To increase the variability

The absolute value is used to ensure all deviations are positive, allowing for a meaningful average.

In which scenarios would MAD be a more appropriate measure than standard deviation?

undefined. A) When data contains outliers ✓

undefined. B) When comparing two data sets with similar variances

undefined. C) When a quick estimate of variability is needed ✓

undefined. D) When data is normally distributed

MAD is more appropriate when data contains outliers or when a quick estimate of variability is needed.

Given the data set [3, 7, 7, 2, 9], what is the Mean Absolute Deviation?

undefined. A) 2 ✓

undefined. B) 3

undefined. C) 4

undefined. D) 5

The Mean Absolute Deviation for the data set is 2.

Calculate the Mean Absolute Deviation for the data set [4, 8, 6, 5, 10]. Show your work.

To find MAD, calculate the mean, find deviations, take absolute values, and average them.

Part 3: Analysis, Evaluation, and Creation

How does the Mean Absolute Deviation help in comparing the variability of two different data sets?

undefined. A) By providing the sum of deviations

undefined. **B) By showing the average deviation from the mean ✓**

undefined. C) By indicating the range of data

undefined. D) By calculating the median

MAD helps compare variability by showing the average deviation from the mean for each data set.

Analyze how the Mean Absolute Deviation would change if a data point significantly higher than the rest is added to the data set.

Adding a significantly higher data point would increase the average deviation, thus raising the MAD.

Which measure would you recommend for analyzing a data set with significant outliers, and why?

undefined. **A) Mean Absolute Deviation ✓**

undefined. B) Standard Deviation

undefined. C) VariANCE

undefined. D) Range

Mean Absolute Deviation is recommended because it is less affected by outliers compared to standard deviation.

Design a simple experiment or study where Mean Absolute Deviation could be used to analyze the results. Describe the data you would collect and how MAD would help interpret the findings.

An example could be measuring the heights of plants under different conditions, where MAD helps understand the consistency of growth.

