

How can I calculate the Mean Absolute Deviation in Google Sheets?

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The Mean Absolute Deviation (MAD) is a measure of variability that is commonly used in statistics to describe the spread of a dataset. In order to calculate the MAD in Google Sheets, you must first input your data into a column. Then, use the formula `=AVERAGE(ABS(A1:A10-AVERAGE(A1:A10)))` to find the average absolute deviation for the dataset. This formula takes the absolute value of each data point's difference from the mean, adds them together, and divides by the total number of data points. The resulting value is the MAD for the dataset. By utilizing this formula, you can easily calculate the MAD and gain valuable insights into the variability of your data in Google Sheets.

Calculate the Mean Absolute Deviation in Google Sheets

The mean absolute deviation is a way to measure the dispersion for a set of data values.

A low value for the mean absolute deviation is an indication that the data values are concentrated closely together. A high value for the mean absolute deviation is an indication that the data values are more spread out.

The formula to calculate the mean absolute deviation is as follows:

$$\text{Mean absolute deviation} = (\sum |x_i - \bar{x}|) / n$$

$\sum$ - just a fancy symbol that means "sum"
 x_i - the i th data value
 $\bar{x}$ - the mean value
 n - sample size

This tutorial explains how to calculate the mean absolute deviation of a dataset in Google Sheets.

Example: Mean Absolute Deviation in Google Sheets

Use the following steps to calculate the mean absolute deviation in Google Sheets.

Step 1: Enter the data.

First, enter all of the values of a dataset into one column:

<i>fx</i>				
	A	B	C	D
1	Data values			
2	1			
3	14			
4	15			
5	16			
6	14			
7	25			
8	24			
9	23			
10	33			
11	12			
12	6			
13	17			
14	4			
15	14			
16	19			
17				
18				
19				
20				
21				
22				
23				

Step 2: Find the mean value of the dataset.

Next, use the `AVERAGE()` function to find the mean of the dataset:

<i>fx</i>				
	A	B	C	D
1	Data values			
2	1			
3	14			
4	15			
5	16			
6	14			
7	25			
8	24			
9	23			
10	33			
11	12			
12	6			
13	17			
14	4			
15	14			
16	19			
17				
18	Mean	15.8	=AVERAGE(A2:A16)	
19				
20				
21				
22				

Step 3: Calculate the absolute deviations.

Next, use the ABS() function to find the absolute deviation of each observation from the mean of the dataset:

The formulas in column C show how to calculate the values in column B.

<i>fx</i>				
	A	B	C	D
1	Data values	Abs. Deviation		
2	1	14.8	=ABS(A2-\$B\$18)	
3	14	1.8	=ABS(A3-\$B\$18)	
4	15	0.8	=ABS(A4-\$B\$18)	
5	16	0.2	=ABS(A5-\$B\$18)	
6	14	1.8	=ABS(A6-\$B\$18)	
7	25	9.2	=ABS(A7-\$B\$18)	
8	24	8.2	=ABS(A8-\$B\$18)	
9	23	7.2	=ABS(A9-\$B\$18)	
10	33	17.2	=ABS(A10-\$B\$18)	
11	12	3.8	=ABS(A11-\$B\$18)	
12	6	9.8	=ABS(A12-\$B\$18)	
13	17	1.2	=ABS(A13-\$B\$18)	
14	4	11.8	=ABS(A14-\$B\$18)	
15	14	1.8	=ABS(A15-\$B\$18)	
16	19	3.2	=ABS(A16-\$B\$18)	
17				
18	Mean	15.8	=AVERAGE(A2:A16)	
19				
20				
21				
22				
23				

Step 4: Calculate the mean absolute deviation.

Lastly, calculate the mean absolute deviation of the dataset:

<i>fx</i>				
	A	B	C	D
1	Data values	Abs. Deviation		
2	1	14.8	=ABS(A2-\$B\$18)	
3	14	1.8	=ABS(A3-\$B\$18)	
4	15	0.8	=ABS(A4-\$B\$18)	
5	16	0.2	=ABS(A5-\$B\$18)	
6	14	1.8	=ABS(A6-\$B\$18)	
7	25	9.2	=ABS(A7-\$B\$18)	
8	24	8.2	=ABS(A8-\$B\$18)	
9	23	7.2	=ABS(A9-\$B\$18)	
10	33	17.2	=ABS(A10-\$B\$18)	
11	12	3.8	=ABS(A11-\$B\$18)	
12	6	9.8	=ABS(A12-\$B\$18)	
13	17	1.2	=ABS(A13-\$B\$18)	
14	4	11.8	=ABS(A14-\$B\$18)	
15	14	1.8	=ABS(A15-\$B\$18)	
16	19	3.2	=ABS(A16-\$B\$18)	
17				
18	Mean	15.8	=AVERAGE(A2:A16)	
19	Mean Abs. Deviation	6.1867	=AVERAGE(B2:B16)	
20				
21				
22				

The mean absolute deviation turns out to be 6.1867.

Note that you can use these four steps to calculate the mean absolute deviation for any number of data values. In this example, we used 15 data values but you could use these exact steps to calculate the mean absolute deviation for 5 data values or 5,000 data values.

How to Calculate the Mean Absolute Deviation in Excel