Lesson 9.5 Mean Absolute Deviation (MAD)

Mean Absolute Deviation, or MAD, is an _average_ of how much data values differ from the mean.

Key Idea

Finding the Mean Absolute Deviation (MAD)

Step 1: Find the mean of the data.

Step 2: Find the distance from each data value and the mean.

Step 3: Find the mean of the distances from Step 2.

The MAD indicates how _____ _____ your data set is.

A large MAD indicates a data set that is_____ spread out in relation to the mean.

A small MAD indicates a data set that is_____ spread out and located _____ to the mean.

Example 1: Finding the Mean Absolute Deviation

You record the numbers of raisins in 8 scoops of cereal. Find and interpret the mean absolute deviation of the data.

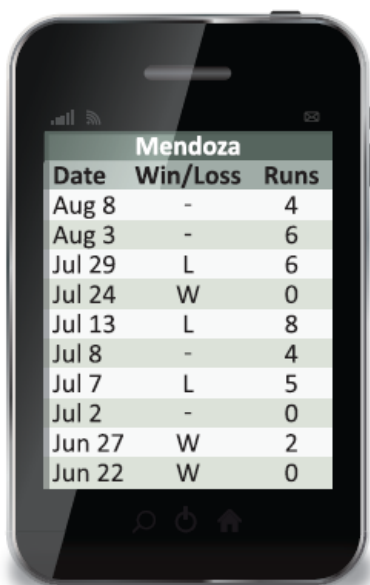| DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
		SUM:	
		COUNT:	
		MEAN ABSOLUTE DEVIATION (MAD): The Average of the "Positive Value" column	

1, 2, 2, 2, 4, 4, 4, 5

The average distance between each data point and the mean is _____.

Example 1: On Your Own

1. Find and interpret the mean absolute deviation of the data.

DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
		SUM:	
		COUNT:	
		MEAN ABSOLUTE DEVIATION (MAD): The Average of the "Positive Value" column	

5, 8, 8, 10, 13, 14, 16, 22

The average distance between each data point and the mean is _____.

Example 2: Real-Life Application

The smartphones show the numbers of runs allowed by two pitchers in their last 10 starts.

a. **Find the mean, median, and mean absolute deviation of the numbers of runs allowed for each pitcher.**

Mendoza		
Date	Win/Loss	Runs
Aug 8	-	4
Aug 3	-	6
Jul 29	L	6
Jul 24	W	0
Jul 13	L	8
Jul 8	-	4
Jul 7	L	5
Jul 2	-	0
Jun 27	W	2
Jun 22	W	0

Rodriguez		
Date	Win/Loss	Runs
Aug 7	L	6
Aug 2	W	4
Jul 28	W	4
Jul 22	-	5
Jul 17	W	0
Jul 8	W	2
Jul 3	L	3
Jun 28	L	2
Jun 23	W	4
Jun 17	W	5

DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
		SUM:	
		COUNT:	
		MEAN ABSOLUTE DEVIATION (MAD): The Average of the "Positive Value" column	

The average distance between each data point and the mean is _____.

DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
		SUM:	
		COUNT:	
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The average distance between each data point and the mean is _____.

The smartphones show the numbers of runs allowed by two pitchers in their last 10 starts.

b. Which measure can you use to distinguish the data? What can you conclude about the pitchers from this measure?

Example 2: On Your Own

The table shows the prices of the
five most and least expensive
dishes on a menu. Find the MAD
of each data set. Then, compare
their variations.

Five Most-Expensive Dishes					Five Least-Expensive Dishes				
$28	$30	$28	$39	$25	$7	$7	$10	$8	$12

DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
		SUM:	
		COUNT:	
		MEAN ABSOLUTE DEVIATION (MAD): The Average of the "Positive Value" column	

The average distance between each data point and the mean is _____.

DATA	MEAN	DIFFERENCE Distance of Data from the Mean	POSITIVE VALUE
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The average distance between each data point and the mean is _____.