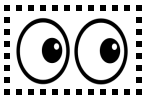
Notes Name: _____ Period: _____

Unit 3: Graphs and Data Analysis Math6

Data Distribution and Variability: Mean Absolute Deviation

Mean Absolute Deviation



Reminders: The ***mean*** of a data set represents what each value in the set would be if the total value of the data was *evenly distributed* to every member of the set.

Objective: You will understand and learn how to find the mean absolute deviation of a given data set.

Vocab: **mean absolute deviation**: the average, or _____ of the absolute (+) distance of each value in a data set from the mean of the entire set.

Steps: Finding Mean Absolute Deviation

1. **Put the data set in order.**
2. **Find the mean of your data set.**
3. **Make a table that shows each value in the data set and how far it is from the mean (its deviation)**
4. **Find the sum of all the deviations**
5. **Divide that sum by the number of values in the data set--this is your Mean Absolute Deviation**

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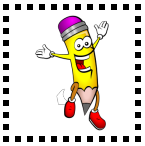

Ex #1: Let's say I have a data set made up of the amount of time a group of swimmers can hold their breathe under water. This information is in the following chart:

Holding Breath Underwater
(in seconds)

25	30	35	20	3	19
28	36	31	29	42	26

Let's solve for the Mean Absolute Deviation of this data set:

Step #1: Put the data set in order:

3, 19, 20, 25, 26, 28, 29, 30, 31, 35, 36, and 42

Step #2: Solve for Mean:

mean = 25 + 30 + 35 + 20 + 3 + 19 + 28 + 36 + 31 + 29 +42 + 26 = 324

324 ÷ 12 = 27 ⇒ 27 is the mean.

Step #3: Make a table that shows each value and its deviation from the mean:

data (d)	3	19	20	25	26	28	29	30	31	35	36	42
mean (m)	27	27	27	27	27	27	27	27	27	27	27	27
abs. dev. d-m or m-d	24	8	7	2	1	1	2	3	4	8	9	15

Step #4: Find the sum of all the deviations:

24 + 8 + 7 + 2 + 1 + 1 + 2 + 3 + 4 + 8 + 9 + 15 = 84

Step #5: Divide the sum of the devations by the number of values in the data set. This is your M.A.D.:

84 ÷ 12 = 7 ⇒ 7 is the mean absolute deviation (m.a.d.)

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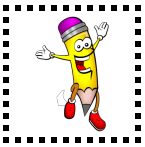
Data Distribution and Variability: Mean Absolute Deviation

check: our m.a.d. should be between our highest and lowest deviations.

1 > 7 > 24

Stretch: Can you explain what a m.a.d. of 7 actually means in this problem?



Examples: Find the Mean Absolute Deviation of each data set, then explain what it means.

ex. 1) 6, 9, 2, 10, 4, 5
5, 5, 1, 3

ex.2) 6, 5, 6, 4, 5, 1
5, 8, 5, 5

ex.3) 9, 9, 0, 8, 9, 3
2, 10, 0, 0