

Interpret Mean Absolute Deviation

1. Suppose that the number of text messages eight students receive on a typical day is as follows:

Student	1	2	3	4	5	6	7	8
Number of Text Messages	42	56	35	70	56	50	65	50

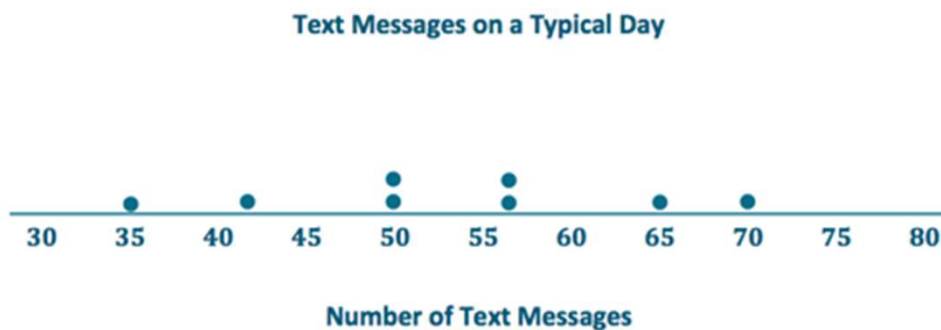
- a) Draw a dot plot for the number of text messages received on a typical day for these eight students.
- b) Find the mean number of text messages these eight students receive on a typical day.
- c) Find the MAD for the number of text messages, and explain its meaning using the words of this problem.
- d) Describe the shape of this data distribution.

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a) Draw a dot plot for the number of text messages received on a typical day for these eight students.



b) Find the mean number of text messages these eight students receive on a typical day.

Since the distribution appears to be somewhat symmetrical around a value in the 50's, students could guess a value for the mean, such as 52 or 53, and then check the sum of the distances on either side of their predictions. Using the formula, the mean is 53 text messages because $\frac{424}{8} = 53$.

c) Find the MAD for the number of text messages, and explain its meaning using the words of this problem.

The sum of the absolute deviations is 70. So, $\frac{70}{8}$ yields a MAD of 8.75 text messages.

This means that, on average, the number of text messages these eight students receive on a typical day differs by 8.75 text messages from the group mean of 53 text messages.

d) Describe the shape of this data distribution.

The shape of this distribution is fairly symmetrical (balanced) around the mean of 53 messages.