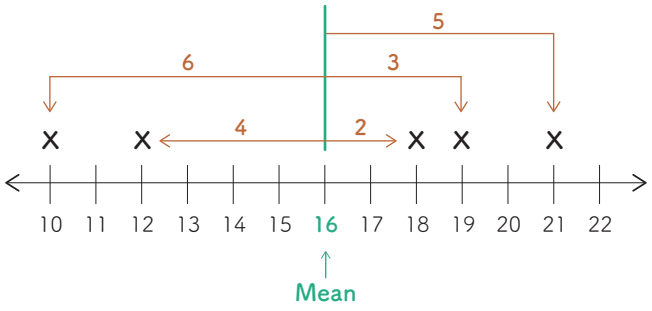
# Mean Absolute Deviation

**Mean Absolute Deviation**, or **MAD**, is a number that measures the variability of a data set, or how spread out the data values are.

## Let's try it! Find the MAD for the following data set:

10, 12, 18, 19, 21

| | |
|---|---|
| **First**, find the mean of the data set. Add all of the values, and then divide that sum by the number of values in the data set. | Mean = $\frac{10 + 12 + 18 + 19 + 21}{5} = \frac{80}{5} = 16$ |
| **Next**, calculate the distance each data point is from the mean. To find each distance, you can use a number line. |   |
| **Last**, find the mean of those distances. Add all of the distances, and then divide that sum by the number of values in the data set. | MAD = $\frac{6 + 4 + 2 + 3 + 5}{5} = \frac{20}{5} = 4$ |

Find the **mean** and **MAD** for each data set. Show your work.

### 2, 2, 3, 5, 8

$\frac{2 + 2 + 3 + 5 + 8}{5} = \frac{20}{5} = 4$

Mean: 4

$\frac{2 + 2 + 1 + 1 + 4}{5} = \frac{10}{5} = 2$

MAD: 2

### 4, 5, 9, 11, 26

$\frac{4 + 5 + 9 + 11 + 26}{5} = \frac{55}{5} = 11$

Mean: 11

$\frac{7 + 6 + 2 + 0 + 15}{5} = \frac{30}{5} = 6$

MAD: 6

Name _____ Date _____ Answer Key Page 2

# Mean Absolute Deviation

**Keep going!** Find the **mean** and **MAD** for each data set. Show your work.

11, 14, 19, 23, 33

$\frac{11 + 14 + 19 + 23 + 33}{5} = \frac{100}{5} = 20$

Mean: 20

$\frac{9 + 6 + 1 + 3 + 13}{5} = \frac{32}{5} = 6.4$

MAD: 6.4

26, 28, 31, 32, 39, 42

$\frac{26 + 28 + 31 + 32 + 39 + 42}{6} = \frac{198}{6} = 33$

Mean: 33

$\frac{7 + 5 + 2 + 1 + 6 + 9}{6} = \frac{30}{6} = 5$

MAD: 5

17, 17, 18, 18, 20, 22, 23, 25

$\frac{17 + 17 + 18 + 18 + 20 + 22 + 23 + 25}{8} = \frac{160}{8} = 20$

Mean: 20

$\frac{3 + 3 + 2 + 2 + 0 + 2 + 3 + 5}{8} = \frac{20}{8} = 2.5$

MAD: 2.5

29, 47, 64, 78, 93, 93, 97, 99

$\frac{29 + 47 + 64 + 78 + 93 + 93 + 97 + 99}{8} = \frac{600}{8} = 75$

Mean: 75

$\frac{46 + 28 + 11 + 3 + 18 + 18 + 22 + 24}{8} = \frac{170}{8} = 21.25$

MAD: 21.25

**Challenge yourself!** Why do you think the data set in the last problem has a larger MAD than the other data sets on this page? **Sample answer:** The last data set on this page has data values that are more spread out than the other data sets on this page.