

# Mean Absolute Deviation

A **mean absolute deviation** is an average of how much data values differ from the mean.

**Finding the Mean Absolute Deviation (MAD)**

**Step 1** Find the mean of the data.

**Step 2** Find the distance between each data value and the mean.

**Step 3** Find the sum of the distances in Step 2.

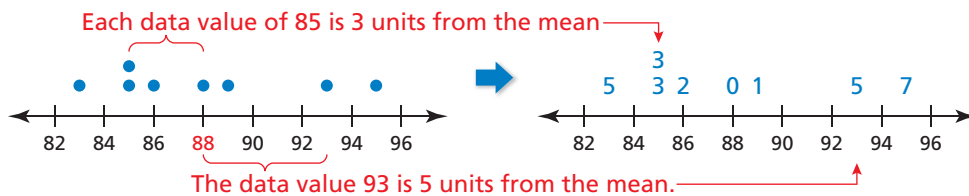
**Step 4** Divide the sum in Step 3 by the total number of data values.

**Example 1** The scores on a science test are shown below. Find and interpret the mean absolute deviation of the data.

**86, 93, 88, 85, 89, 95, 85, 83**

**Step 1** Mean =  $\frac{86 + 93 + 88 + 85 + 89 + 95 + 85 + 83}{8} = \frac{704}{8} = 88$

**Step 2** You can use a dot plot to organize the data. Replace each dot with its distance from the mean.



**Step 3** The sum of the distances is  $5 + 3 + 3 + 2 + 0 + 1 + 5 + 7 = 26$ .

**Step 4** The mean absolute deviation is  $\frac{26}{8} = 3.25$ .

► So, the data values differ from the mean by an average of 3.25 points.

## Practice

*Check your answers at [BigIdeasMath.com](http://BigIdeasMath.com).*

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

1. 9, 10, 11, 11, 12, 12, 13, 13, 14, 15
2. 2, 4, 4, 5, 6, 7, 7, 7
3. 24, 26, 27, 27, 28, 28, 30, 32
4. 8, 28, 29, 31, 32, 35, 38, 41, 43, 44

5. **TEMPERATURES** The table shows the high temperatures for several July days in a city. Find and interpret the mean absolute deviation of the data.

Temperatures (°F)				
85	79	82	80	90
79	83	83	78	78
80	82	82	86	83