

Notes: T4-69 Mean, Std Deviation

The **mean** of a data set is often called the average. It is found by adding all the data points together and dividing by the number of data points.

The data set 3, 4, 4, 5, 6, 6, 6, 7, 8 would have a mean of $\frac{3+4+4+5+6+6+6+7+8}{9} = \frac{49}{9} \approx 5.4$

The **standard deviation** of a data set finds the average distance all the points are from the mean.

The standard deviation of the data set 3, 4, 4, 5, 6, 6, 6, 7, 8 is about 1.5. This means that the data points are on average 1.5 from the mean of 5.4. Standard deviation is usually just found on the calculator.

Use the data set representing test scores for one math class to find the following:

70, 70, 75, 75, 90, 70, 80, 85, 65, 95, 70, 85, 90, 70, 20

1. Find the mean. Check your answer by asking your calculator to find the mean.
2. Use your calculator to find the standard deviation.
3. How do you think the outlier affects the mean? How do you think it affects the standard deviation?
4. Recalculate the mean and standard deviation with the outlier removed from the data set.
Mean: _____ Standard Deviation: _____
5. Were your predictions about the effect of the outlier correct?
6. Find the mean and standard deviation of the data of the average monthly temperatures in Jacksonville Fl.
52.4, 55.2, 61.1, 67.0, 73.4, 79.1, 81.6, 81.2, 78.1, 69.8, 61.9, 55.1
Mean: _____ Standard Deviation: _____
7. Find the mean and standard deviation of the data of the average monthly temperatures in Austin, TX.
48.8, 52.8, 61.5, 69.9, 75.6, 81.3, 84.5, 84.8, 80.2, 71.1, 60.9, 51.6
Mean: _____ Standard Deviation: _____
8. How do the two means compare? What does this tell you about the data sets?
9. How do the two standard deviations compare? What does this tell you about the data sets?

The **weighted average** is similar to an ordinary average or mean except instead of each point contributing equally, some point contribute more than others.

An applicable example of this for you is your math grade (and probably most other grades).

Here is the breakdown for this class:

Assignments – 35%

Quizzes – 10%

Tests – 50%

Participation Warm Ups and Notes – 5%

So let's say Billy is in my class and has received the following scores thus far for term 3:

Unit 7 Day 1 Homework – 7/10

Unit 7 Day 2 Homework – 5/10

Unit 7 Day 3 Homework – 0/10

Unit 7 Day 4 Homework – 10/10

Unit 7 Day 5 Homework – 9/10

Unit 7 Day 6 Homework – 8/10

Unit 7 Review Homework – 20/20

Unit 7 Quiz – 30/38

Unit 7 Notes – 60/60

Unit 7 Participation – 0/50

Unit 7 Test – 82/100

So how do we find Billy's grade??

Let's see what difference it makes if Billy actually participated by showing a problem on the board. How does his grade change if he received 15/15 for his participation??