Standard Deviation WS　　　　　　　　　　Student: ____________________________________

The standard deviation is used to tell how far, on average, any data point is from the mean. The smaller the standard deviation, the closer the scores are to the mean. When the standard deviation is large, the scores are more widely spread out.

The **standard deviation** is calculated to find the **average distance from the mean.**

1) Practice Problem as a class:

Test Scores: 22, 99, 102, 33, 57, 75, 100, 81, 62, 29

Mean ($\bar{x}$):_____________　　　　**number of data points (*n*):**_______________

Test Score (x)	**Difference from the mean** $(\mathbf{x}-\bar{\mathbf{x}})$	**(Difference from the mean)^2** $(\mathbf{x}-\bar{\mathbf{x}})^2$
	Sum of (Difference from the mean)^2 $\sum(\mathbf{x}-\bar{\mathbf{x}})$	

Sum of (Difference from the Mean)^2 divided (n-1) _______ → **This is called *variance*. Equation:** $v = \frac{\sum (x-\bar{x})^2}{n-1}$

Final Step:

***Standard deviation* = square root of what you just calculated (variance).**

Standard deviation = $\sqrt{\frac{\sum(x-\bar{x})^2}{n}} =$ _______________.

2) For the following sets of data, calculate the mean and standard deviation of the data.

a. The data set below gives the prices (in dollars) of cordless phones at an electronics store.

35, 50, 60, 60, 75, 65, 80

b. The data set below gives the numbers of home runs for the 10 batters who hit the most home runs during the 2005 Major League Baseball regular season.

51, 48, 47, 46, 45, 43, 41, 40, 40, 39

c. The data set below gives the waiting times (in minutes) of several people at a department of motor vehicles service center.

11, 7, 14, 2, 8, 13, 3, 6, 10, 3, 8, 4, 8, 4, 7

d. The data set below gives the calories in a 1-ounce serving of several breakfast cereals.

135, 115, 120, 110, 110, 100, 105, 110, 125