Name_____ Hour_____ Calculating Standard Deviation ws

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 on average to the mean. When the standard deviation is large, the scores are more widely spread out on average from the mean.

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

Practice Problem #1. Calculate the standard deviation of the following test data by hand. Use the chart to record the steps.

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

mean:_____ n: _____

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

Sum of **(Difference from the mean)²** divided by the total number of scores, n. → **This is your variance.**

$$\frac{\sum (x-\bar{x})^2}{n} = \_\_\_\_\_$$

Final Step:

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

Standard Deviation = $\sqrt{\frac{\sum (x-\bar{x})^2}{n}}$ = _____

For the following sets of data, calculate the mean and standard deviation of the data. Describe the mean and standard deviation in words after calculating it.

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

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

2. The data set gives the number of home runs for the 10 batters who hit the most home runs during the 2018 Major League Baseball regular season.

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

3. The data gives the waiting time (in minutes) of different people at the DMV.

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

4. The data gives the calories in a 1-ounce serving of different breakfast cereals.

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