Name_____ **Date**_____

CALCULATING STANDARD DEVIATION

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 below to record the steps.

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

Mean:_____ ***n*:**_____

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

Sum of (Difference from the Mean)^2 divided by degrees of freedom (*n – 1)*:_____ → **This is called variance.**

$$\frac{\sum(y - \bar{y})^2}{(n - 1)} =$$

Final Step:

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

Standard deviation = $\sqrt{\frac{\sum(y-\bar{y})^2}{(n-1)}} =$ _____.

Name_____ Date _____ Period _____

For the following sets of data, calculate the mean and standard deviation of the data. Then identify the 5-number summary, range, and IQR. Make a boxplot for the data. Describe the center and spread.

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

Bonus: (Optional) 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