## 9.03 Using Technology to Calculate Standard Deviation          Date: _____

Mean, standard deviation, and many other statistical measurements can be calculated using a scientific or graphing calculator.  Use the steps that apply to your type of calculator:

### TI-30XS MultiView or TI-36X Pro
1. Hit [data]
2. To clear a list, hit [data] again and select the list to clear.
3. Enter your data in a list (under L1).
4. Hit [2nd] [data] and then select "1-Var Stats".
5. Select the List your data is stored in (L1), and the frequency for each value recorded in that list (FRQ:One), and then enter "CALC".

### TI Graphing
1. Hit [STAT] and select "1:Edit…".
2. To clear a list, arrow up to the list name above the list "L1", hit [CLEAR] and then [ENTER].
3. Enter your data under L1.
4. Hit [STAT] again, move over to "CALC" and then select "1-Var Stats".
5. Indicate the list you put your data in, like L1.  If you need to specify a different list, press [2nd] and [1] or [2] or [3] etc, depending on the list name needed.
6. Select "Calculate" or hit [ENTER]  (wording depends on OS).

**You will receive a list of the following info:**

- $\bar{x} =$ __35.818__          mean
- $\sum x =$ __394__          sum of all data
- $\sum x^2 =$ __14348__          sum of all squared data
- $S_x =$ __4.834__          standard deviation of a SAMPLE
- $\sigma x =$ __4.628__          standard deviation of a POPULATION
- $n =$ __11__          how many pieces of data in the set
- $minX =$ __27__          minimum
- $Q1 =$ __33__          lower quartile
- $Med =$ __37__          median
- $Q3 =$ __40__          upper quartile
- $maxX =$ __41__          maximum

Example 1.  Find the mean, median, range, interquartile range, and standard deviation for the following data sets.

a.  35, 27, 39, 41, 41, 38, 28, 33, 35, 37, 40

| Mean | 35.818 |
|---|---|
| Median | 37 |
| Range | 14 |
| IQR | 7 |
| Standard Deviation | 4.628 |

b.  84, 85, 105, 76, 73, 93, 81, 74, 84, 80, 72     $Q1 = 74$  $Q3 = 85$

| Mean | 82.455 |
|---|---|
| Median | 81 |
| Range | 33 |
| IQR | 11 |
| Standard Deviation $\sigma x$ | 9.297 |

$105 - 72$

Example 2.  Compare the mean and standard deviation of the following data sets.

a. mpg of hybrids:  50, 37, 42, 40, 39, 38, 41          b. mpg of sedans:  28, 19, 24, 22, 18, 24, 26

Mean: __41__  Std. Dev.: __4__.                    Mean: __23__  Std. Dev.: __3.338__

What are the implications of these statistics? higher avg. for hybrids, more spread amongst hybrid mpg data