TI-83, 84 Calculator Procedures

General Points:

- The TI shows the entire entry on the screen at once. This makes correcting mistakes easier; you just use the arrow keys to go back and forth through what you input. Use the **DEL** and **INS** keys to delete/insert.
- If you input a long problem into the calculator and hit enter, only to see you made one little mistake somewhere, you can hit **2nd Enter (Entry)**. That will bring back up the entire expression you input and you can use the arrow keys to make corrections. Repeatedly hitting **2nd Enter** will bring up older inputs.
- If you wanted to input something like $\frac{4-3*2}{8-7(3-5)}$, it would have to be input as (4–3*2) ÷ (8–7*(3–5)), with parentheses around both the numerator and the denominator. The calculator needs to be told what is on top and what is on the bottom since it cannot see the bar. This will come up frequently in this class.
- The **ANS** key, which is above the **(-)** key next to the **ENTER** key, is temporary memory. If you input **8 – 2*1.2,** the answer will of course be **5.6.** Then, **ANS** will hold the value **5.6.** If you hit **2nd, x²**, **ANS,** you will get the square root of **5.6,** the **ANS**wer to **8 – 2*1.2.** Then **ANS** has the value **2.366431913**. This is a big help when your answers are decimals and you don't want to and should not round these numbers to be used in later formulas. The **ANS** key **ONLY** holds the last thing the calculator calculated.
- If you calculate something and then need to use that answer in some other expression, you can use the **STO>** button to **STO**re that number in memory. For example, **(2–5.63)^4** is 173.6306936 (^ is your exponent button, "^" means "to the" power). You can then hit **STO>** (which is right above the **ON** button), **X** (which is right next to the green **ALPHA** button). On screen you will see **Ans→X**. So, it put the last answer into the variable **X.** You can then type **X÷5** and get 34.72613872, which is 173.6306936÷5.

A. Entering data into lists. Finding mean, median, mode, 5 number summary, sum of x, sum of x squared, etc, for a data set. (first used in Chapter 2)

1. Hit **Stat, Edit.**
   *If there is old information in the Lists you see, then you need to hit **Stat, 4:ClrList**, enter, and then enter the lists you need to clear separated by commas, and then enter. Or just highlight the list and hit clear. Don't hit delete!
   *If the lists are screwed up somehow (maybe **L1** is missing, or they are named funky things), then hit **Stat, 5:SetUpEditor**, **Enter, Enter**. If you then go back into your lists, they will be fine.
2. Enter your data into a list, **L1, L2, L3**, or whichever one is free. (Normally try to use L1 and L2.)
3. Once the data is entered, hit **Stat**, use the arrow key to go over one and highlight **Calc**, and then select the first option, **1-Var-Stats.** Hit **Enter.**
4. Now, if your data is in **L1**, then you just need to hit **Enter**. If your data is in a different list, then you need to put that list name in after **1-Var-Stats** before hitting enter. **1-Var-Stats** defaults to **L1.**
5. A list of all the information will appear, and you can scroll up or down through it using the arrow keys. The minute you hit a different button, it will come out of the list, and you will need to go back into **Stat, Calc, 1-Var-Stats.**
6. You can also choose **SORTA** or **SORTD** from the main stat menu to sort your list in **A**scending or **D**escending order. You'll have to tell it which list to sort. List names are above the 1,2,3 ... keys.

B. Using the lists to help with standard deviation tables, etc … (Chapter 2)

1. Enter data into list **L1**. (see above for directions.)
2. You can now hit the right arrow and then the up arrow to highlight **L2**.
3. At the bottom left of the screen, you can see **L2 = ___**.
4. Now you can type **L2 = L1 – mean**. Hit **ENTER,** and now **L2** contains the deviations.
6. You can define **L2 = ___** however you need.
7. Remember to use **SetUpEditor (see A1 above)** when the lists disappear or get weird.

C. DISTRibutions (introduced in Chapters 4, 5 and 6)

1. For a **binomial distribution**, you are given **n, p, q**, and **x**. **n** is the total number of trials, **p** and **q** are probabilities (success and failure), and **x** is the number of successes you want.
   a. Say the probability someone likes liver is 10%, and we have 30 people. We want to find the probability that exactly 5 of them like liver, **P(x = 5)**. This would be a **particular** probability, so we go to **2nd, Vars** (**DISTR** is above that)**,** scroll down to **A:binompdf,** and then enter in **binompdf(30, 0.10, 5).** The inputs for binompdf are **(n, p, x)**.
   b. Now what if we want to know **P(x < 5)**, probability that less than 5 people out of our 30 like liver? We need to use **binomcdf**, where c stands for cumulative, meaning it accumulates from 0 to whatever x you put in. **binomcdf(30, 0.10, 4)**, since we are not including 5. If it was **P(x <= 5),** then **binomcdf(30, 0.10, 5).** If **P(x > 5)**, then **1 – binomcdf(30, 0.10, 5).**
2. For a **normal distribution,** you are given the mean and the standard deviation, and then asked questions about probabilities between, above, and below several raw scores.
   a. So say we have normal distribution of heights, with a mean height of 69 inches, and a standard deviation of 3 inches, and we want to know **P(x < 65)**, or probability of picking someone shorter than 65 inches tall. We would then hit **2nd, Vars, 2: normalcdf, ENTER.** The input is **normalcdf (from, to, mean, sd)** so we enter **normalcdf(0, 65, 69, 3).** (From 0 inches to 65 inches, with mean=69 and sd=3.)
   b. If you are only asked for z-scores, like **P(z > 1) or P(-1.4 < z < 2.3),** then you don't need to enter a mean and sd, it is defaulted to mean=0, sd=1. So for **P(-1.4 < z < 2.3),** I'd enter **normalcdf(-1.4, 2.3).**
   c. If you want to go backwards and find out a z-score that has a certain percentage below it, you can use **invnorm**. Go to **2nd, VARS, 3:invnorm, ENTER.** Then, if for example, we want to know what z-score has 45% below it, we enter **invnorm(.45).**

D. Linear Regression Analysis (Chapter 12)

1. Hit **Stat, Edit.** Enter your data into any two lists, preferably L1 and L2 since they are the default.
2. To create a scatter plot we need to get into **Stat-Plot**, which is above the **Y=** key, the upper left hand button.
3. Once in **Stat-Plot**, we select the first plot, highlight **On** and hit enter if it is not already turned on, select the first type of plot from the six available, make sure L1 and L2 are the x and y lists unless your data is in another set of lists, and then select the mark we want used.
4. Now, we hit **Zoom**, which is in the middle of the top buttons, and select the **9:ZoomStat**. This will bring up our scatter plot; it **ZOOM**s in on the **STAT**istical data. If you DON'T do this step, nothing might show on the screen.
5. If it says **ERR:DIM MISMATCH**, look at your lists. There may be one more entry in one list than the other, so the **DIM**ensions aren't the same. Or, if it says **ERR:SYNTAX,** look in the **Y=** area. If there are any equations or symbols in any of the "y =" spots, delete them.
6. Now, to find the line of best fit and correlation coefficient information, we hit **Stat, Calc, 4:LinReg (ax + b).** This will bring up values for **a**(slope), **b**(y-intercept), $\mathbf{r^2}$, and **r**.
   (*If r doesn't show up, then hit **2nd, 0**(Catalog)**, x^{-1}, DiagnosticsOn, enter, enter.***)
7. Once you have the line of best fit, you must enter it into **Y=** and hit graph to see it fitted onto your data. If it doesn't seem to fit the data, a mistake has occurred somewhere, go find it.
8. Don't forget, every time you put new data into your lists, you must hit **ZoomStat,** the 9th option on the **Zoom** menu. That tells the calculator to go find the new data.

There are resources on the internet for the TI 83, 84 calculator – guides, videos, tutorials, …