TI-83, 84 Calculator Instructions for Statistics:

1. **Entering Data**
   Data points are stored in Lists on the TI-83/84. If you haven't used the calculator before, you may want to get rid of everything that was there. You do this by pressing 2nd [MEM] (above the + sign), select [4:ClrAllLists] and press ENTER twice.

   Then press STAT and highlight [5:SetUpEditor] and press ENTER twice. You will not have to do this every time that you want to enter a list, but it's a good idea to do it every once in a while.

   Press STAT, select [EDIT...] this puts you into the List Editor. You will see columns with L1, L2,... going across the top. You can store 6 different sets of data here. Now enter the data pressing ENTER after each data point. After the last data point press ENTER then QUIT. The data is now stored in L1. You can store data in any of the other lists by scrolling across in the list editor.

   Sorting Data
   Once data has been entered into a list, you can rearrange the list into ascending or descending order. To sort L1 in ascending order, press STAT, select [2:SortA(], [2nd] [L1], (above the number 1). Now if you go back into the list editor, the list has been sorted. To sort in descending order, use the [3:SortD(] function.

2. **How to find the mean, standard deviation, and the five-number summary of a data set:**

   - First enter your data set into one of the lists:
     STAT → EDIT→1: Edit…
     This menu takes you to the lists.
     If you want to delete the numbers in one of your lists, for example in L1, go up with your arrow and highlight L1. Then press CLEAR and ENTER.
     So enter your data list into one of your lists.

   - To find the statistics:
     STAT→CALC→1: 1-Var Stats
     In your window you should see 1-Var Stats
     Now your calculator waits for you to tell where your list is.
     So if your data set is in L1, enter L1 (2nd key 1). Push ENTER.

   - You should see the following statistics:
     - $\bar{x}$ mean
     - $\sum x$ the sum of the data
     - $\sum x^2$ the sum of the squared data
     - Sx   standard deviation of the sample
     - σx standard deviation of the population

- o   n   sample size
- o   minX   the minimum of the data set
- o   Q1   first quartile
- o   Med   median
- o   Q3   third quartile
- o   maxX   the maximum of the data set

} The 5-number summary

3. **How to find the correlation coefficient (r), the coefficient of determination (r^2), the slope of the least squares regression line (b), and the y-intercept (a).**
   - First you need to enter the values of the explanatory variable into one list, say L1, and the values of the response variable into another list, say L2.
   STAT → EDIT→1: Edit...
   This menu takes you to the lists.
   If you want to delete the numbers in one of your lists, for example in L1, go up with your arrow and highlight L1. Then press CLEAR and ENTER.
   So enter your data lists into two lists.

   - STAT→CALC→8:LinReg(a+bx)
   In your window you should see LinReg(a+bx).
   Your calculator waits for you to tell where your lists are. So you need to enter L1 (2nd key 1), then a comma (above 7), and L2 (2nd key 2).
   So you should see: LinReg(a+bx) L1,L2
   Push ENTER.

   - You should see:
     - o   LinReg
     - o   y=a+bx
     - o   a   the y-intercept
     - o   b   the slope
     - o r^2 coefficient of determination
     - o   r   correlation coefficient

   (If your TI-83 does not give you the correlation coefficient, r, press 2ND 0 (CATALOG) and select DiagnosticOn. Press Enter twice so you should see "Done" in the window. Repeat the calculation.)

4. **How to find probabilities for a Normal distribution, and how to find a z-score from a given probability**
   a. To find probabilities after you figured out z: use **DISTR (2nd VARS)** → **2: normalcdf(**
   The inputs are *normalcdf(lower bound, upper bound)*

   So in your window you should see normalcdf(
   - If you need a lower tail: normalcdf(-9999999,z)
   - If you need an upper tail: normalcdf(z,9999999)
   - If you need a between part: normalcdf(z1,z2)

b. To find z from the given probability: use **DISTR (2nd VARS)** → **3: invNorm(**
So in your window you should see invNorm(
After the parenthesis enter the LOWER tail probability in decimal form.
Ex.: if your lower tail probability is given, and it's 10%, or 0.1, use invNorm(0.1).That will give you the corresponding z value.
Ex.: if your upper tail probability is given, and it's 0.07, use invNorm(0.93). That will give you corresponding z value.

5. Confidence Intervals and Hypothesis Tests

Confidence intervals and hypothesis tests are under STAT→TEST menu.
Throughout this section the calculator will ask you to choose [Data] or [Stats].
- Use [Stats] when you just have the statistics about the data such as the mean and standard deviation.
- Use [Data] when you have the actual data. In the case when you have Data, first you will need to enter the data into a list and tell the calculator which list the data is in.

CONFIDENCE INTERVALS

- **Z-interval for a population mean (σ is known)**

  STAT → TESTS → 7:ZInterval

- **T-interval for a population mean (σ is unknown and $n < 30$ and variable is normally distributed in the population)**

  STAT → TESTS → 8:TInterval

- **Z-interval for a population proportion (Note: The value of x must be an integer.)**

  STAT → TESTS → A:1-PropZInterval

- **T-interval for a difference in two population means**

  STAT →TESTS → 0: 2-SampTInt

- **Z-interval for a difference in two population proportions ((Note: The values of x must be integers.)**

  STAT →TESTS → B: 2-PropZInt

HYPOTHESIS TESTS

- **Z-test for a mean (σ is known)**

  STAT $\rightarrow$ TESTS $\rightarrow$ 1:Z-Test

- **T-test for a mean (σ is unknown and $n < 30$ and variable is normally distributed in the population)**

  STAT $\rightarrow$ TESTS $\rightarrow$ 2:T-Test

- **Z-test for a proportion**

  STAT $\rightarrow$ TESTS $\rightarrow$ 5:1-PropZTest

- **T-test for a difference in two population means**

  STAT$\rightarrow$TESTS$\rightarrow$4: 2-SampTTest

- **Z-test for a difference in two population proportions**

  STAT$\rightarrow$TESTS$\rightarrow$6: 2--PropZTest