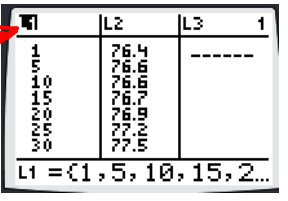
Graphing Calculator Basics for IB Math

A Clearing Out Old Data (two methods)

at the end of class or when starting a new problem.

To clear out data from individual lists: place your cursor so it is highlighting a list name L_1, L_2, etc
Select **CLEAR**.Then, **ENTER.**



or To clear out data from all lists at once, go to **MEM** (by selecting ***2nd***, then +)
Next, select ***ClrAllLists***

Calculate Basic Statistics (mean, median, mode, etc)

STAT then *CALC* then *1-Variable Statistics* then add the appropriate list, L_1 for example

B Home Screen (to perform calcuations)

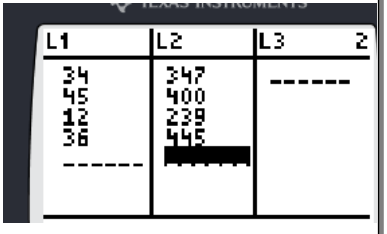
At any time, you can always go to your home screen by selecting *QUIT* by entering ***2nd [MODE]***

C Entering New Data

Select **STAT** then **Edit.** Place cursor on the first line and start entering each number followed by **ENTER**.

When starting the next list, toggle to the right.

If entering Bi-variate data (two lists): Generally the *independent (x) variable* gets placed in L_1 and the *dependent (y) variable* in L_2.



D. Viewing Data in a Scatter Plot

Two variable data should already be entered

Turn on your Statistical Plots:
"**STAT PLOT**"

Select Stat Plot 1 --then you should see this

Toggle to **On**, select scatter plot, Match your lists to the location of your data.

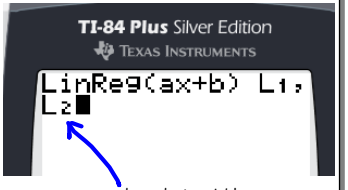
Then, **ZOOM 9**, (which is **ZoomStat**) and then you should see your Scatter plot of your data.

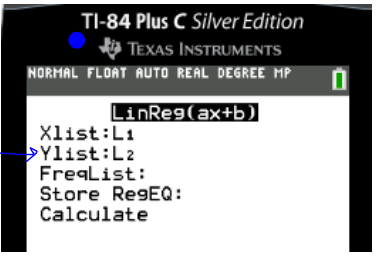
When finished, be sure to turn OFF the STAT PLOT.

E. Calculating the Line of Best Fit (LSRL)

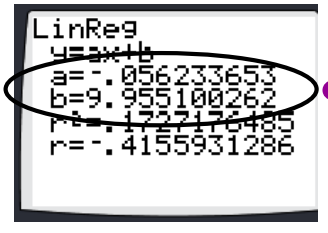
Select **STAT** then toggle to **CALC**, then to **LinReg(ax + b)**
Then the two lists which contain your data with a comma in between.

Select **ENTER** and the top two lines will give your *slope* and *y-intercept*





TI-83 or TI-84 TI-84 Plus

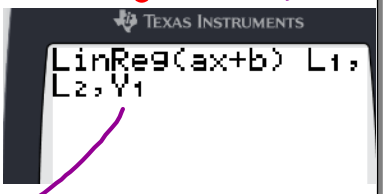


$y = -.056x + 9.96$

F. Viewing your line and your Scatter Plot simultaneously

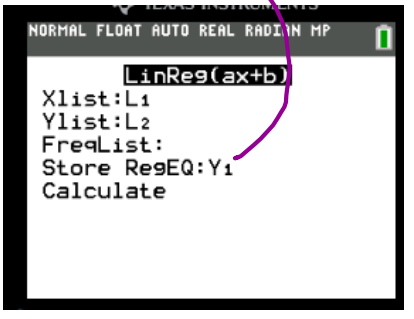
Select **STAT** then toggle to **CALC**, then to **LinReg(ax + b),** Then add one more comma and Y_1 , then **ENTER**. Then **ZOOM 9**

TI-84 Plus



to find Y_1 look for **VARS** then toggle to **Y-VARS** then **Function**

TI-84 PLUS C

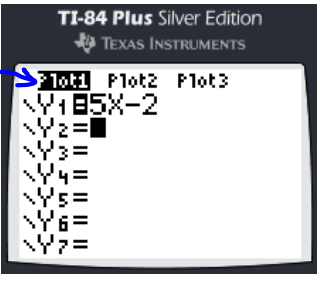


G. Conflicts

Scatter plots and other Stat Plots can cause trouble when you graph functions in the "Y=" menu.

Therefore, turn **off** Stat plots when you are done.

You can also see them turned on in the Y= menu

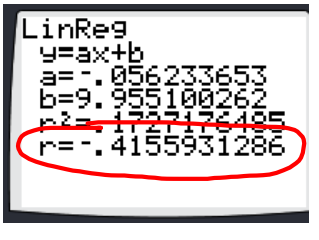


H. Linear Correlation Coefficient, r

Same steps as LSRL

Notice the correlation coefficient, *r*, is given on the last line.

If you don't see it, then you need to turn your "DiagnosticsOn" in the Catalog.

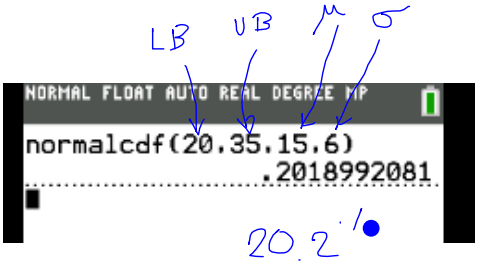


I. Normal Distribution

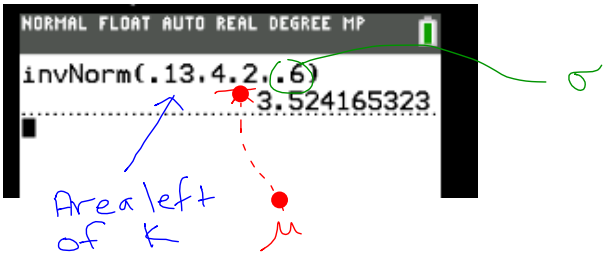
with mean, μ, and standard deviation, σ.

a) **Find the probability of a random variable, *X*, being in the interval LB to UB.** *(lower bound to upper bound):*

$P(LB \leq X \leq UB) =$



b) **Find the quantile, k, if given the probability of a random variable being <u>less than</u> k.**



J. X^2 Test of Independence

a. Choose **MATRIX** and go to **EDIT**
b. Enter your **Observed** values in **Matrix A**
c. Choose **STAT** and go to **TESTS**
d. Scroll up or down to **χ^2-Test** and press **ENTER**
e. Choose **Calculate**.
f. You can view both the χ^2 *calculated value* and the *probability*, $p - value$.
g. Your **expected** values can now also be found in **Matrix B**

K. Basic Differential Calculus

<u>Calculate the derivative at a specific point.</u>

1. Graph the function, $f(x)$, and obtain an appropriate window.
2. Select **2nd** then **TRACE** , the select $\frac{dy}{dx}$,
3. enter the appropriate $x - value$, then **ENTER**

<u>Draw Tangent Line (& calculate it's equation)</u>

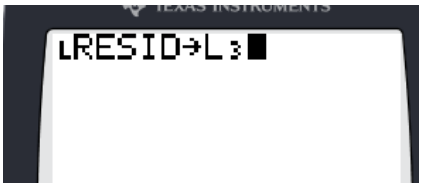
1. Graph the function, $f(x)$, and obtain an appropriate window.
2. Select **2nd** then **DRAW,** then **TANGENT**,
3. enter the appropriate $x - value$, then **ENTER**

Insert the RESIDUALS to List 3

1. First Perform a regression (like the LSRL)

2. On the homescreen:

Go to your lists using ***2ND [STAT]***
Select **RESID**
Then press the button **STO>** and then ***2ND [3]***
Then press **ENTER**



Residual Plots

1. Insert your residuals into List 3 as instructed above
2. Go to your ***Stat plot*** menu (above the Y= button)
3. Turn Stat Plot 1 **OFF**
4. Turn Stat Plot 2 **ON**
5. Be sure Scatter Plot is selected
6. Change the Ylist: to List 3 as shown