

FX-9750/CFX-9850 QUICK START!

THE KEY TO THIS CALCULATOR IS... ALWAYS READ THE SCREEN!

*More than likely, the option you want is on the screen.

LEARN THESE 3 THINGS AND YOU CAN OPERATE THE CALCULATOR IN NO TIME!

- 1) [MENU] key Shows all main topics. Eliminates having to know where hidden functions are.
- 2) [EXIT] key Takes you back one screen, but not to the main menu.
- 3) Function keys Read bottom of screen for options pertinent to the icon you are in
[F1] through [F6]. The menu bar at the bottom of the screen changes in every icon.

LET'S GET STARTED...

TURN THE CALCULATOR ON... USE [AC/on]

Choose a menu icon by:

- 1) type the corresponding number/letter in bottom right corner of icon,
- or 2) Use arrows to highlight icon, and press [EXE].

[MENU] Will always bring you back to the MAIN MENU.
Choosing an icon doesn't limit you.
You can still graph in TABLE icon, but make the table 1st.

[EXIT] Takes you back one screen at a time, the same way you went in.
To choose another icon press [MENU].

[f1]...[f6] Function keys- controls menu found on the bottom line of the calculator screen.
Menu changes to present available options within the icon you have selected.

[OPTN] Shows you all the "options" you have that are currently available to you.
Depends on what you are doing!

RUN ICON

General computations and calculations

Select the RUN ICON- use arrows to highlight & press [EXE] OR press [1].

FRACTIONS - use fraction key [a^b/c] found 2 keys below RED ALPHA key.

EXAMPLES: Press [2][a^b/c][1][a^b/c][2] to enter $2\frac{1}{2}$.

- 1) $2\frac{1}{2} + \frac{1}{4} =$
- 2) $\frac{1}{2} \wedge \frac{2}{5} =$ It's always good to put parenthesis when using powers!

** Press [F↔D] several times for fraction to decimal toggle.

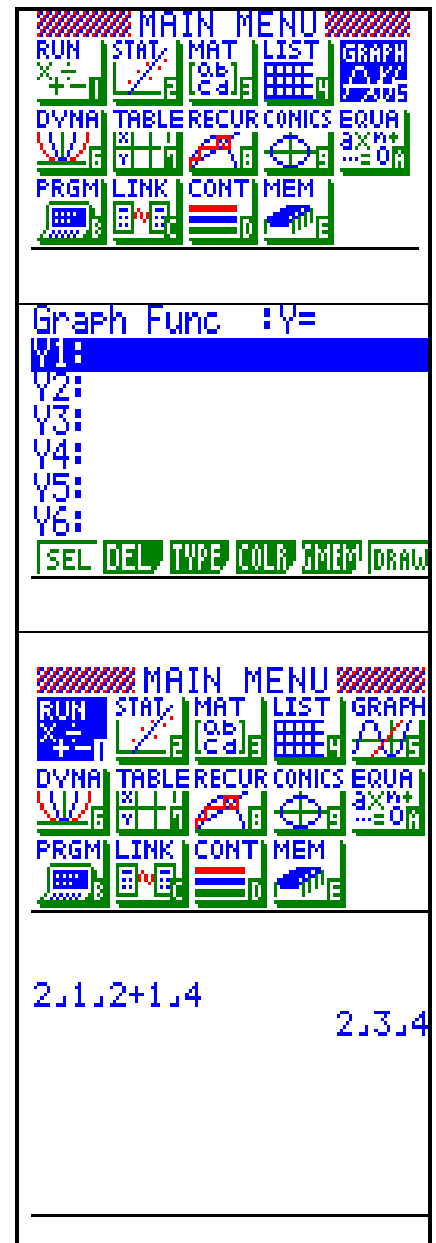
** What happens when you press [SHIFT][a^b/c]?_

TO RECALL LAST EQUATION

- [←] Use left arrow to recall last equations and make changes.
[EXE] To EXECUTE, after changes have been made.

DEEP RECALL

- [AC/on] Clear screen.
[↑] OR [↓] Up and down arrows will scroll you through the equations.
Edit the current equation using right-left arrows.



GRAPH ICON [MENU][5]

GRAPHS: Rectangular, Polar, Parametric, X= constant, and Inequality

SELECT: Press [MENU], then choose the GRAPH ICON.

SOFT MENU:

- [SEL] Select the equation you do not want to graph.
Turn stored equations "on" or "off"
- [DEL] Delete stored equations.
- [TYPE] Choose Type of graphs:
Rectangular, Polar, Parametric, X= constant, or Inequality
- [COLR] Choose the COLOR of an equation's graph (*only available on the CFX 9850*)
- [GMEM] Store current list of equations, and view window into 1 of 6 graph memories
- [DRW] Draw selected graphs.

SET THE VIEWING WINDOW FOR YOUR GRAPHS

- [SHIFT] [F3] V-WIN. Notice that V-Window is written above [F3] key
**Choose from 3 built in viewing windows or save/recall your 6 favorite viewing windows.

- [F3] STANDARD for this example.
HOW DO YOU GET BACK TO THE LAST SCREEN?

[EXIT] when your choice matches the screen to the right. This is the "std" or standard window.



MATH PROBLEM

Your school's goal is to make \$5 in profit today by selling notebooks at the school store. The selling price of the notebook is \$2. Each notebook costs the store \$1.25. How many do they have to sell to make the \$5 profit?

If, PROFIT = TOTAL REVENUE - TOTAL COST and X is # of note books sold and Y is PROFIT
Then, PROFIT = (\$2 · X) - (\$1.25 · X) or Y = 2X - 1.25X

Graph to find the solution.....what is X when Y (Profit) is 5?

NOW ENTER YOUR EQUATIONS...

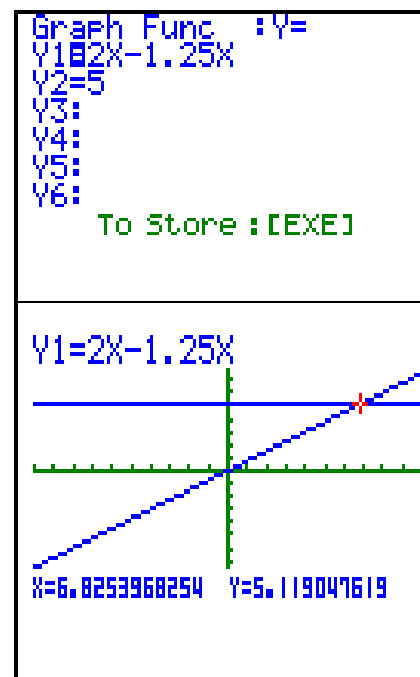
- 2 [X] [-] 1.25 Enter this equation beside Y1.
- [X] Use the [X,θ, T] key for X.
- [EXE] Stores equation (read screen) and moves to Y2
- [5] Enter 2nd equation beside Y2
- [EXE] Stores
- [F6]-draw Draws graph

Graph Analysis: What's X when Y is 5?

- [SHIFT] Activates yellow operations above [F1]-[F6] keys.
(You don't have to press shift to access [F1]-[F6] when looking at the graph.)
- [F1]-(TRCE) TRACE: Moves the cursor along function curve to view the coordinates.
Tracing ALWAYS begins on the far left of the screen, and is not always visible.

OTHER GRAPH ANALYSIS FEATURES INCLUDE:

- [F2]-(ZOOM) ZOOM Zooms in or out on graph screen.
- [F3]-(SKTCH) Sketch Draw lines, circles, text, points, etc.
- [F4]-(G-SLV) Graph Solve Finds points of interest on the graph.
- [F5]-(G-T) Graph to Text toggle Switches b/t full size graph & equations.



GRAPH SOLVER

[SHIFT][F5] **G-Solve:** Graphic solver: Roots, Max, Min, Y-intercept, Intersection, MORE
x calculate, y calculate, integral.

[F5] **INTERSECTION** We have 2 curves, so it automatically finds the point.
*Wait about 10 seconds. Watch cursor move across the screen.
With 3 + equations, use up/down arrows to indicate which 2 equations you want to find the intersection of. Select by pressing [EXE] as the 1st equation shows in the upper left hand corner. Use arrows then select the 2nd equation. REMEMBER this is a graphic solver that uses pixels to find answers. Therefore answers may not be perfectly exact, and might be off by .00000001. Use a “built in” range or multiples of it for an exact answer.

[SHIFT] [F5] **Back to GRAPH SOLVER**

[F1] **ROOT**

[↑] [↓] Scrolls through equations. Choose Y1!

[EXE] Press [EXE] on the equation for which you want to find the root. *Ex. Y1*

-Wait a minute (watch “think” indicator: top right of screen).

-Root appears if there is one.

[←] [→] Finds next ROOT. *Wait 10 seconds. In this case there is no second root.*

[] Go back to the graph function list. What do you press?

[F2] [F1] **DELETE GRAPH Y1**

[↓] Highlight Y2

[F2] [F1] Delete Y2

INEQUALITY GRAPHS

[F3] Equation TYPE

[F6] more options

[F2] less than

HIGHLIGHT Y1

[sin] [X] [+] [2] Begin typing 1st equation to be $Y1 < \sin X + 2$

[EXE] Stores

[F3] Equation TYPE

[F6] more options

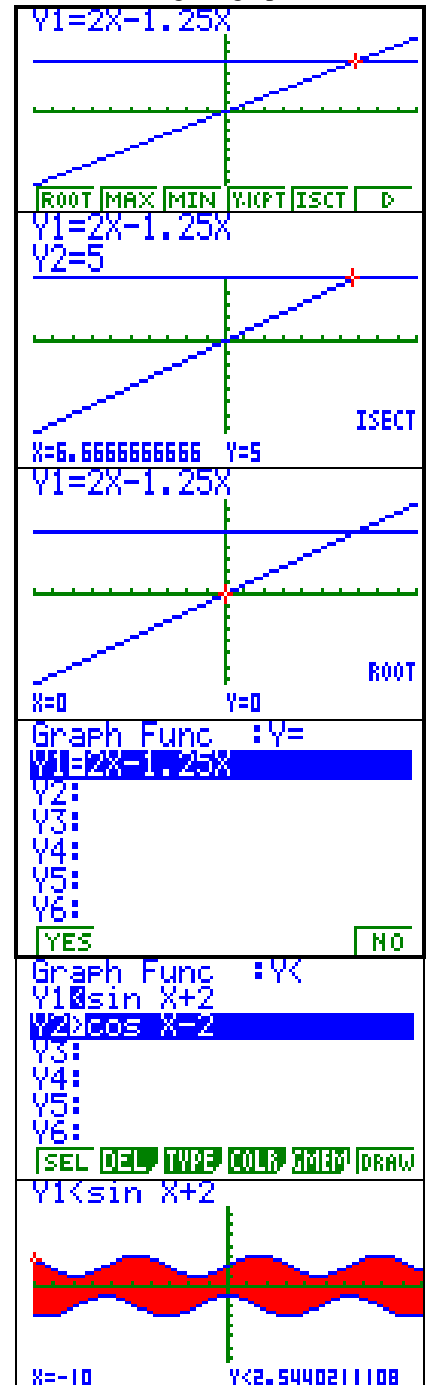
[F1] greater than

[cos] [X] [-] [2] 2nd equation is $Y2 > \cos X - 2$

[EXE] Stores

[F6] Draw

While viewing the graph...



*If you want to save an equation (or equations), use [F5] GMEM to store.

*If you want to keep an equation in the list, but not draw it, use [F1] SEL to select or deselect an equation.

TROUBLE SHOOTING

Graph won't draw...

Is it selected?

Did you use the multiply “x” instead of the variable “x”?

Did you use the negative instead of the subtraction sign?

Trig curve is a straight line... *Angle is set to degrees not radians*

To EDIT an equation...

Highlight the equation you want to edit, then press right or left arrow keys.

EQUATION ICON - [MENU][ALPHA][X,θ,T] (A)

SELECT one of the following :

- [F1]-SIML System of Equations, up to 6 unknowns
 [F2]-POLY Polynomial Root Finder (*Real and Complex roots*)

- [F1] **Choose Simultaneous Equation Solver:**
 [F1] Choose number of unknowns. Choose 2 unknowns.
 Enter numbers using [EXE]
 [F1] To solve.
 [EXIT] **Exit to the beginning**

- [F2] **Choose Polynomial Root Finder**
 [F1] Choose 2nd or 3rd degree. Choose 2nd degree.
 [1] [EXE] Enter numbers using [EXE].
 [2] [EXE]
 [3] [EXE]
 [F1] To solve.

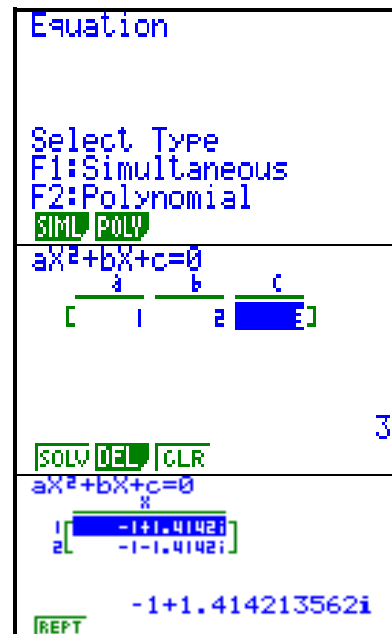


TABLE ICON - [MENU][7]

****Type over or delete the current equations in the list.**

****MAKE SURE your equation TYPE is not inequality... Read the sign beside Y1. It should say Y=.**

- [X,θ,T] [X²] Enter X² as the Y1 equation.
 [EXE] Stores

- [F5] Choose the table range

- [0] [EXE] Start at 0
 [5] [EXE] End at 5
 [1] [a^b/c] [2] pitch of ½ or 0.5
 [EXE]

Exit back out.

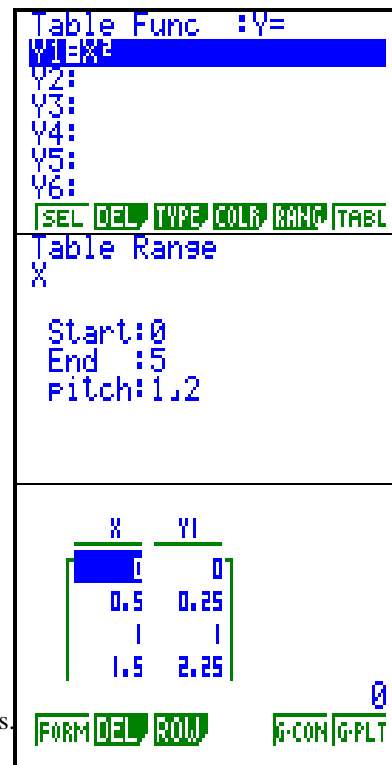
[EXIT]

- [F6] Generate TABLE

While viewing TABLE:

- [F1]-FORM Enter a new equation...go back to the "FORMula"
 [F2]-DELETE Delete table
 [F3]-ROW Delete, Insert, or Add rows
 [F5]-G-CON Graph table elements, connecting points
 [F6]-G-PLT Plot table elements on graph; does not connect points.

*Use [G↔T] to toggle between the graph and the table.



DYNAMIC GRAPHER

[MENU] [6]

See how a function is altered as a coefficient is altered.

**Delete any equations using [F2] [F1].

Choose the function you want to study. (or type in your own)

- [F5] **B-in** Built in function list
 Use arrows Highlight the function you want to study.
Y = AX + BX + C
 Arrow down (twice) until this equation is marked.
 [EXE] Chooses the highlighted equation.

OPTIONS-

- [F1]- SEL Selects and deselects equations to graph
 [F2]- DEL Delete equation
 [F3]- TYPE Changes the type of equation when entering your own
 [F4]- VAR Sets up the dynamic variables.
 [F5]- B-IN Choose from built in equations in standard form.
 [F6]- RCL Recall last equation.

[F4] To set up variables

- [F1] Selects "A" as dynamic variable.
 1 [EXE] Highlights A, and makes it = to 1
 1 [EXE] Highlights B, and makes it = to 1
 1 [EXE] Highlights C, and makes it = to 1

[F2] Choose RANGE to alter- Choose "A" to go from -3 to 3 and have a pitch of 1.
 [Exit] Back to coefficients

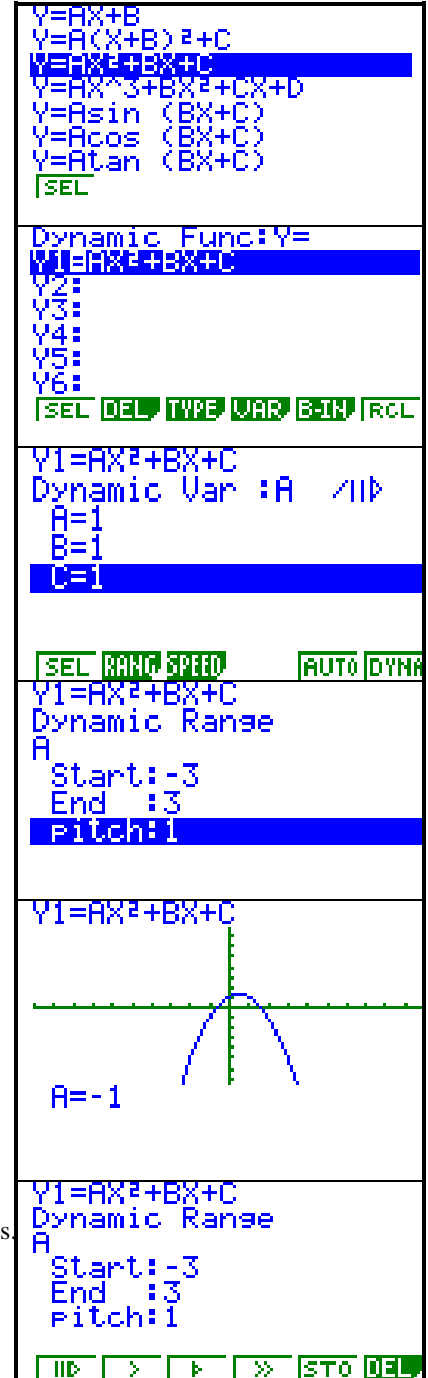
[F3] Choose SPEED to alter.
 [↓] Highlight "Slow" speed
 [F1] and [Exit] Select & Exit.

[F6] or [EXE] Starts the Dynamic graph. *WHAT is the graph doing?*

[AC/on] STOPS the graph
 [Exit] Back to coefficients
 [↓] Arrow down to highlight "B" as new dynamic variable.
 [F1] Selects "B" as dynamic variable.
 [F6] Starts Dynamic graph

[AC/on] Stops graph
 [Exit] Choose a new speed using F1-F4. Notice the symbols represent different speeds.

[AC/on] Stops graph
 [Exit] You can do the same for the "C" coefficient, but we won't!



TROUBLE SHOOTING

Graph won't draw...

Is the correct dynamic coefficient selected?

Is your viewing window correct?

Is the speed set at "Stop and GO" instead of normal?

Blue and Orange graphs...

Choose [SHIFT] [SETUP] to change "Locus" from "on" to "off".

MATRIX ICON [MENU] [3]

****MATRIX ICON FOR ENTERING & EDITING MATRICIES ONLY.**

****Do matrix calculations on the home screen (Run Icon).**

****Enter up to 27, 256 x 256 matrices.**

ENTER A NEW MATRIX (Yes you can use fractions in matrices)

[↑] [↓] 1st, highlight the Matrix you want to edit (Mat A through Mat Z). EX. Mat A

[2] [EXE] Start typing the dimensions.

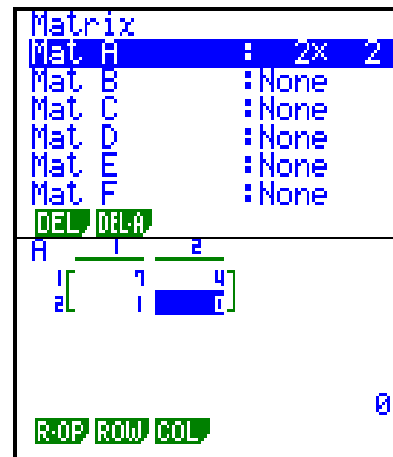
[2] [EXE]

[7] [EXE] Type the values into the matrix using [EXE] to move to the next cell.

[4] [EXE]

[1] [EXE]

[0] [EXE]



ROW OPERATIONS

**While editing a matrix you can select row operations from the soft menu bar, operated by the function keys.

[F1]-(r-op) Row Operations...see below... row swap, row multiply, add rows, mul & add row

Row-Operation Choices (the lower level menu)-

[F1] Swap Row swap: enter the 2 row #'s to swap.

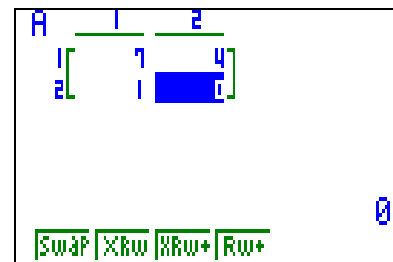
[F2] xRw Multiply a row by a number:
Enter # to multiply by, then row #.

[F3] xRw+ Multiply a row by a number, then add it to another row.

[F4] Rw+ Add 2 rows together to replace 1 row.

[F2]-(row) Delete, insert, or add another row.

[F3]-(col) Delete, insert, or add another column.



TO DO MATRIX CALCULATIONS-1ST GO TO THE RUN ICON → [MENU] [1]

[OPTN] Choose options key.

[F2] Choose Matrix options.

HERE ARE YOUR “LOWER LEVEL” SOFT MENU CHOICES

[F1]-Mat Label for Matrices A-E, and Ans.

[F2]-M→L Change an array matrix to a list.

[F3]-Det Determinant

[F4]-Trn Transpose a matrix

[F5]-Aug Augment a matrix

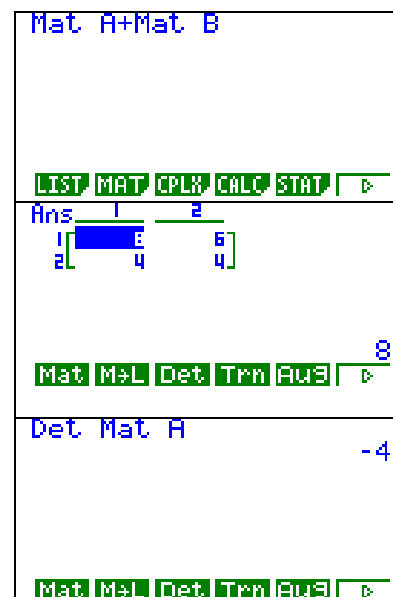
[F6]⇒ More options: [F1] Identity, [F2] Dimension, [F3] Fill

EXAMPLES: Keystrokes...

Mat A + Mat B = [F1] [ALPHA] [A] [+] [F1] [ALPHA] [B] [EXE]

Det Mat A = [F3] [F1] [ALPHA] [A] [EXE]

Trn Mat A = [F4] [F1] [ALPHA] [A] [EXE]



TROUBLE SHOOTING

* When performing calculations on matrices, the answer is always stored in “Mat Ans”. “Ans” is located above the negative key.

* Try finding the Determinant and then transpose a matrix.

CONICS ICON - [MENU][9]

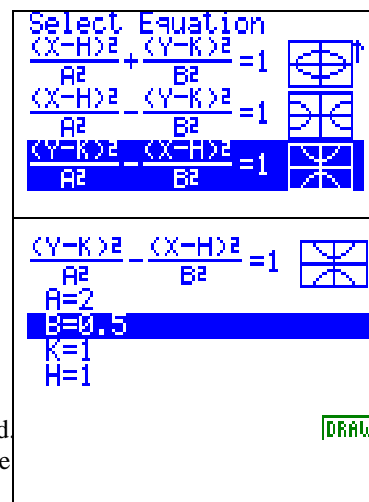
[↑] [↓] Use up and down arrow to highlight the type of icon you want to use.
 [EXE] To select

[2] [EXE]... Enter in each coefficient, pressing [EXE] to store each value.

[Shift] [F3] Set up a correct viewing window, if necessary.

[F6] Draws conic.

**[OPTN] key. Store the conic as a picture, or recall one you have already saved.
 This is useful if you want to draw a new conic and add a previously stored picture to the screen.

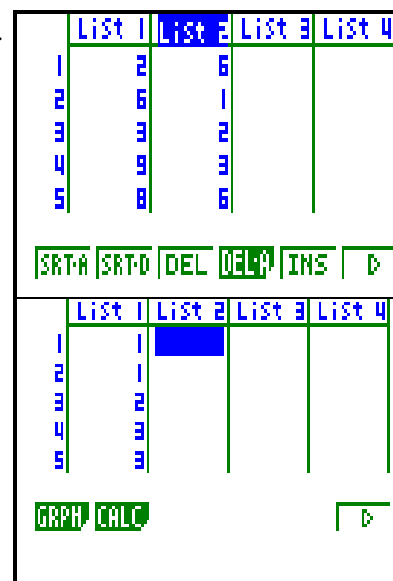


STATISTICS ICON - [MENU][2]

You are now viewing lists 1-6. There are 36 total lists (6 sets of 6 lists). Others available in LIST icon set-up.

TO DELETE DATA LISTS:

[←] [⇒] If there is data already in a list that you want to delete, put the cursor in that list.
 [F6] [F4] [F1] Deletes list.
 [←] [⇒] [F4] [F1] Repeat in other lists if necessary.
 [F6] More button takes you back to the other soft menu.



ENTER DATA:

Put the cursor in List 1, cell 1 .
 Enter 1, 1, 2, 3, 3, 4, and 5 in List 1 using [EXE] to enter each number.
 Move to List 2 with right arrow.
 Enter 1, 2, 3, 4, 5, 6, and 7 in List 2 using [EXE] to enter each number.

*If you wanted to you could make List 2 = (List 1 + List 3), or any like example. Move the cursor to the top of List 2, so that "List 2" is highlighted. Press [OPTN] [F1] [F1] 1 + [F1] 2

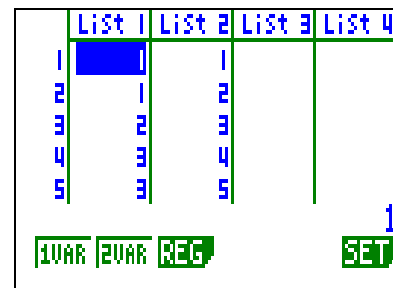
STATISTICS SOFT MENU OPTIONS:

[F1]-Graph Options Draw up to 3 graphs, select more than one to draw at a time, or set-up which lists to use.
 [F2]-Calculation Options Statistical calculations including 1 variable, 2 variable, and regressions, or set-up which lists to use.
 [F6]-More options Includes sort ascending, sort descending, delete cell, delete all, or insert row.

CALCULATION OPTIONS

[F2]: CALCULATE OPTIONS

[F1] Calculate 1 variable statistics
 [F2] Calculate 2 variable statistics
 [F3] Regression calculations: Includes linear, Median-Median graph, quadratic, cubic, quartic, logarithmic, exponential, and power
 [F6] Set-up for 1 and 2 variable calculations. Which lists to do calculations on?
 Use up and down arrow to highlight the option you want to change.
 Choose [F1]-[F5] or [F6] more button to change any lines' option.



CALCULATION EXAMPLE:

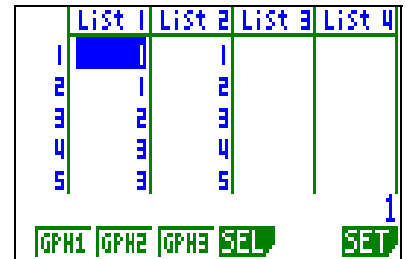
- [F6] Set-up which lists to do the calculations on.
- [F1] Choose the 1 variable X list to be LIST 1.
- [↓] [↓] Skip the frequency, leaving it at 1.
- [F1] [↓] Choose the 2 variable X list to be LIST 1.
- [F2] Choose the 2 variable Y list to be LIST 2.
- [EXIT] Exit back to the last screen.

- [F1] Shows the 1 variable statistical calculations.
- [F2] Shows the 2 variable statistical calculations.
- [EXIT] [EXIT]



GRAPH OPTIONS

- [F1] GRAPH OPTIONS
- [F1] Draw graph 1
- [F2] Draw graph 2
- [F3] Draw graph 3
- [F4] Use to select more than 1 graph to draw at the same time... turn on graphs to draw
- [F6] Set-up options for graphs 1, 2, and 3



EXAMPLES:

- [F6] Set-up which lists to graph, and what type of graph to draw.
- [F1] [↓] Chooses Graph 1 to set up, and move to next line.
- [F6] Choose more options
- [F1] [↓] Choose Histogram, and move to the next line.
- [F1] Choose List 1 to be the X List.

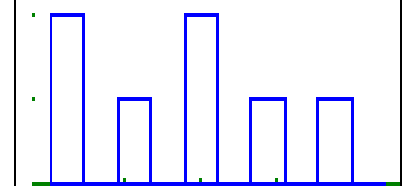


- [↑] [↑] Go up to the top line to choose another Stat Graph to set-up.
- [F2] [↓] Choose to set-up Graph 2, and move to next line.
- [F1] [↓] Choose Scatter plot.
- [F1] [↓] Choose List 1 as X list.
- [F2] [↓][↓][↓] Choose List 2 as Y list, and move 3 lines down.
- [F2] Make the graph color Orange.
- [EXIT] Exit

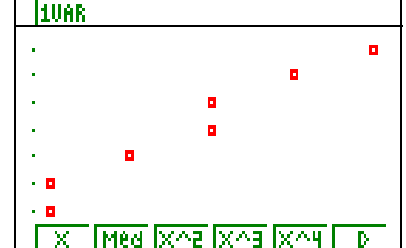


*****SET-UP FOR 1 AND 2 VARIABLE GRAPHS IS COMPLETE & SAVED.***

- [F1] Draws Stat Graph 1
- [EXIT] Exits back to last screen



- [F2] Draws Stat Graph 2



To Do Regression Analysis:

- [F1] Chooses Linear regression
- [F5] Choose to copy regression equation to the Graph function icon.
- [EXE] Stores equation in Y1 for use later. And returns you to last screen.
- [F6] Chooses to draw regression on scatter plot. ([SHIFT] [F1] to Trace.)

