

QUICK Reference Guide

fx-9750GII



Selecting the RUN  icon will allow you to perform general computations and arithmetic.

The function keys allow you to access the tab (soft key) menus that will come up at the bottom of the screen. When an  appears above the **F6** key, selecting **F6** will offer more on-screen choices.

The **MENU** key displays every mode the calculator has. To select a mode, you may   to the desired icon and press **EXE** or press the number or letter in the lower right hand corner of the icon.

The **EXIT** key operates like the back arrow on a web browser; it will take you back one screen each time you select it. The **EXIT** key *will not* take you to the icon menu.

The **F \leftrightarrow D** key is a toggle key that will change answers or entered numbers back and forth from decimal to fraction form.

The **AC/ON** key will power the unit on. To turn the unit off, press the yellow **SHIFT** key, then **AC/ON** key.

The **a $\frac{\square}{\square}$** key is used to obtain a fraction bar. To obtain a mixed number, press **a $\frac{\square}{\square}$** after inputting the whole number.

The **EXE** key executes operations. When data is entered, the **EXE** button must be pressed to store the data.

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The following explains the meaning of each icon on the fx-9750GII icon menu

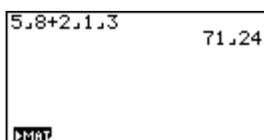
ICON	Menu Name	Description
	RUN	This icon menu is used for general computations, including absolute value, logs of any base, summation, derivatives, and integrals.
	STATISTICS	This icon menu is used to perform single-variable (standard deviation) and paired variable (regression) statistical calculations, to perform tests, to analyze data and to draw statistical graphs.
	GRAPH	This icon menu is used to quickly draw, store and calculate information of functions. Can graph polar, parametric, x=, and inequality graphs on the same screen.
	DYNAMIC GRAPH	This icon menu is used to draw multiple versions of a graph by changing the values in a function.
	TABLE	This icon menu is used to draw multiple versions of a graph by changing certain values in the function.
	RECURSION	This icon menu is used to store recursion formulas, to generate a numeric table of different solutions as the values assigned to the variables in a function change, and to draw graphs.
	CONICS	This icon menu is used to graph parabolas, circles, ellipses, and hyperbolas. You can input a rectangular or polar coordinate function or a parametric function for graphing.
	EQUATION	This icon menu is used to solve linear equations with two through six unknowns, and high-order equations from 2nd to 6th degree.
	PROGRAM	This icon menu is used to store programs in the program area and to run programs.
	TIME VALUE OF MONEY	This icon menu is used to perform financial calculations and to create cash flow and other types of graphs.
	DATA ANALYZER LINK	This icon menu is used to control the optionally available EA-200 Data Analyzer. For information about this icon menu, download the E-CON2 manual from http://edu.casio.com .
	LINK	This icon menu is used to transfer memory contents or back-up data to another unit or PC.
	MEMORY	This icon menu is used to manage data stored in memory.
	SYSTEM	This icon menu is used to initialize memory, adjust contrast, reset memory, and to manage other system settings.

RUN

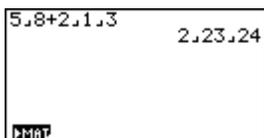
This section is an overview of the RUN MAT Icon. To select an icon from the icon menu system, use the ◀ ▶ ▲ ▼ to highlight the desired icon, then press **EXE** or press the number/letter in the lower right corner of the icon. For the Run menu, press **1** to display the initial RUN screen.

- When performing general computations, select **$\frac{a}{b}$** to enter fractions and mixed numbers. To solve the problem $\frac{5}{8} + 2\frac{1}{3}$ input the following:

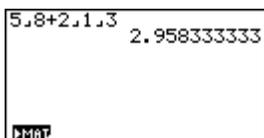
- 5** **$\frac{a}{b}$** **8** **+** **2** **$\frac{a}{b}$** **1** **$\frac{a}{b}$** **3** **EXE**



- To change the answer $\frac{71}{24}$ to a mixed number, press **SHIFT** **F↔D** ($a\frac{b}{c} \leftrightarrow \frac{d}{c}$).



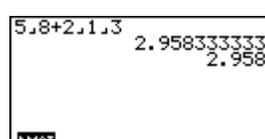
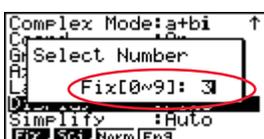
- To change the answer to a decimal approximation, press **F↔D**. **F↔D** is a toggle key that will switch entered data or answers from fraction to decimal form or decimal to fraction form.



- To change the displayed number of decimal places, enter the SET UP menu **SHIFT** **MENU**. ▼ to Display, select **F1** (Fix) and enter the desired amount of decimal places followed by **EXE**. For this example, 3 decimal places are used.

Note: Every icon's Set Up menu is accessed in the same way.

- SHIFT** **MENU** ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ **F1** **3** **EXE** **EXIT** **EXE** **F↔D**

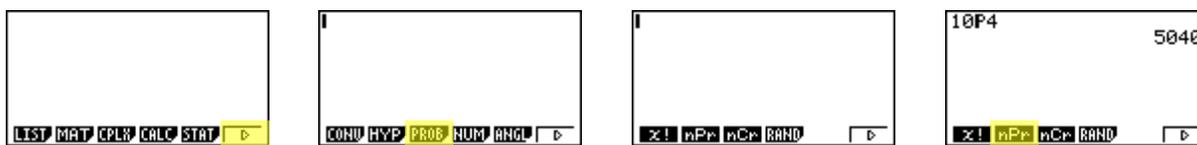


RUN

From the RUN menu, many calculations can be entered by selecting **OPTN**. For example: hyperbolic, probability /distribution, numeric (including differential and integration), conversion, engineering, complex number and binary, octal, decimal and hexadecimal calculations.

5. To calculate the possible number of different arrangements using 4 items selected from among 10 items, enter the following from the Run home screen:

- **OPTN** **F6** **F3** **1** **0** **F2** **4** **EXE**



Note: The fixed decimal setting was changed back to Norm1.

6. To calculate $|-10^3 + 2|$, enter the following from the RUN home screen:

- **OPTN** **F3** **F2** **(** **(←)** **1** **0** **^** **3** **+** **2** **)** **EXE**



Note: Calculations can be performed with complex numbers and answers can be displayed in a+bi form.

7. To calculate $|3+4i|$; enter the following from the RUN home screen:

- **OPTN** **F3** **F2** **(** **3** **+** **4** **F1** **)** **EXE**



8. To calculate $(-3 + 2i) + 15i$; enter the following:

- **OPTN** **F3** **(** **(←)** **3** **+** **2** **F1** **)** **+** **1** **5** **F1** **EXE**



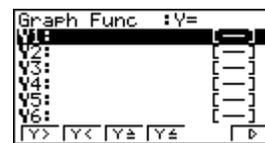
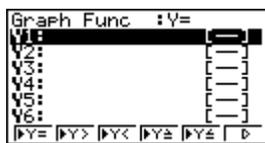
GRAPH

Various icon (Run, Table, Dynamic, Recursion & Conics) will allow you to graph or analyze the graphs of given information. This section is an overview of the GRAPH Icon and will highlight some basic features of this mode.

The initial screen allows immediate input of functions set equal to zero. You may begin inputting data into Y1: and press **EXE** to store; to draw your function(s), select **F6**.



You can change the type of graph (r = polar coordinates, parametric functions, x =, and y-inequalities) by selecting the corresponding TYPE button and then press the **▶** to begin inputting information.



When the TYPE of graph is changed, it only effects the current line and entries below it. Functions already stored are unchanged.

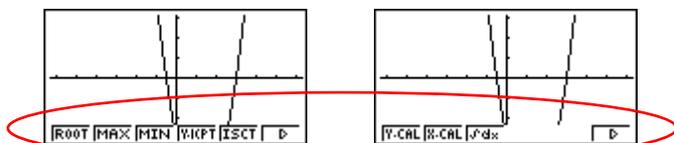
1. To draw the graph of the function $y=2x^2-5x-3$ from the Icon Menu system, input the following:

- **3 2 X,θ,T x² - 5 X,θ,T - 3 EXE**



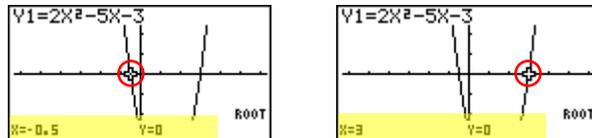
To quickly change your window, you can utilize the Replay arrows. Specific changes can be made to the viewing window by selecting V-Win **F3**.

To analyze features of this graph (roots, maximum and minimums, y-intercepts, intersections, determine coordinates, and integrals) select **F5** (G-Solve).



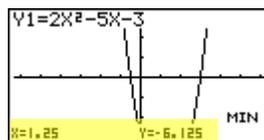
GRAPH

2. **F1** (Root):



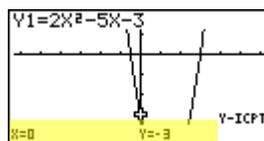
Note: To display the next root, simply press **▶**.

3. **F3** (Minimum):

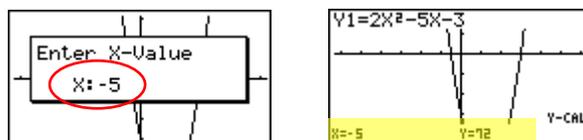


Note: As long as the x -value of your vertex is in the viewable domain; you do not need to see the vertex to calculate the minimum value.

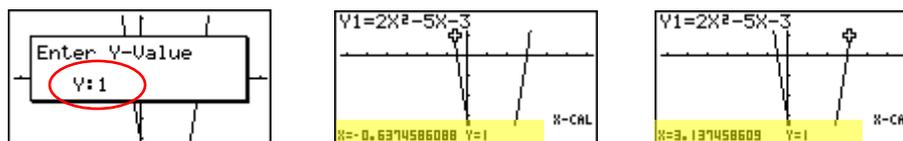
4. **F4** (y-intercept):



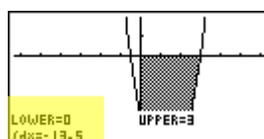
5. **F1** (y-calculation): What is the value of y when x is -5?



6. **F2** (x-calculation): What is the value(s) of x when y is 1?



7. **F3** (integral): Determine the integral value from (0,3) for the function $Y1=2x^2 - 5x-3$.



TABLE

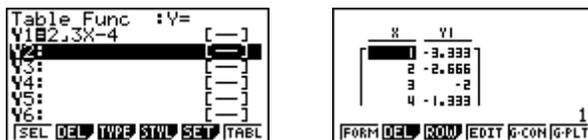
The section is an overview of the TABLE Icon. To select this icon, you may highlight it and press **EXE** or press **5**.

The initial screen allows immediate input of functions that are set equal to **0**. To change the type of expression to be entered, press **F3** (TYPE) and select **F2** (r=) for polar coordinates, **F3** (Parm) for parametric functions or **F4** (CONV) to convert a previously entered function to an inequality.

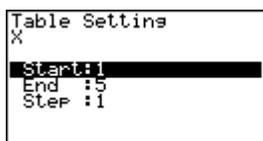


1. To see a table for the function $y = \frac{2}{3}x - 4$, highlight Y1: and input the following:

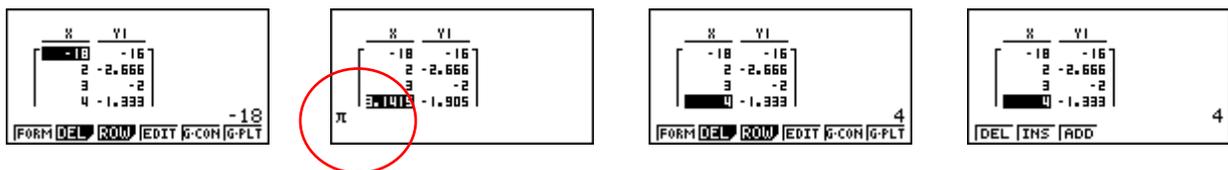
- **2** $\frac{a}{b}$ **3** X, θ, T **-** **4** **EXE** **F6**



2. The default setting for tables is: X starts at 1, ends at 5, and increases by increments of 1. You change this by pressing **EXIT** or **F1** (FORM) to return to the initial screen and then select **F5** (SET).

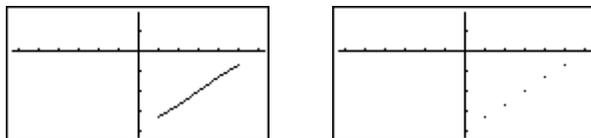


3. However, you can manually enter a number anywhere in the x-column of the table and press **EXE** to see the corresponding y-value (including fractions, decimals, even π). You can insert and delete rows in this view by pressing **F3** (ROW). This is a quick way to custom make tables.



TABLE

4. From the table view screen, you can press **F5** (G-CON) to see a linear graph or **F6** (G-PLT) to see a plot graph for the function you entered.



5. To see a split screen of your table and graph, press **SHIFT** **MENU** to enter the SET UP menu for the TABLE icon. Scroll down to Dual Screen, select **F1** (T + G), **EXIT**, then **F6** (TABL).

If you manually entered values to the previous table that you still want displayed, you can re-enter them here, then press **EXE** to see the graph of that table.

Variable	:Range
Graph Func	:On
Dual Screen	:Off
Frac Result	:d/c
Simul Graph	:Off
Derivative	:Off
Background	:None ↓
Range	:LIST

Variable	:Range
Graph Func	:On
Dual Screen	:Off
Frac Result	:d/c
Simul Graph	:Off
Derivative	:Off
Background	:None ↓
T+G	:Off

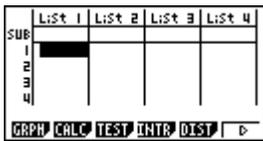
Table+Graph	:V=
Y1	:2.3X-4
Y2	:---
Y3	:---
Y4	:---
Y5	:---
Y6	:---
[SEL]	[DEL] [IMP] [STYL] [SET] [TABL]

	X	Y1
	1	-1.666
	2	-2.666
	3	-2
	4	-1.333
	5	-0.666
	6	0
	7	0.666
	8	1.333
	9	2
	10	2.666
	11	3.333
	12	4
	13	4.666
	14	5.333
	15	6
	16	6.666
	17	7.333
	18	8
	19	8.666
	20	9.333
	21	10
	22	10.666
	23	11.333
	24	12
	25	12.666
	26	13.333
	27	14
	28	14.666
	29	15.333
	30	16
	31	16.666
	32	17.333
	33	18
	34	18.666
	35	19.333
	36	20
	37	20.666
	38	21.333
	39	22
	40	22.666
	41	23.333
	42	24
	43	24.666
	44	25.333
	45	26
	46	26.666
	47	27.333
	48	28
	49	28.666
	50	29.333
	51	30
	52	30.666
	53	31.333
	54	32
	55	32.666
	56	33.333
	57	34
	58	34.666
	59	35.333
	60	36
	61	36.666
	62	37.333
	63	38
	64	38.666
	65	39.333
	66	40
	67	40.666
	68	41.333
	69	42
	70	42.666
	71	43.333
	72	44
	73	44.666
	74	45.333
	75	46
	76	46.666
	77	47.333
	78	48
	79	48.666
	80	49.333
	81	50
	82	50.666
	83	51.333
	84	52
	85	52.666
	86	53.333
	87	54
	88	54.666
	89	55.333
	90	56
	91	56.666
	92	57.333
	93	58
	94	58.666
	95	59.333
	96	60
	97	60.666
	98	61.333
	99	62
	100	62.666
	101	63.333
	102	64
	103	64.666
	104	65.333
	105	66
	106	66.666
	107	67.333
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	109	68.666
	110	69.333
	111	70
	112	70.666
	113	71.333
	114	72
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	116	73.333
	117	74
	118	74.666
	119	75.333
	120	76
	121	76.666
	122	77.333
	123	78
	124	78.666
	125	79.333
	126	80
	127	80.666
	128	81.333
	129	82
	130	82.666
	131	83.333
	132	84
	133	84.666
	134	85.333
	135	86
	136	86.666
	137	87.333
	138	88
	139	88.666
	140	89.333
	141	90
	142	90.666
	143	91.333
	144	92
	145	92.666
	146	93.333
	147	94
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	152	97.333
	153	98
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	155	99.333
	156	100
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	158	101.333
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	183	118
	184	118.666
	185	119.333
	186	120
	187	120.666
	188	121.333
	189	122
	190	122.666
	191	123.333
	192	124
	193	124.666
	194	125.333
	195	126
	196	126.666
	197	127.333
	198	128
	199	128.666
	200	129.333
	201	130
	202	130.666
	203	131.333
	204	132
	205	132.666
	206	133.333
	207	134
	208	134.666
	209	135.333
	210	136
	211	136.666
	212	137.333
	213	138
	214	138.666
	215	139.333
	216	140
	217	140.666
	218	141.333
	219	142
	220	142.666
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	224	145.333
	225	146
	226	146.666
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	232	150.666
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	249	162
	250	162.666
	251	163.333
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	254	165.333
	255	166
	256	166.666
	257	167.333
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	259	168.666
	260	169.333
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	262	170.666
	263	171.333
	264	172
	265	172.666
	266	173.333
	267	174
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	269	175.333
	270	176
	271	176.666
	272	177.333
	273	178
	274	178.666
	275	179.333
	276	180
	277	180.666
	278	181.333
	279	182
	280	182.666
	281	183.333
	282	184
	283	184.666
	284	185.333
	285	186
	286	186.666
	287	187.333
	288	188
	289	188.666
	290	189.333
	291	190
	292	190.666
	293	191.333
	294	192
	295	192.666
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	297	194
	298	194.666
	299	195.333
	300	196
	301	196.666
	302	197.333
	303	198
	304	198.666
	305	199.333
	306	200
	307	200.666
	308	201.333
	309	202
	310	202.666
	311	203.333
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	314	205.333
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	335	219.333
	336	220
	337	220.666
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	339	222
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	344	225.333
	345	226
	346	226.666
	347	227.333
	348	228
	349	228.666
	350	229.333
	351	230
	352	230.666
	353	231.333
	354	232
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	356	233.333
	357	234
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	374	245.333
	375	246
	376	246.666
	377	247.333
	378	248
	379	248.666
	380	249.333
	381	250
	382	250.666
	383	251.333
	384	252
	385	252.666
	386	253.333
	387	254
	388	254.666
	389	255.333
	390	256
	391	256.666
	392	257.333
	393	258
	394	258.666
	395	259.333
	396	260
	397	260.666
	398	261.333
	399	262
	400	262.666
	401	263.333
	402	264
	403	264.666
	404	265.333
	405	266
	406	266.666
	407	267.333
	408	268
	409	268.666
	410	269.333
	411	270
	412	270.666
	413	271.333
	414	272
	415	272.666
	416	273.333
	417	274
	418	274.666
	419	275.333
	420	276
	421	276.666

STATISTICS

This section is an overview of the STAT Icon; it will highlight just a few of the features for single-variable data and paired-variable data. To select this icon, you may highlight it and press **EXE** or press **2**.

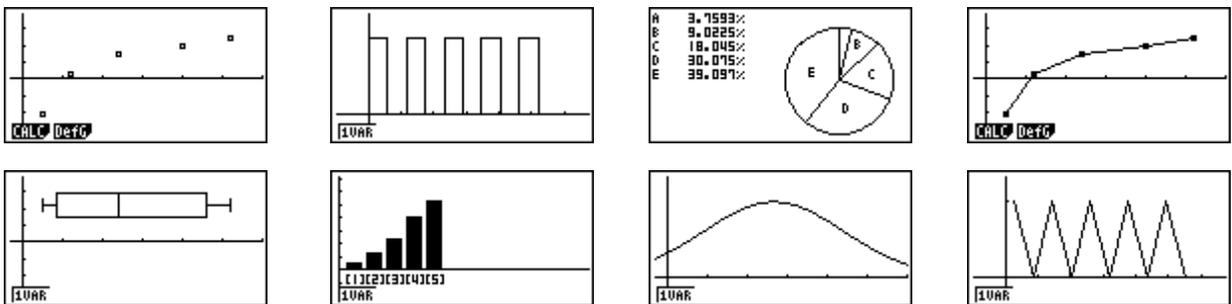
The initial List Editor Screen allows input of statistical data and performs numerous statistical calculations. To input a list of single-variable data, highlight the first cell under List 1 and enter each number followed by **EXE**.



1. For this example, input this set of data:

List 1	1	0.5	1.2	4	-1	1	3	5	6	3.4
--------	---	-----	-----	---	----	---	---	---	---	-----

2. From this screen, you can display various statistical graphs depending on whether you have single or paired-variable data (scatter-plot, line, normal probability, histogram, median box, mean box, normal distribution, broken line, and regression: linear, quadratic, cubic, quartic, logarithmic, exponential, power, sinusoidal and logistic).

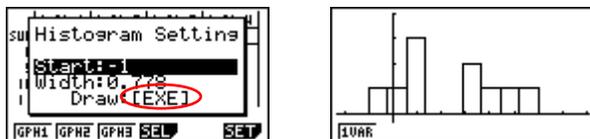


3. The initial default graph is a scatter-plot. To change the type of graph you would like to use, press **F1** (GRPH), then **F6** (SET), **▼** to **Graph Type:**, for this set of data, we will make a histogram, press **F6**, and then **F1** for histogram.

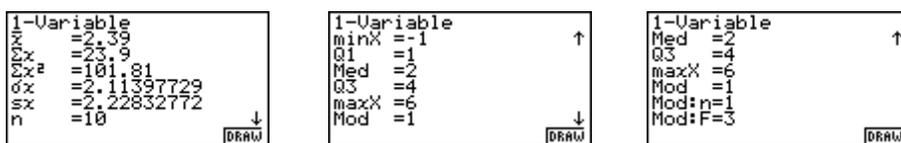


STATISTICS

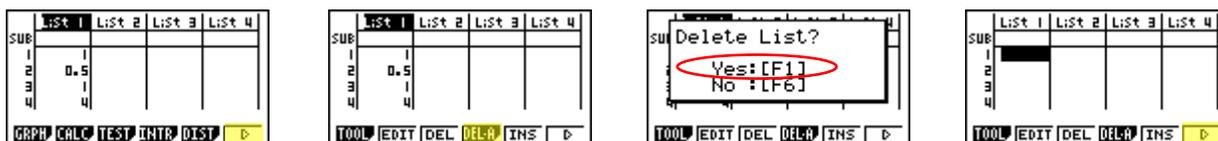
4. Press **EXIT** to return to your list of data, select **F1** (GPH1) and then **EXE** to see your graph.



5. The following screenshots show one-variable calculations that can be obtained by pressing **F1**.



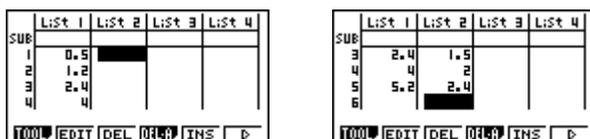
6. To delete this set of data, press **EXIT** until you return to the initial List Editor screen. Select **F6** for more options, arrow up until List 1 is highlighted, select **F4** (Del-A), then **F1**.



7. For paired variable data, use the following:

List 1	0.5	1.2	2.4	4	5.2
List 2	-2.1	0.3	1.5	2	2.5

Enter List 1 first, and then **▶** to begin entering List 2. The cursor will automatically move to the beginning of the next list.



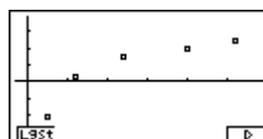
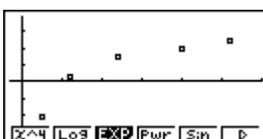
STATISTICS

8. To see a scatter-plot of these data, you can go through and change GPH 1 back, using the process above, or select **F2** (GPH 2) from the List Editor screen whose default is also a scatter-plot.

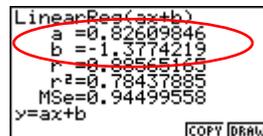
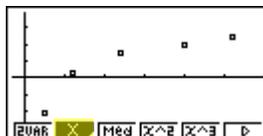
	List 1	List 2	List 3	List 4
SUB				
3	2.4	1.5		
4	4	2		
5	5.2	2.4		
6				5.2



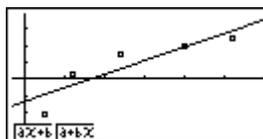
9. From the scatter-plot screen, pressing **F1** will show all the calculations that can be obtained from this set of data.



10. To calculate a linear regression for these data, select **F2** from the first set of options and then press **F2** for the preferred form. For this example, we will use $y = ax + b$.



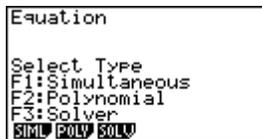
11. From this screen, select **F5** (COPY) to copy and then paste the regression equation into the initial Graph screen or select **F6** (DRAW) to show the linear regression.



EQUATION

This section is an overview of the EQUATION Icon. To select this icon, highlight it and press **EXE** or press **8**.

The initial Equation Editor screen has three modes to choose from, Simultaneous, Polynomial, and Solver; this section will give an overview of each mode.



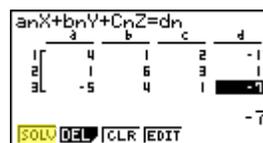
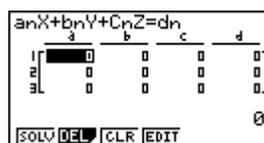
The Simultaneous mode allows you to solve simultaneous linear equations that contain two to six unknowns.

1. Solve the following system of equations:

$$\begin{cases} 4x + y - 2z = -1 \\ x + 6y + 3z = 1 \\ -5x + 4y + z = -7 \end{cases}$$

Press **F1** to select the Simultaneous mode and press **F2** for three unknowns. The calculator will display a matrix where the coefficients and constants can be entered in to as long as each equation is in *standard* form. To enter this system of equations (already in standard form) input the following:

- **4** **EXE** **1** **EXE** **(-)** **2** **EXE** **(-)** **1** **EXE**
- **1** **EXE** **6** **EXE** **3** **EXE** **1** **EXE**
- **(-)** **5** **EXE** **4** **EXE** **1** **EXE** **(-)** **7** **EXE**



There are four options at the bottom of the screen, press **F1** (SOLV). The solution to this system is

$$\begin{bmatrix} x = 1 \\ y = -1 \\ z = 2 \end{bmatrix}$$

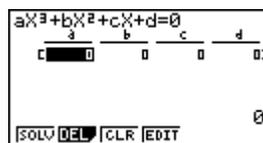
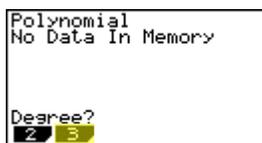
EQUATION

Press **EXIT** to return to the previous screen, press **F1** (REPT) to edit this problem or continue solving simultaneous equations with three unknowns. To edit just one of the numbers in the system, arrow to the number to be edited and press **F4** (EDIT) or highlight the number to be edited and just enter the new number, then press **EXE**.

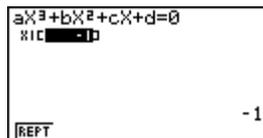
Press **EXIT** until the Equation Editor screen is displayed. The second mode is **F2** Polynomial and can be used to solve high-order equations in standard form that are, from the 2nd to the 6th degree.

2. To solve the equation $x^3 - 2x^2 - x + 2 = 0$, input the following:

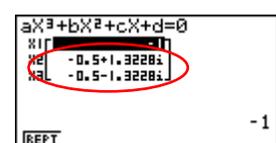
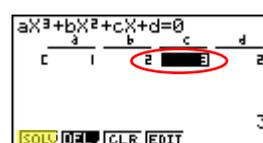
• **F2** **F2** **1** **EXE** **(←)** **2** **EXE** **(←)** **1** **EXE** **2** **EXE** **F1**



3. To change the equation to $x^3 + 2x^2 + 3x + 2 = 0$, select **F1** (REPT) and change the b-value to 2, the c-value to 3 and press **F1** (SOLV).



4. The default setting is for real numbers; to change the display to a+bi form, press **SHIFT** **MENU** for the Polynomial SET UP menu, select **F2** (a+bi), **EXIT**, then **F1** (SOLV).

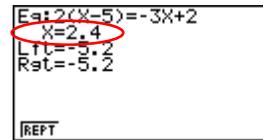
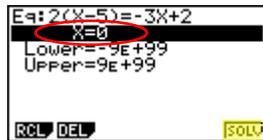


Solver is the third function **F3** and allows you to determine the value of any variable in a formula or equation. You can input any formula exactly as it appears using **ALPHA** for any variables. In this example, we will solve a linear equation and a formula.

EQUATION

5. To find the value of x in the following equation, $2(x - 5) = -3x + 2$, input the following, starting from the Equation Editor Screen:

- **F3** **2** **(** **X,θ,T** **=** **5** **)** **SHIFT** **□** **(-)** **3** **X,θ,T** **+** **2** **EXE** **F6**

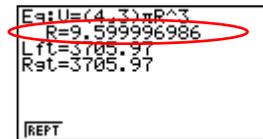


In the last screen, “Lft” and “Rgt” represent the values of the left and right sides of the equation that have been calculated using the solution; this is the calculator’s way of checking the solution.

You can also enter a formula, assign values, and solve for a specific variable using the Solver function of the Equation Editor.

6. Find the radius (to the nearest hundredth) of a sphere, whose volume is 3705.97 cm^3 . To enter the formula $V = \frac{4}{3}\pi r^3$ input the following in to the calculator:

- **F1** **▲** **ALPHA** **2** **SHIFT** **□** **4** **α_θ** **3** **SHIFT** **EXP** **ALPHA** **6** **∧** **3** **EXE**

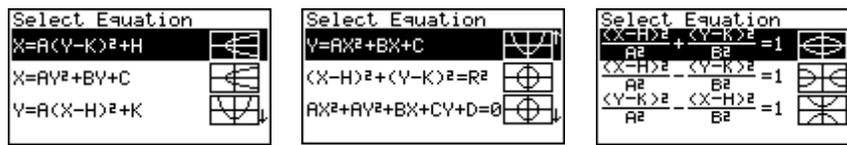


Note: Selecting **F1** will take you back to the previous screen where you can edit and re-solve the previous equation or begin a new problem.

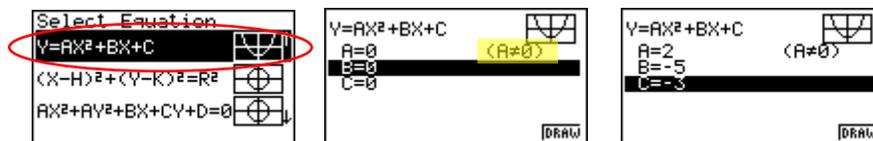
CONICS

This section is an overview of the CONICS Icon. To select this icon, you may highlight it and press **EXE** or press **7**.

The initial CONICS screen allows you to choose from various conic functions, including rectangular, polar or parametric form. You may use the **▲** **▼** to select the equation of the function in accordance with the type of graph you want to draw. Once you have chosen the conic function you would like to graph, enter the coefficients of the function and then press DRAW **F6**.



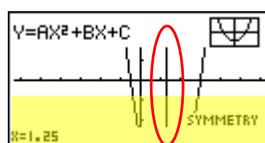
1. To view the graph of the conic: $y = 2x^2 - 5x - 3$, select the form from the Conics formula menu.



In the Conics modes, when you press **F5** (G-Solv), although you are still graphing a parabola like in the graphing section, notice how the vocabulary and options have changed to be conic specific.



2. For example, you can now examine the line of symmetry for this parabola and the equation of that line will be displayed.



You can continue to analyze different areas of this graph and the line of symmetry will still be displayed.

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