Selecting the RUN-MATRIX ⬛ 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↔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 $a\frac{b}{c}$ key is used to obtain a fraction bar. To obtain a mixed number, press $a\frac{b}{c}$ 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

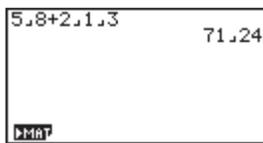| Icon	Menu Name	Description
	RUN-MATRIX	This icon menu is used for general computations, including absolute value, logs of any base, summation, derivatives, integrals, and matricies.
	STATISTICS	This icon menu is used to perform single-variable (standard deviation) and paired variable (regression) statistical 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 store functions, to generate a numeric table of different solutions as the values assigned to the variables in a function change, and to draw graphs.
	RECURSION	This icon menu is used to store recursive 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 higher-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.

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.

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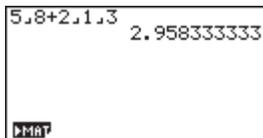
   - [5] [a$\frac{b}{c}$] [8] [+] [2] [a$\frac{b}{c}$] [1] [a$\frac{b}{c}$] [3] [EXE]

   ```
   5⌐8+2⌐1⌐3
                  71⌐24

   ▶MAT
   ```

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

   ```
   5⌐8+2⌐1⌐3
                2⌐23⌐24

   ▶MAT
   ```
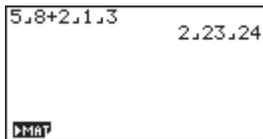
3. To change the answer to a decimal approximation, press [F↔D]. [F↔D] is a toggle key that will switch entered data or answers from fraction to decimal form or decimal to fraction form.

   ```
   5⌐8+2⌐1⌐3
              2.958333333

   ▶MAT
   ```

4. To change the displayed number of decimal places, enter the SET UP menu by pressing [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 manner.*

   - [SHIFT] [MENU] ⊲ ⊲ ⊲ ⊲ ⊲ ⊲ ⊲ ⊲ ⊲ ⊲ [F1] [3] [EXE] [EXIT] [EXE] [F↔D]

   ```
   Complex Mode:a+bi    ↑
   Coord        :On
   Grid         :Off
   Axes         :On
   Label        :Off
   Display      :Fix3
   Simplify     :Auto
   Fix  Sci  Norm  Eng
   ```
   ```
   Complex Mode:a+bi    ↑
   C┌─────────────────┐
   G│ Select Number   │
   A│                 │
   L│   Fix[0~9]: 3   │
   D└─────────────────┘
   Simplify     :Auto
   Fix  Sci  Norm  Eng
   ```
   ```
   5⌐8+2⌐1⌐3
              2.958333333
                    2.958

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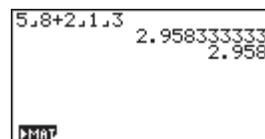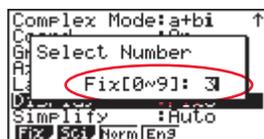
From the RUN menu, many calculations can be performed by selecting [OPTN] . For example: hyperbolic, probability /distribution, numeric (including differential and integration), conversion, engineering, complex number and binary, octal, decimal and hexadecimal calculations.

5. To calculate the number of different arrangements of 10 items when choosing 4 at a time, enter the following from the initial Run screen:

- [OPTN] [F6] [F3] [1] [0] [F2] [4] [EXE]
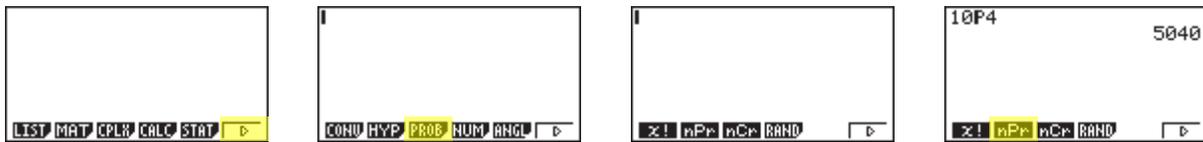
Note: The fixed decimal setting was changed back to Norm1.

6. To calculate $\left| -10^3 + 2 \right|$, enter the following from the initial RUN 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 $\left| 3+4i \right|$; enter the following from the initial RUN 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]

This section is an overview of the GRAPH Icon and will highlight some basic features of this mode. To enter the Graph menu, highlight the icon and press [EXE] or press [3].

The initial screen is the function/relation editor. Enter a function in **Y1** and press [EXE] to store it. To draw the function, press [F6].

You can change the type of graph (r = polar coordinates, parametric functions, x =, and y-inequalities) by pressing [F3] (TYPE), then selecting the corresponding TYPE button. Press ▶ to begin inputting information.
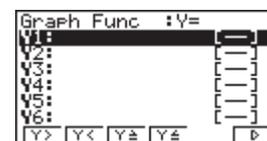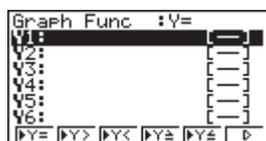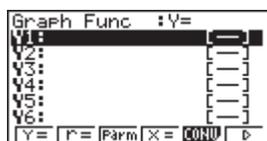
Note: When the TYPE of graph is changed, it only effects the current line and entries below it. Functions already stored are unchanged.

1. To draw the graph of the function $y = 2x^2 - 5x - 3$ from the Graph editor screen, input the following:

   • [2] [X,θ,T] [x²] [−] [5] [X,θ,T] [−] [3] [EXE] [F6]
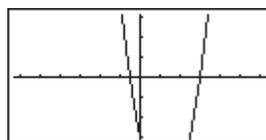
To quickly change your window, you can utilize the Replay arrows. Specific changes can be made to the viewing window by selecting V-Window ([F3]).

To analyze features of this graph (roots, maximum and minimums, y-intercepts, intersections, determine coordinates, and integrals), select [F5] (G-Solv).
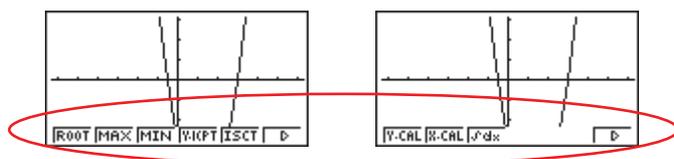
2. F1 (Root):
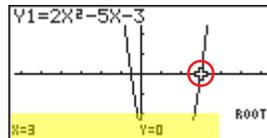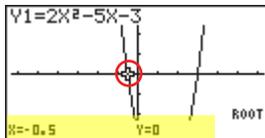
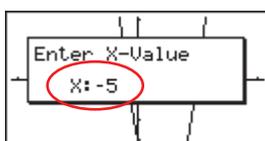   *Note: To display the next root, simply press* ▶ *.*

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.
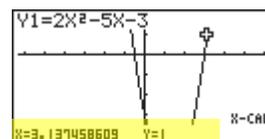
4. F4 (y-intercept):
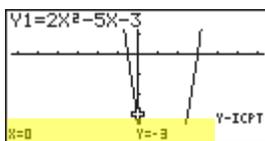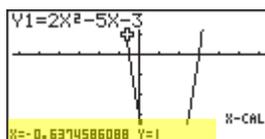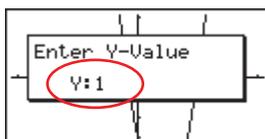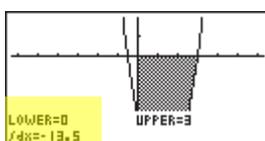

5. F1 (y-calculation): What is the value of *y* when *x* is -5?
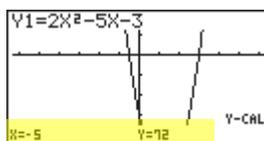
6. F2 (x-calculation): What is the value(s) of *x* when *y* is 1?

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

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

Note: Functions previously entered in Graph will appear in Table

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

   • 〔2〕 〔a b/c〕 〔3〕 〔X,θ,T〕 〔−〕 〔4〕 〔EXE〕


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 〔F5〕(SET). When complete, press 〔EXIT〕, then 〔F6〕(TABL).
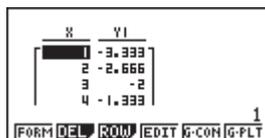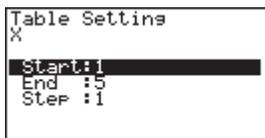

3. However, you can manually enter a number anywhere in the x-column of the table and press 〔EXE〕 to see the corresponding y-value (including fractions, decimals, even π). You can insert and delete rows in this view by pressing 〔F3〕(ROW). This is a quick way to customize your tables.
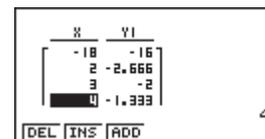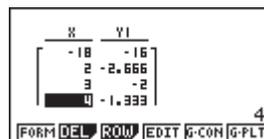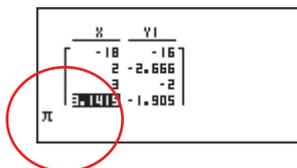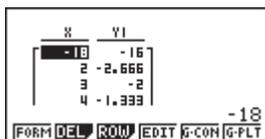
4. From the table view screen, you can press [F5](G-CON) to see a linear graph or [F6](G-PLT) to see a plot graph for the function you entered.
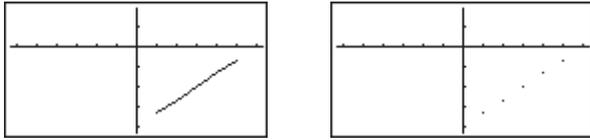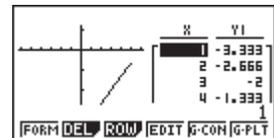
5. To see a split screen of your table and graph, press [SHIFT] [MENU] to enter the SET UP menu for the TABLE icon. Scroll down to Dual Screen, select [F1](T + G), [EXIT], then [F6](TABL).

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.

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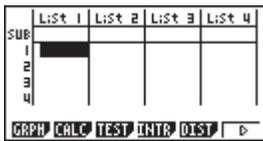
1. For this example, input this set of data:

| List 1	1	0.5	1	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).
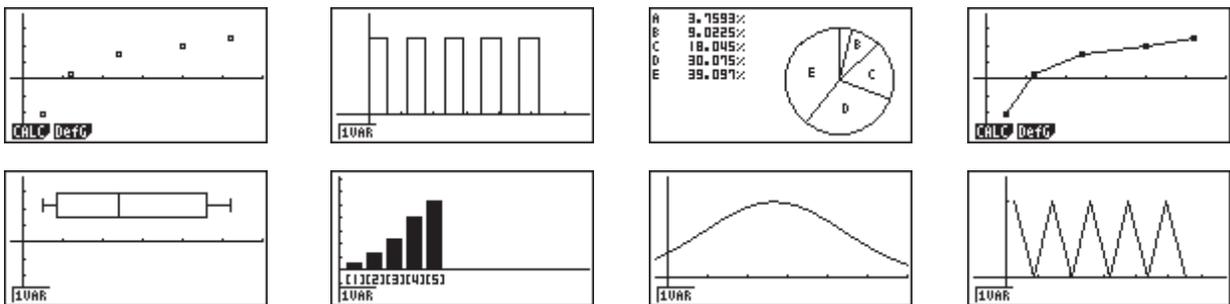

3. The initial default graph is a scatter-plot. To change the type of graph you would like to use, press [F1](GRPH), [F6](SET), and ⊙ to **Graph Type:**. For this set of data, we will make a histogram, press [F6], and then [F1] for histogram.
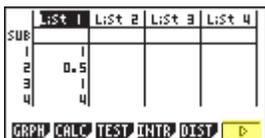
4. Press [EXIT] to return to your list of data, select [F1](GPH1) and then [EXE] to see your graph.
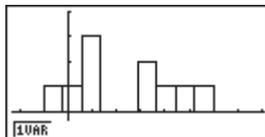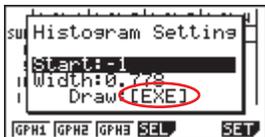
5. The following screenshots show one-variable calculations that can be obtained by pressing [F1](1VAR).
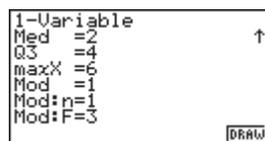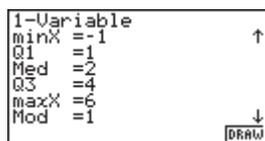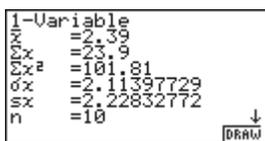
6. To delete this set of data, press [EXIT] until you return to the initial List Editor screen. Select [F6] for more options, select [F4](Del-A), then [F1](Yes).

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	2.4

Enter List 1 first, and then ▶ to begin entering List 2. The cursor will automatically move to the beginning of the next list.
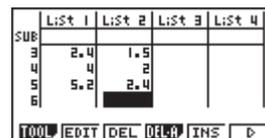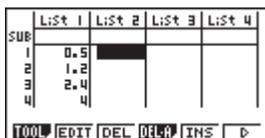
8. To see a scatter-plot of these data, you can go through and change GPH 1 back, using the process above, or select [F2] (GPH 2) from the List Editor screen whose default is also a scatter-plot.
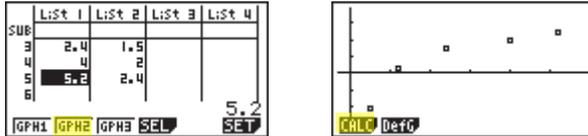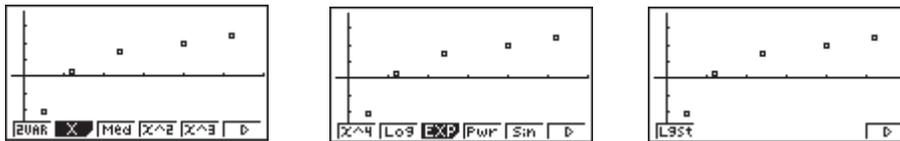

9. From the scatter-plot screen, pressing [F1] (CALC) will show all the calculations that can be obtained from this set of data.

10. To calculate a linear regression for these data, select [F2] (X) from the first set of options and then press [F1] (ax+b) for the preferred form. For this example, we will use y = ax + b.
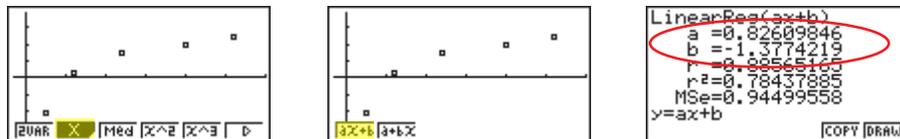
11. From this screen, select [F5] (COPY) to copy and then paste the regression equation into the initial Graph screen or select [F6] (DRAW) to show the linear regression.
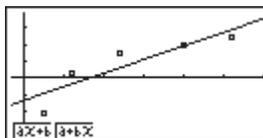
This section is an overview of the EQUATION Icon. To select this icon, highlight it and press [EXE] or press [8].

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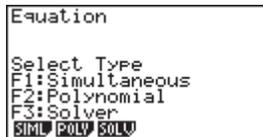
```
Equation

Select Type
F1:Simultaneous
F2:Polynomial
F3:Solver
SIML POLY SOLV
```
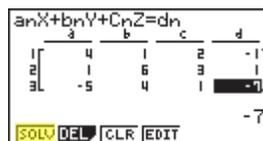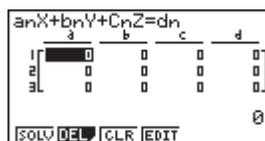
The Simultaneous mode allows you to solve simultaneous linear equations that contain two to six unknowns.

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](SIML) to select the Simultaneous mode and press [F2](3) for three unknowns. The calculator will display a matrix where the coefficients and constants can be entered in, 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]

```
Simultaneous
No Data In Memory



Number Of Unknowns?
2 3 4 5 6
```

```
anX+bnY+CnZ=dn
     a    b    c    d
1[   0    0    0    0]
2[   0    0    0    0]
3[   0    0    0    0]
                     0
SOLV DEL CLR EDIT
```

```
anX+bnY+CnZ=dn
     a    b    c    d
1[   4    1    2   -1]
2[   1    6    3    1]
3[  -5    4    1   -7]
                    -7
SOLV DEL CLR EDIT
```

There are four options at the bottom of the screen, press [F1](SOLV). The solution to this system is
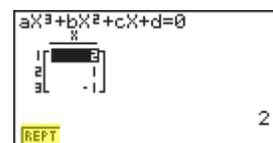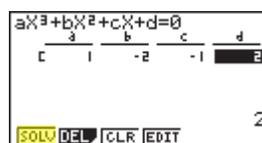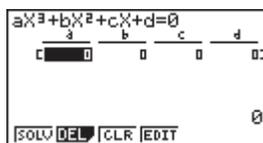
$$\begin{bmatrix} x = 1 \\ y = -1 \\ z = 2 \end{bmatrix}$$

quation
Press $\boxed{\text{F1}}$ (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 $\boxed{\text{F4}}$ (EDIT) or highlight the number to be edited and just enter the new number, then press $\boxed{\text{EXE}}$.

Press $\boxed{\text{EXIT}}$ until the initial Equation Editor screen is displayed. The second mode is Polynomial ($\boxed{\text{F2}}$) and can be used to solve higher-order equations in standard form that are, from the 2nd to the 6th degree.

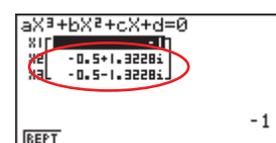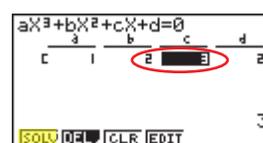2. To solve the equation $x^3 - 2x^2 - x + 2 = 0$, input the following:

- $\boxed{\text{F2}}$ $\boxed{\text{F2}}$ $\boxed{1}$ $\boxed{\text{EXE}}$ $\boxed{(-)}$ $\boxed{2}$ $\boxed{\text{EXE}}$ $\boxed{(-)}$ $\boxed{1}$ $\boxed{\text{EXE}}$ $\boxed{2}$ $\boxed{\text{EXE}}$ $\boxed{\text{F1}}$

3. To change the equation to $x^3 + 2x^2 + 3x + 2 = 0$, select $\boxed{\text{F1}}$ (REPT) and change the b-value to 2, the c-value to 3 and press $\boxed{\text{F1}}$ (SOLV).
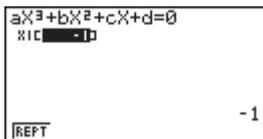
4. The default setting is for real numbers; to change the display to a+bi form, press $\boxed{\text{SHIFT}}$ $\boxed{\text{MENU}}$ for the Equation SET UP menu, highlight Complex Mode, select $\boxed{\text{F2}}$ (a+bi), $\boxed{\text{EXIT}}$, then $\boxed{\text{F1}}$ (SOLV).

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.

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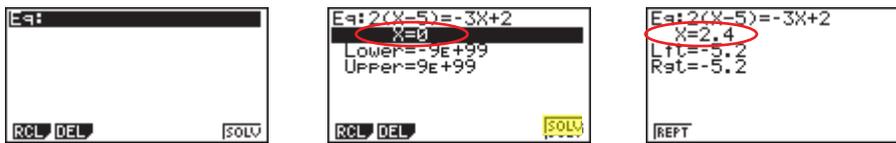
In the last screen, "Lft" and "Rgt" represent the values of the left and right sides of the equation that have been calculated using the solution; this is the calculator's way of checking the solution.

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

   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.

6. Find the radius (to the nearest hundredth) of a sphere, whose volume is 3705.97 cm³. To enter the formula $V = \frac{4}{3}\pi r^3$, input the following in to the calculator:

   • [F1] [▲] [ALPHA] [2] [SHIFT] [•] [4] [a b/c] [3] [SHIFT] [EXP] [ALPHA] [6] [∧] [3] [EXE]
   • Highlight V= and enter [3] [7] [0] [5] [•] [9] [7] [EXE]
   • Press [F6] (SOLV)

This section is an overview of the CONICS Icon. To select this icon, 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 ⏶ ⏷ 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 `F6` (DRAW).
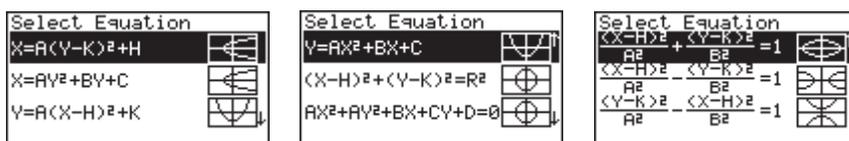

1. To view the graph of the conic: $y = 2x^2 - 5x - 3$, select the form from the Conics formula menu. Enter the coefficients and press `F6` (DRAW).
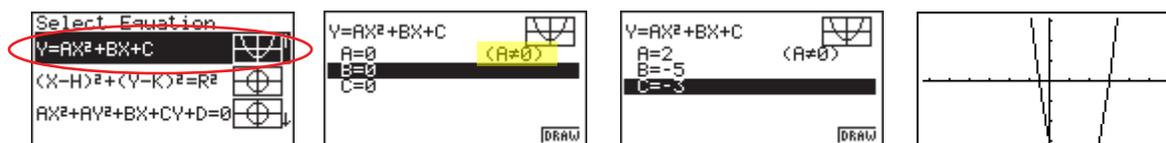
In the Conics modes, when you press `F5` (G-Solv), although you are still graphing a parabola like in the Graph icon, notice how the vocabulary and options have changed to be conic specific.

2. For example, you can now examine the line of symmetry for this parabola and the equation of that line will be displayed. To see the line of symmetry, press `F2` (SYM).
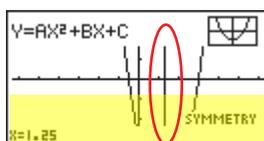
You can continue to analyze different areas of this graph and the line of symmetry will still be displayed.

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