
SIMPLE INSTRUCTIONS

FOR THE cfx 9850GB PLUS

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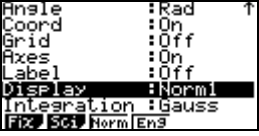

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INITIAL SETTING UP

QUESTION

What settings do I change often and where are they found?

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter RUN mode (2nd MODE)		
Press SHIFT MENU to enter the Setup screen.		Setup is where you find the preferences for each mode.
The most common options are Angle, Axes, Grid and Display		Angle - degrees vs radians Axes - on vs off Grid - on vs off Display - norm1-2 vs fix0-9
To convert to degrees, press ◀ until the bar is on Angle. Notice the options on the bottom of the screen. Press F1 for degrees.		Most settings will remain in degrees until the calculator is reset.
Use the same method as above to change Axes, Grid and Display.		

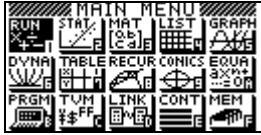
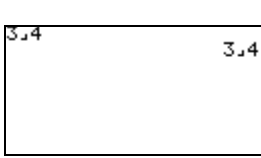

⚠ The best advice when it comes to the Setup menu, or anything to do with the calculator, is to just experiment.

BASIC USE OF RUN

QUESTION

How do I convert a fraction to decimal?




SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter RUN mode ($\frac{\text{RUN}}{\text{STAT}} \rightarrow \text{F1}$).		
Enter 3 $\frac{\text{a}}{\text{b}}$ 4 and press EXE .		
Press F-D to convert back and forwards from fraction to decimal.		

QUESTION

Where is the degrees, minutes, seconds button?


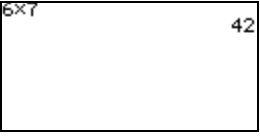




SOLUTION

ACTION	DIAGRAM	COMMENTS
From RUN mode ($\frac{\text{RUN}}{\text{STAT}} \rightarrow \text{F1}$), press OPTN , then F6 .		
Press F9 to open the ANGL menu.		
The degrees, minutes, seconds is at F4 .		

QUESTION

How do I save an answer value in memory?

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter RUN mode (2nd 7).		
Enter 6 × 7 and press EXE .		
Enter Ans by pressing SHIFT (←) .		Ans is the calculator's memory for the most recent answer to a calculation.
Press → located above the AC/ON key.		Tells the calculator to store this value as a given variable (see below).
Now choose any letter from the red letters above the keys. For example, press ALPHA X,θ,T for A. Press EXE .		The Ans (42) is now stored as A.
To recall the value, simply enter A and press EXE .		


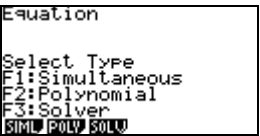
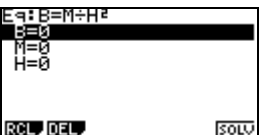
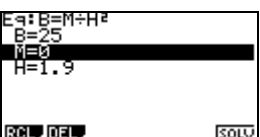
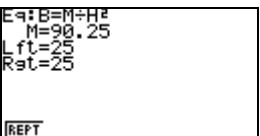
 Please refer to **EVALUATING AN EXPRESSION** for more information.

SOLVING AN EQUATION

QUESTION

The BMI (Body Mass Index) is found by the following formula: $BMI = \frac{m}{h^2}$, where m = mass (kg) and h = height (m). Find the weight Tom has to be to have a BMI of 25 if he is 190 cm tall.

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter EQUA mode (EQWA).		
Choose Solver (F3).		
Enter in the formula by pressing ALPHA and the corresponding letter on the keypad. Finally, press EXE to store the equation.		The = sign is found in yellow above the decimal key. Press SHIFT □ to access it.
Enter the values of the known variables by entering the number and pressing EXE . Place the bar on the variable you which to find.		You can move the bar up and down by pressing the ▲ ▼ arrows.
Press SOLV (F6).		Lft and Rgt are the values of either side of the equals sign. If these are the same, the solution is precise.

⚠ EQUA (EQWA) uses Newton's Method to solve the equation, which means that there are potential problems.

- It will only find one solution at a time
- The initial value of the unknown (second last step above M=0) is the first point used by the calculator to start Newton's Method.
- Sometimes you may have to change this initial value.





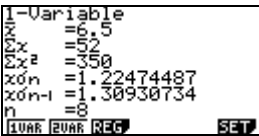
CALCULATING STATISTICS FROM A SET OF DATA

QUESTION

For the set of data below, find the mean, mode, median, IQR and the standard deviation.

5, 5, 6, 6, 7, 7, 7, 9

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter STAT mode (STAT).		
Enter the data into List 1 by pressing the number and then EXE .		The scores can be entered in any order.
Press CALC (F2). If you cannot see it, press F6 (▶).		
Press SET (F6) to change any necessary settings. The two main settings are: <ul style="list-style-type: none"> 1VAR XLIST - List 1 1VAR Freq - 1 When these settings are correct, press EXIT .		1VAR Freq is set to 1 as each score is recognised as a single, individual score.
Press 1VAR (F1) and scroll down (▼) to get the information required.		

⚠ 9850 BE CAREFUL! When finding the mode, the calculator will only give you one mode, even if there is no mode or more than 1 mode. If it is multi-modal, it will only show the highest of the scores.



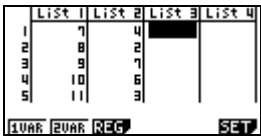

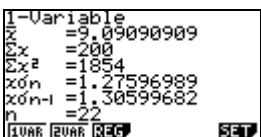
CALCULATING STATISTICS FROM A FREQUENCY TABLE

QUESTION

For the set of data below, find the mean, mode, median, IQR and the standard deviation.

Score (x)	Frequency (f)
7	4
8	2
9	7
10	6
11	3

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter STAT mode (STAT)		
Enter the data into List 1 by pressing the number and then EXE . Enter the frequency into List 2.		
Press CALC (F2). If you cannot see it, press F6 (▶)		
Press SET (F6) to change any necessary settings. The two main settings are: <ul style="list-style-type: none"> 1VAR XLIST - List 1 1VAR Freq - List 2 When these settings are correct, press EXIT		1VAR Freq is set to List 2 because the frequencies were entered into List 2.
Press 1VAR (F1) and scroll down (▼) to get the information required.		

⚠ 9850 BE CAREFUL! When finding the mode, the calculator will only give you one mode, even if there is no mode or more than 1 mode. If it is multi-modal, it will only show the highest of the scores.


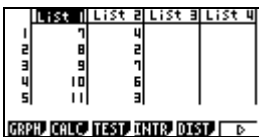

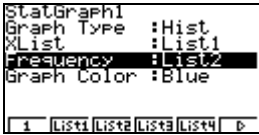
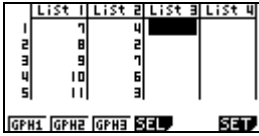
DRAW A HISTOGRAM

QUESTION

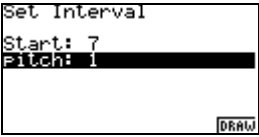
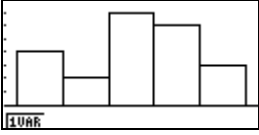
Draw a histogram for the set of data below.

Score (x)	Frequency (f)
7	4
8	2
9	7
10	6
11	3

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter STAT mode (STAT)		
Enter the data into List 1 by pressing the number and then EXE . Enter the frequency into List 2.		
Press GRPH (F1). If you cannot see it, press F6 (▶)		
Press SET (F6) to change any necessary settings. When these settings are correct, press EXIT		
Press GPH1 (F1) and scroll down (▼) to get the information required.		

SOLUTION (CONT ...)




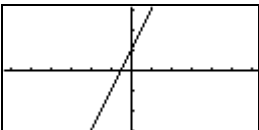
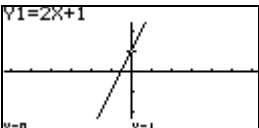
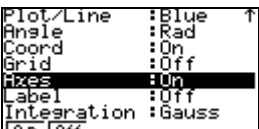
ACTION	DIAGRAM	COMMENTS
Press \blacktriangledown to highlight the pitch. Press 1 and then press $\boxed{\text{EXE}}$. Press DRAW ($\boxed{\text{F6}}$)		The calculator automatically chooses the Start (lowest score) and pitch (class width). The pitch often needs to be changed to a more suitable value.
To calculate the data (for the mean, median, etc.), press 1VAR ($\boxed{\text{F1}}$) You can trace on the graph by pressing $\boxed{\text{SHIFT}} \boxed{\text{F1}}$.		

BASIC GRAPHING

QUESTION

Graph the following line: $y = 2x + 1$

SOLUTION


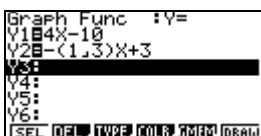
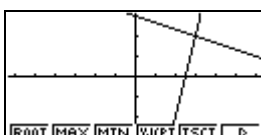
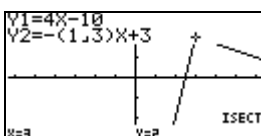
ACTION	DIAGRAM	COMMENTS
Press MENU and enter GRAPH mode (GRAPH)		
Input the graph by typing the right hand side of the equation into Y1 and then pressing EXE. Use the X,0,1 to enter the x.		
Press V-Window (SHIFT F3) and then use the initial setting by press INIT (F1).		INIT is often best for simple graphs.
Press EXIT and then DRAW (F6).		
You can trace on the graph by pressing TRACE (SHIFT F1). You can then use your ◀ ▶ arrows to move the cursor.		If you have two or more graphs on the screen, you can change which graph you are tracing on by pressing ▲ ▼ arrows on your keypad.
To access important settings like axes and grid, simply press SHIFT MENU .		

FINDING A POINT OF INTERSECTION - GRAPHICALLY

QUESTION

Find the point of intersection for the following lines: $y = 4x - 10$, $y = -\frac{1}{3}x + 3$

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter GRAPH mode (GRAPH)		
Input the graphs by typing the right hand side of the equation into Y1 and then pressing EXE. Do the same with Y2. Use the X,0,T to enter the x. Press DRAW (F6)		Both straight lines are now displayed on the screen. If the point of intersection is not shown you can either zoom out or change your settings in V-Window (SHIFT F3).
Now enter the G-SOLV menu (SHIFT F5)		Brings up the features that the calculator can find. Some belong to particular types of graphs.
Press ISCT (F5)		Wait a moment and the tracer will appear and move along one of the lines until it comes to the point of intersection. The x and y values of the point of intersection will then appear.

⚠ 9850 BE CAREFUL! If the point of intersection is not shown, the calculator will not be able to find it using G-SOLV. You can either zoom out or change your settings in V-Window (**SHIFT** **F3**).

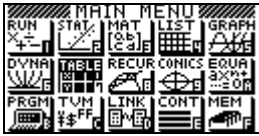



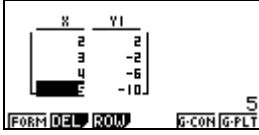
BASIC TABLE OF VALUES

QUESTION

Complete the table of values:

$y = 10 - 4x$				
x	-2	1	2	5
y				

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter TABLE mode (TABLE)		
Enter the right hand side of the equals sign into Y1. Remember to use the X,0,T key for x.		
Press RANG (F5) to enter the values for x. Set the values to match the ones on the right. When finished, press EXIT .		The <i>pitch</i> is simply the increments by which the values of x will increase.
Press TABL (F6)		
To see all the ordered pairs, simply press the ▼ arrow.		




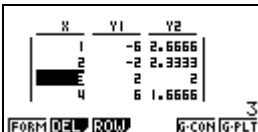
⚠ It is not possible to select particular values of x but only values between a certain domain.

FINDING A POINT OF INTERSECTION – TABLE OF VALUES

QUESTION

Find the point of intersection for the following lines: $y = 4x - 10$, $y = -\frac{1}{3}x + 3$

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter TABLE mode (TABLE)		
Input the graphs by typing the right hand side of the equation into Y1 and then pressing EXE. Do the same with Y2. Use the X,0,T to enter the x. $y = 4x - 10$, $y = -\frac{1}{3}x + 3$		
Set the values for x by pressing RANG (F5). An initial might be -10 to 10 going up by increments of 1.		
Press down (▼) to find the point of intersection.		In some cases, you may have to press EXIT and change the values for x (see above) to hone in on the point of intersection.



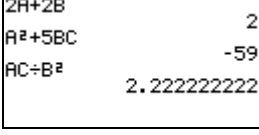
EVALUATING AN EXPRESSION

QUESTION

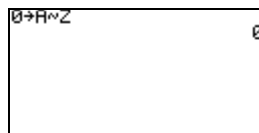
If $a = 4$, $b = -3$ and $c = 5$, find the value of:

- (a) $2a + 2b$ (b) $a^2 + 5bc$ (c) $\frac{ac}{b^2}$

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter RUN mode (RUN).		
Give variable A the value 4, variable B the value -3 and variable C the value 5. The → key is located above the AC/ON key.		To access the letters, press ALPHA each time before pressing the corresponding button on the keypad.
Type in the expressions and press EXE .		

⚠ It is not possible to 'clear' a variable but only to set it to 0. You will find the \sim option when in RUN mode (RUN**) by pressing **ALPHA** **F3**.**





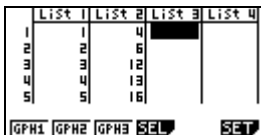


LINE OF BEST FIT

QUESTION

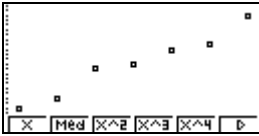
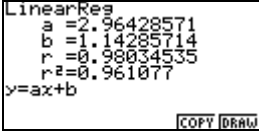
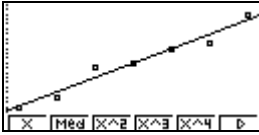
Find a line of best fit for the following data points.

Data points							
x	1	2	3	4	5	6	7
y	4	6	12	13	16	17	23

SOLUTION

ACTION	DIAGRAM	COMMENTS
Press MENU and enter STAT mode (STAT)		
Enter the values of x into List 1 and the values of y into List 2.		
Press GRPH (F1) and then SET (F6)		It is very important to think of going to SET every time you wish to draw a graph.
The default settings match the situation for a scatter graph. The main parts are Graph Type, XList and YList. Press EXIT .		To change a setting, use the ▲ ▼ arrows and select one of the options at the bottom of the screen using the F keys.
Press GPH1 (F1)		

SOLUTION (CONT ...)

ACTION	DIAGRAM	COMMENTS
<p>A wide range of functions are at the bottom of the screen to use to model the data. Press X (F1) for a linear regression.</p>		<p>You can trace the data points by pressing (SHIFT) (F1).</p> <p>There are two linear regressions:</p> <ul style="list-style-type: none"> • X - least squares • Med - 3 median
<p>The values for the coefficients in the straight line formula are shown, along with the formula itself.</p>		<p>Notice also it shows the correlation coefficient.</p> <p>Note that you can also copy the graph into GRAPH mode by pressing (F5) followed by (EXE).</p>
<p>Press DRAW (F6) and the straight line will be plotted on the graph with the data points.</p>		<p>You can trace on the line in the 9850 calculator, but you can in the 9860 series.</p>