

# fx-CG50 - Tips and Tricks

☹ Disabled in exam mode

Learn the hotkeys to enter popular apps in one tap from the main menu.

## Run-Matrix [1] :: All Units

Norm2 avoids scientific notation display.

The screenshots show the following functions and results:

- Screenshot 1:**  $\text{SolveN}(2\sin(2x+\pi/6))$  with solutions  $\{0, \frac{1}{3}\pi, \pi, \frac{4}{3}\pi, 2\pi\}$ .
- Screenshot 2:**  $\text{N}\left(\frac{d}{dx}\left(\frac{1}{x}+x^2\right)\right)|_{x=A} = -3, A$  with solutions  $\{-1, \frac{1}{2}\}$ .
- Screenshot 3:**  $\text{SolveN}\left(\int_0^A \frac{e^{-x}}{5} dx = 0.5, A\right)$  with solution  $\{3.465735903\}$ .
- Screenshot 4:**  $\text{NormCD}(-\times 10^{99}, 600, 12, \dots)$  and  $\text{SolveN}(\text{NormCD}(\dots))$  with solution  $\{627.9161745\}$ .

## eActivity [3] ☺ :: All Units

Students can create an eActivity to contain all their commonly used formulas in copies of Solver. Methods and Specialist students may choose to store copies of Run-Matrix containing standard routines. Ready-made eActivities can be downloaded from the internet (eg [charliewatson.com/fxcg/](http://charliewatson.com/fxcg/)) and loaded directly into Storage memory of calculator.

The screenshots show the following content:

- Screenshot 1:** Equation  $r^2(\theta - \sin \theta) = A$  with variables  $r=12, \theta=0.95547949, A=10$  and lower/upper bounds.
- Screenshot 2:** List operations:  $\{1, 2, 3\} \rightarrow \text{List "X"}$ ,  $\{0.4, 0.1, 0.5\} \rightarrow \text{List "P"}$ , and  $\text{Sum List "P"}$ .
- Screenshot 3:** Random number generation:  $\text{RndFix}(M, 4)$  and  $\text{RndFix}(V, 4)$  with results  $\frac{\sqrt{89}}{10}$  and  $2.1$ .

## Graph [5] :: General Unit 1 :: Methods Units 1-4 :: Specialist Units 2 & 4

Use [+] and [-] to zoom in and out. Zoom, Auto will only adjust the y-axis scale, using the domain on the x-axis. Restrict domains of piecewise functions using a comma followed by [Lower, Upper].

Whilst tracing a graph, you simply tap any numeric key (eg 2) and a dialogue box opens up asking you the x-coordinate of the point you wish to jump to.

To find the equation of a tangent to a curve, make sure the Derivative is On in Setup and then draw the graph. Next tap F4 (the Sketch menu). Now tap F2 (Tang) and then trace to required point. Lastly tap EXE to draw in the tangent line - note the equation of the tangent in the bottom left of the screen.

The screenshots show the following content:

- Screenshot 1:** Graph of  $Y1 = x^3 - 3x^2$  with a tangent line at  $(3, 0)$ . The tangent equation is  $Y = 9X - 27$ .
- Screenshot 2:** Graph Func:  $Y =$  with piecewise functions:  $Y1 = \frac{x}{2} - \frac{1}{2}, [1, 2]$ ,  $Y2 = \frac{5}{6} - \frac{x}{6}, [2, 5]$ , and  $Y3 =$ .
- Screenshot 3:** Graph of a piecewise linear function with a peak at  $x=2$ .

## Table [7] :: See graph

Once a table of values has been created, simply overtype any x-value to create table of custom values.

The screenshots show the following content:

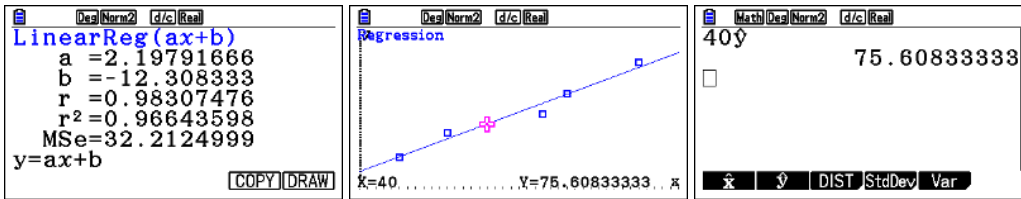
- Screenshot 1:** Table of values for  $Y1 = x^3 - 3x^2$  with columns X, Y1, and Y1'.
- Screenshot 2:** Table Func:  $Y =$  with  $Y1 = \text{nomialPD}(x, 3, 0.4)$  and other functions.
- Screenshot 3:** Table of custom values for  $Y1 = \text{nomialPD}(x, 3, 0.4)$  with columns X and Y1.

## Statistics [2] :: General Units 3 & 4 :: Methods Units 3 & 4 :: Specialist Unit 4

Toggle the SUB heading row on and off in SetUp.

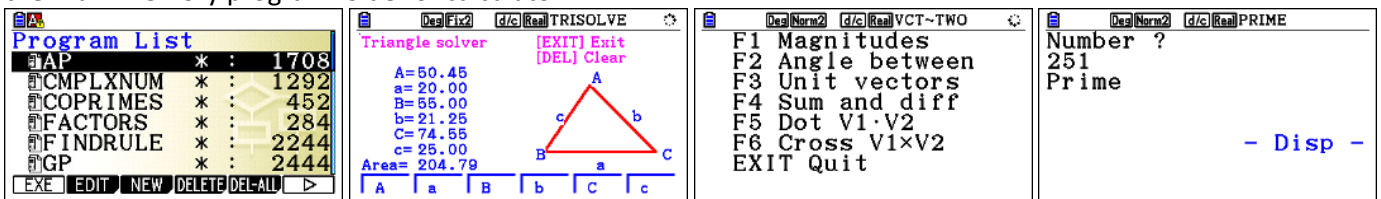
Standard deviation of single variable data in a list is shown as  $\sigma x$  in display.

Regression: Predictions can be made (i) from regression line graphically. Draw the scatterplot and add the regression line. Next tap SHIFT, G-Solv, Y-CAL and enter the required  $x$ -value -  $\hat{y}$  will be displayed even if it's located off screen. Repeat as required; or (ii) calculate regression line, go to Run and use  $\hat{y}$  from OPTN/STAT menu.



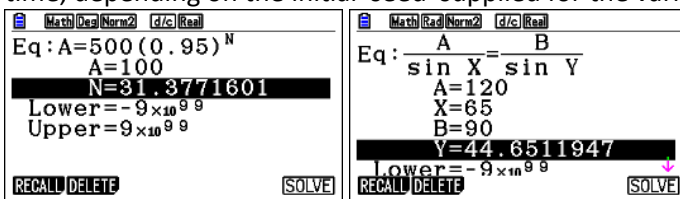
## Program [B] ☺ :: All Units

Popular for adding functionality, but users will have to learn Casio Basic first, the programming language used. Ready-made programs can be downloaded from the internet (eg [charliewatson.com/fxcg/](http://charliewatson.com/fxcg/)) and loaded directly into the Main memory program folder of calculator.



## Equation [A] :: All Units

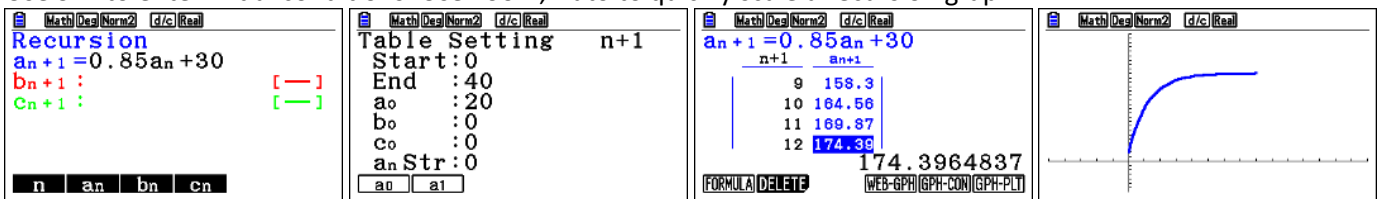
Ideal for solving equations presented in one of the standard forms. Save common equations in an eActivity (or in Graph/Table slots, but this can lead to problems). The Solver option (F3) will only ever return a single solution at a time, depending on the initial 'seed' supplied for the variable that is being solved for.



Remember that SolveN in Run-Matrix will present all solutions for any form of a single variable equation.

## Recursion [8] :: General Units 3 & 4 :: Methods Unit 1

Use SET to enter initial conditions. Use Zoom, Auto to quickly scale a recursion graph.



## Financial [C] :: General Units 1 & 4

When money comes out of your pocket (such as savings, a deposit for an annuity or a loan repayment), enter PV and/or PMT as -ve. When money goes into your pocket (such as a loan, or annuity payment), enter PV and/or PMT as +ve. For most problems, payments are made at the End of each period (Check top right corner of screen - toggle between End and Begin in SetUp).

