

# fx-CG50 - Starting Out

☹ Disabled in exam mode

## Run-Matrix [1]

Always check general settings at top of screen: Math/Linear • Deg/Rad • Norm2 • d/c • Real/Complex

Four calculator screenshots showing various matrix and algebraic operations:

- 1. Solving a system of equations:  $-7.5 \rightarrow x$ ,  $x^2 - 5x + 6$ ,  $99.75$ .
- 2. Differentiation:  $\frac{d^2}{dx^2} \left( \frac{x}{1+x^2} \right) |_{x=-2} = -\frac{4}{125}$ .
- 3. Integration:  $\int_0^{2\pi} |2\sin 2x| dx = 16$ .
- 4. Complex numbers:  $(16+16\sqrt{3}i)^{0.2}$ ,  $1.956295201 + 0.4158233816i$ ,  $2\angle \frac{1}{15}\pi$ .

SolveN is the most powerful solver in the calculator...

Four calculator screenshots showing SolveN and CrossP functions:

- 1. SolveN for  $x^2 - 4 = 0$ , result:  $\{-2, 2\}$ .
- 2. SolveN for  $\cos x = \frac{1}{2}$ ,  $x \in [0, 4\pi]$ , result:  $\{\frac{1}{3}\pi, \frac{5}{3}\pi, \frac{7}{3}\pi, \frac{11}{3}\pi\}$ .
- 3. SolveN for  $\int_{-2}^A x^2 + 1 dx = 20$ , result:  $\{3.304563883\}$ .
- 4. CrossP for vectors  $\begin{bmatrix} 4 \\ 1 \\ 2 \end{bmatrix}$  and  $\begin{bmatrix} -2 \\ 3 \\ -1 \end{bmatrix}$ , result:  $\begin{bmatrix} -7 \\ 0 \\ 14 \end{bmatrix}$ .

NB Vector calculations are disabled in exam mode.

## System [G]

Extend battery life • Reset to fix problems • OS Update, free from <http://edu.casio.com>

## Equation [A]

Complete solution of simultaneous and polynomial equations. Single solution for general equations.

Three calculator screenshots showing Equation solver options and solutions:

- 1. Equation menu: Select Type (F1: Simultaneous, F2: Polynomial, F3: Solver).
- 2. Exponential equation solution:  $P=1000, A=500, B=0.05, X=0$ . Lower =  $-9 \times 10^{99}$ , Upper =  $9 \times 10^{99}$ .
- 3. Exponential equation solution:  $X=13.86294361, Lft=1000, Rgt=1000$ .

## eActivity [3] ☺

User created. Popular for storing formulas and routines

Two calculator screenshots showing eAct menu and a solved equation:

- 1. eAct menu: PROGRAM, GEN~U12.g3e: 7976, METH~U12.g3e: 4132, METH~U34.g3e: 8836, SPEC~U12.g3e: 6524.
- 2. Equation solver:  $Eq: \frac{A(1-R^N)}{1-R} = S$ ,  $A=100, R=0.5, N=4, S=187.5$ .

## Graph [5]

Draw the graphs of functions, add tangents and calculate areas.

Three calculator screenshots showing graphing functions, adding a tangent line, and calculating the area between curves:

- 1. Graph Func:  $Y1=8-0.5x^2, Y2=0.5x$ .
- 2. Select run position:  $Y1=8-0.5x^2$ ,  $Y2=0.5x$ ,  $Y=7.6$ ,  $X=1$ .
- 3. Area calculation:  $LOWER=-4.594, UPPER=0, \int dx = 26.876948$ .

## Table [7]

Tabulate functions, including optional derivative column

Three calculator screenshots showing Table Setting and a tabulated function with derivatives:

- 1. Table Func:  $Y1=8-0.5x^2, Y2=0.5x$ .
- 2. Table Setting: Start: -2, End: 2, Step: 0.5.
- 3. Tabulated function:
 

| X    | Y1    | Y'1 | Y2    |
|------|-------|-----|-------|
| -2   | 6     | 2   | -1    |
| -1.5 | 6.875 | 1.5 | -0.75 |
| -1   | 7.5   | 1   | -0.5  |
| -0.5 | 7.875 | 0.5 | -0.25 |

## Statistics [2]

Statistics and probability for everyone - one or two variables, regression analysis and probability distributions

The first screen shows a list editor with columns for List 1, List 2, List 3, and List 4. The second screen displays LinearReg(ax+b) results: a = 2.14689187, b = -10.959712, r = 0.98538111, r<sup>2</sup> = 0.97097594, MSe = 20.7322442, and y = ax + b. The third screen shows a scatter plot with a regression line. The fourth screen shows a normal distribution curve with z:Low = -2 and z:Up = 1.3333, and P = 0.8860386483.

## Program [B] ☺

User created. Popular for adding functionality.

The first screen shows the Quad Solver program with options for different quadratic forms. The second screen shows the Comp Sq program for a(x-p)<sup>2</sup> + q, displaying a, p, q, and the turning point. The third screen shows the Factored program for 2(x-5)(x-1), displaying the roots x=5 and x=1.

## Recursion [8]

Tabulate and graph using recursive equations or explicit rules

The first screen shows the Recursion equation editor with a<sub>n+1</sub> = 0.85a<sub>n</sub> + 20. The second screen shows a table with columns n+1 and a<sub>n+1</sub>, containing values (0, 50), (1, 62.5), (2, 73.125), and (3, 82.156). The third screen shows a graph of the recursive sequence.

## Financial [C]

Fully featured financial calculator. Compound interest, conversion and amortisation very useful tools.

The first screen shows the Financial(1/2) menu with options for Simple Interest, Compound Interest, Cash Flow, Amortization, Conversion, and Next Page. The second screen shows the Compound Interest screen with n = 36, I% = 9.5, PV = 24000, PMT = -768.7907938, and FV = 0. The third screen shows the Amortization screen with ΣIN = -3676.468576.

## Conic Graphs [9]

Graph and examine conic sections using built-in templates for these types of relations.

## Link [E]

Used to transmit user created programs, eActivities and spreadsheets between handheld devices.

## Memory [F] ☺

Used to manage storage of user created programs, eActivities and spreadsheets

## Spreadsheet [4]

User created. Limited use - other apps offer better way to achieve desired outcome.

## Dyna Graph [6]

Animation of graphs, automating the Modify feature available in Graph.

## E-CON4 [D] ☺

Manages data collection from an external data logger.

## Add-In Software ☺

There are six available Add-Ins, some of which may already be installed in handheld or emulator:  
 Geometry • Probability Simulation • Picture Plot • 3D Graph • Conversion • Physium