

The basics of the fx-CG50

Learning objectives

How to reset the calculator.

How to navigate modes to find all of the functions.

How to use the submenus in Option.

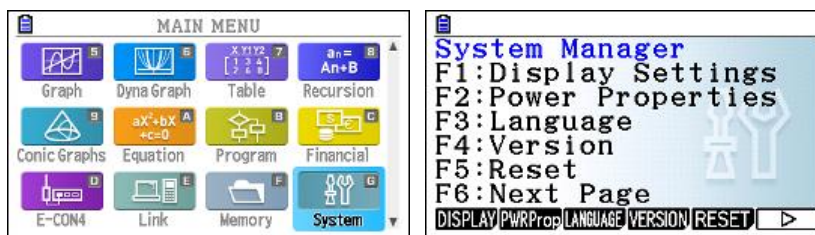


This worksheet accompanies the video *Calculation and Reset - Getting Started*.

We suggest you watch it first.

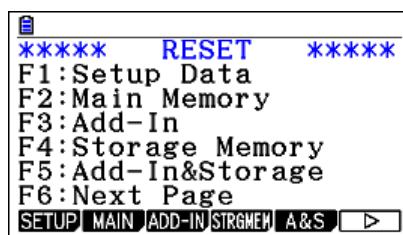
How to reset the calculator

Press **MENU** to go the main menu screen and choose **System** by pressing **⇧** or by navigating to the **System** icon and pressing **EXE**. From here, you can restore all the settings to their default values and clear any functions or lists that might be stored.

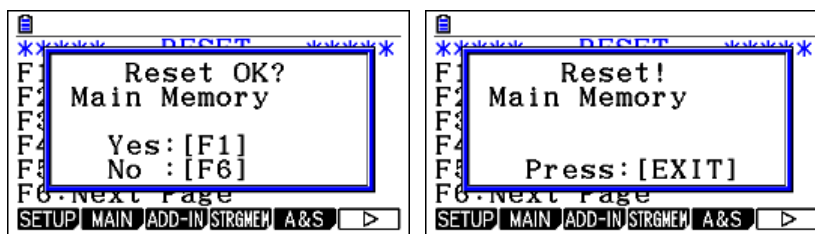


Each time you go to a menu, it returns to where it was when you left it. So, if your screen doesn't look like this, press **EXIT** until it does.

Notice that the onscreen menu for **Reset** is 'F5' – so press **F5** and the labels for F1 to F6 then change.

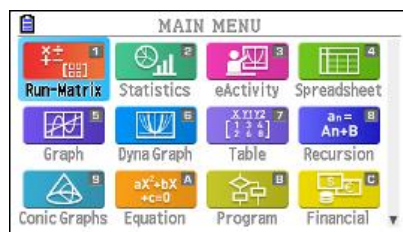


Choose **MAIN** (**F2**) here and you will be asked to confirm your choice. Choose **Yes** (**F1**) to confirm and you will be asked to press **EXIT**.

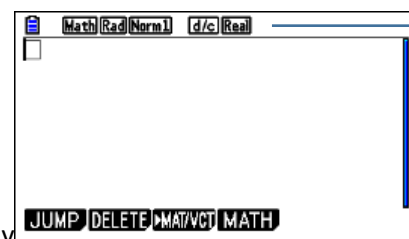


Exploring Run-Matrix mode

Press **MENU** and choose **Run-Matrix**.



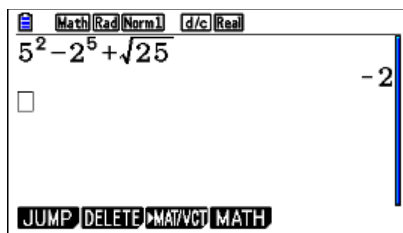
This works like a scientific calculator.



Notice that the display across the top shows the default settings. If they are not what you want, you can use SET UP to change them – remember to press the SHIFT key before the MENU key as it is written in yellow.

Using powers, squares and square roots

To calculate $5^2 + 2^5 + \sqrt{25}$ just type exactly what you see, pressing the x^2 for 'squared' and the $\wedge$ key to input the power 5. Then use the cursor to move right before inputting a + by pressing the $+$ key. Use $(\sqrt{})$ (SHIFT - x^2) to activate square root and press EXE for 'equals'.

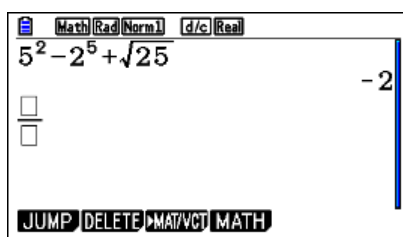


There is no need to delete this to input the next calculation – just type it underneath.

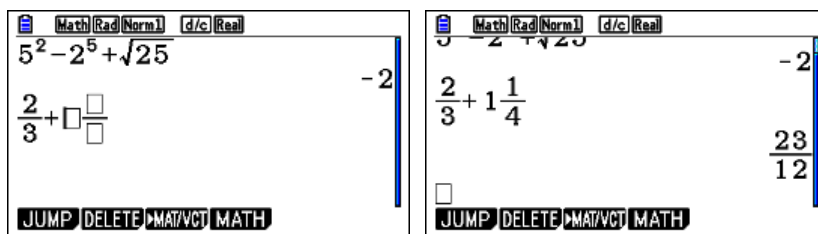
You can return to a previous calculation by scrolling upwards.

Using fraction templates

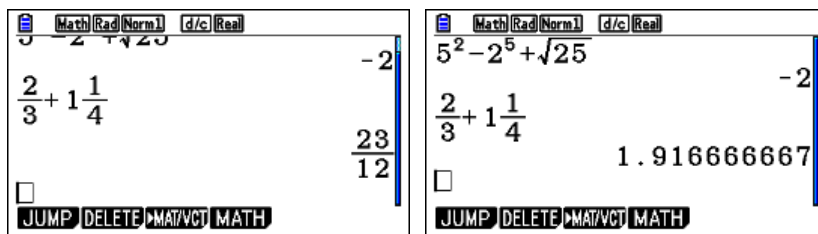
Use the fraction template (press $\frac{\Box}{\Box}$), type the numerator and scroll to the denominator.



Scroll to the right before pressing $+$, or else it will go into the denominator of the fraction. Use the mixed number template (SHIFT - $\frac{\Box}{\Box}$) for the one and a quarter – just putting 1 in front of a fraction will give 1 multiplied by the fraction, not a mixed number. Press EXE and the answer is displayed as a fraction.

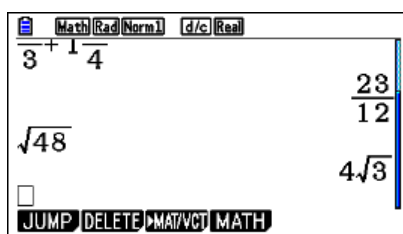


If you would rather have the answer as a decimal, press the $\text{S}\rightarrow\text{D}$ key to see the answer as a decimal, correct to 10 significant figures where necessary. Press $\text{S}\rightarrow\text{D}$ again to return to the fraction.

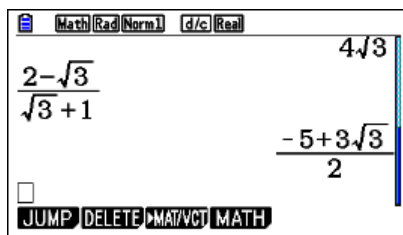


Working with surds

Expressions involving surds such as $\sqrt{48}$ can be simplified by just typing them into the calculator.



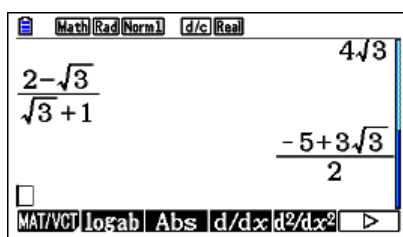
To simplify $\frac{2-\sqrt{3}}{\sqrt{3}+1}$ use the fraction key and type the numerator. Use the cursor key to scroll down to type the denominator. After typing root 3, scroll to the right to avoid typing the square root of $\sqrt{3+1}$. Press **EXE** to see the simplified form.



Using menus for modulus

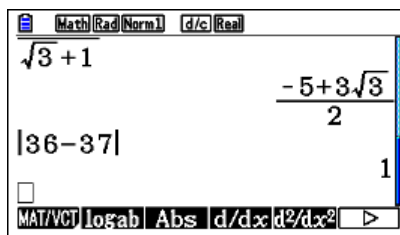
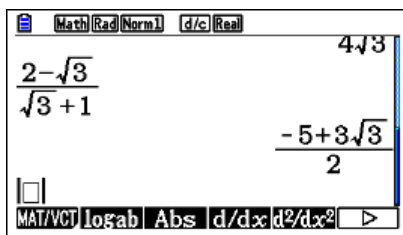
You may notice that there are fewer buttons on the fx-CG50 than the scientific calculator. All the 'missing' functions (and many more) are inside one of the menus. Take some time to explore these – you can always find your way back out by pressing **EXIT** as many times as it takes!

You need to use the MATH menu to find the modulus function. Press **EXIT** if necessary and choose **MATH** (**F4**).



Choose **Abs** (**F3**) for absolute value and the common notation appears as a template.

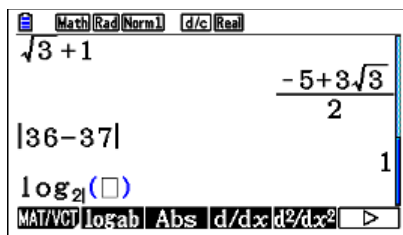
Input the values you need inside the box.



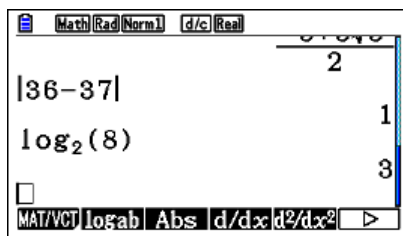
Using logarithms

There are buttons on the calculator for $\log$ (base 10) and natural $\ln$ in the row directly underneath the cursor. The log to another base function is to be found in the **MATH** menu which is currently open.

To find $\log_2 8$ choose **logab** (**F2**) for the template, and input **2** into the box.



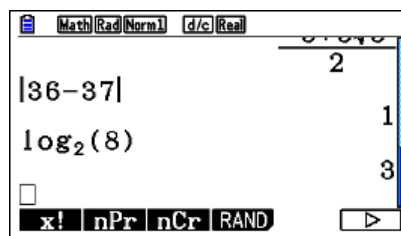
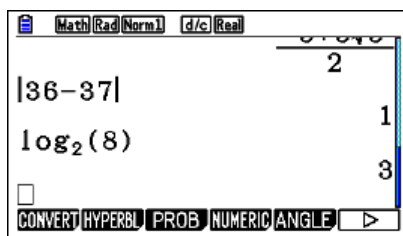
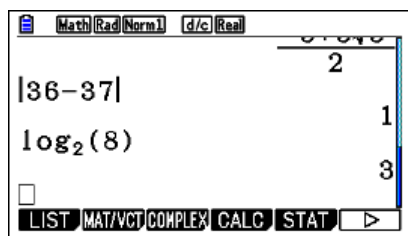
Use the scroll pad to scroll across to the other box where you should input the number **8**.



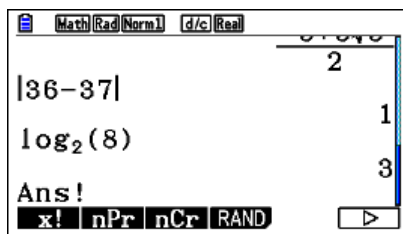
Finding factorials

There are several layers of menus to navigate to find the factorial key. It can be found in a probability menu accessed by pressing **OPTN** for the Option menu.

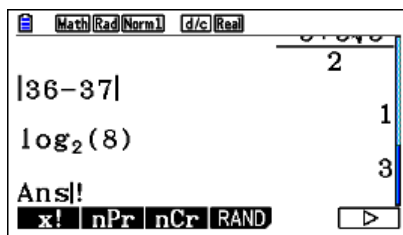
To evaluate $5!$ press **OPTN**. This changes all the on-screen menus for F1 to F6. You will need the second page of options, so press **F6** to select the further menu. From this list, choose **PROB** (**F3**).



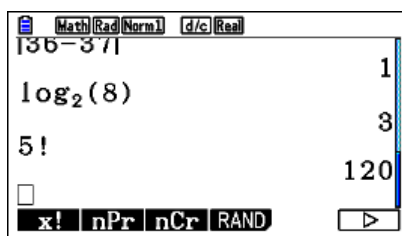
The syntax for this function is that the value must be put in first, so if you choose **x!** (**F1**), the calculator uses the previous answer (Ans).



Scroll to the left so that the cursor is immediately after the incorrect value and press **DEL**.



Input the value 5 and press the **EXE** key to execute.



Taking it further – checking your algebra with True/False

You can check work by testing True/False for two expressions you hope are equivalent.

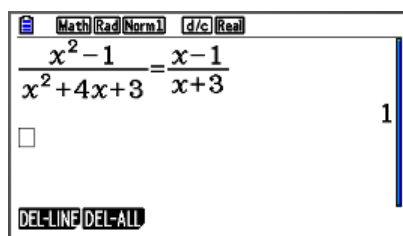
Check work on algebraic fractions (simplifying, adding, writing as partial fractions, changing improper to mixed). For example, to check whether $\frac{x^2-1}{x^2+4x+3}$ simplifies to $\frac{x-1}{x+3}$, input

$\frac{x^2-1}{x^2+4x+3} = \frac{x-1}{x+3}$ using the **X,θ,T** key for x and **SHIFT** - **□** for the equals sign.

Press **EXE** and the calculator will give 0 if false and 1 for true for the current value of x .

Hint: BEFORE USING THIS, make sure that you define x as an appropriate value. For example, if x is set to equal 0, it will tell you that $2x = 3x$ is TRUE (clearly not true for all real values of x)!

To set the value for x that is useful for the identity or equation that you are checking, type the value you want to use for x , then press **→**, **X,θ,T**, **EXE**. This will assign that value to x .



Taking it further – explore the other menus in OPTN

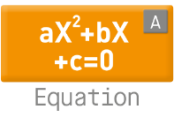
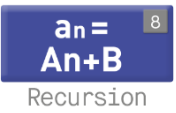
Press **EXIT** to go back through the menus to the top or to make other choices on menus that you have already seen. It's worth taking some time to familiarise yourself with them so that you are not searching when using the calculator in earnest!

Taking it further – the other modes

There are many modes to explore and you may find some more useful than others. They cover everything you will need for A level Maths and Further Maths and much beyond that as well.

You may find these among the most useful – there's plenty of help on these in the other tutorials.

The most useful menus to start learning the calculator for A level Maths and Further Maths are:

	Use this mode for arithmetic calculations, function calculations, binary, octal, decimal, and hexadecimal calculations, matrix and vector calculations.
	Use this mode to perform single-variable and paired-variable statistical calculations, to perform tests, to analyse data and to draw statistical graphs.
	Use this mode to store graph functions, plot and analyse the functions.
	Use this mode to solve linear equations with two to six unknowns, and polynomials from 2nd to 6th degree.
	Use this mode to store functions, to generate a table of values, and to draw graphs.
	Use this mode to store recursion formulas, to generate a table of values, and to draw graphs.
	Use this mode to draw graphs of conic sections.

For Further Maths you might want to look in more detail about Complex numbers in both Run-Matrix and Equation modes. There are many useful functions for Matrices and vectors in Run-Matrix mode.

You can learn about these things in the set of video tutorials and the handouts that accompany them. All the detail you need to explore much more sophisticated maths and ways of using the calculator can be found in the manual.

Casio have many videos, lesson resources and skills sheets. Take a look at our dedicated education website <https://education.casio.co.uk/>

Casio gratefully thanks Rose Jewell for substantial contributions to this tutorial. We hope that you enjoy using the calculator.