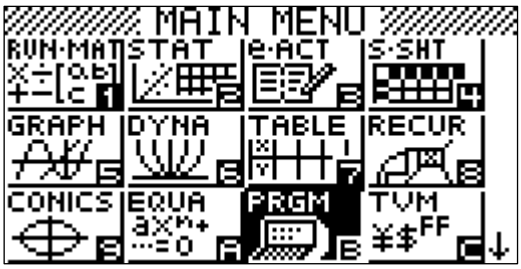
fxNEWS
Support for all Casio fx-9860G models

How to write a program for your fx-9860G – Part 3

This is the third in a series of four basic tutorials on how to start programming your fx-9860G calculator.



In previous issues we

- Started out with a brief look at assigning, displaying and calculating numbers using the inbuilt A to Z variable memories of your calculator.
- Learnt a few programming commands used in nearly all programs.
- Looked at how to create a program – from turning on your calculator to the point at which you were ready to write the substance of your program.
- Created a program that took advantage of the calculator's ability to do lots of calculations quickly - a loop that repeated until we got our desired result.
- Learnt how to ask the program user for information required, such as the width and length of an object.

In this issue we'll develop these skills further. In particular, we'll

- Review the common commands, tests and functions
- Review how to create a program
- Learn how to use a 'For … Next' loop to control repetition within a program

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Programming your fx-9860G

Commands, tests and functions

These are reference pages. All you need to do at this stage is skim through them and remember they're here when you're looking for certain commands or tests.

There are a few commands used in nearly all programs. It is useful to become familiar with how to find (or type) these quickly and correctly. Incorrect typing or spacing usually results in a 'syntax' error when you try to run a program. The key sequences below assume you are already in the program editor (see next section).

COMMANDS:

1. ?	SHIFT PRGM F4
2. »	SHIFT PRGM F5
3. ClrText	SHIFT PRGM F6 F1 F1
4. Locate	SHIFT PRGM F6 F4 F1
5. If	SHIFT PRGM F1 F1
6. Then	SHIFT PRGM F1 F2
7. Else	SHIFT PRGM F1 F3
8. IfEnd	SHIFT PRGM F1 F4
9. For	SHIFT PRGM F1 F6 F1
10. To	SHIFT PRGM F1 F6 F2
11. Step	SHIFT PRGM F1 F6 F3
12. Next	SHIFT PRGM F1 F6 F4
13. Do	SHIFT PRGM F1 F6 F6 F3
14. LpWhile	SHIFT PRGM F1 F6 F6 F4

OTHER:

15. "	ALPHA F2
16. =	SHIFT PRGM F6 F3 F1
17. ø	SHIFT PRGM F6 F3 F2
18. >	SHIFT PRGM F6 F3 F3
19. <	SHIFT PRGM F6 F3 F4
20. ù	SHIFT PRGM F6 F3 F5
21. ÷	SHIFT PRGM F6 F3 F6
22. And	OPTN F6 F6 F4 F1
22. Or	OPTN F6 F6 F4 F2
22. Not	OPTN F6 F6 F4 F3
23. Frac	OPTN F6 F4 F3
24. Int	OPTN F6 F4 F2
25. Ran#	OPTN F6 F3 F4

Some example commands

```
?→A↵
```
Prompts for a value to store as A

```
A◢
```
Displays the value of A and pauses until any key is pressed

```
ClrText↵
```
Clears all text from the screen

```
Locate 1,3,A↵
```
Displays the value of A starting at column 1 on row 3 of the screen. The screen has 21 columns and 7 rows

```
If A>B↵
Then A−B→C↵
Else B−A→C↵
IfEnd↵
```

```
For 1→N To 20 Step 1↵
Locate 1,1,N↵
Next↵
```
'Step 1' is optional in the For... Next loop. The default is to count up in 1's.

```
Do↵
N+1→N↵
LpWhile N<20↵
```

```
If Frac(N÷2)=0 And N≠0↵
Then "N IS EVEN"◢
IfEnd↵
```

Programming your fx-9860G

Creating a program

This section takes you from turning on your calculator to the point at which you're ready to write the substance of your program.

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NEW PROGRAM

From the main menu select PRGM. You are then presented with a list of existing programs on your calculator.

Press F3 to start a new program, type in a suitable name (*Note: Alpha lock key is already selected*) and press EXE. You are now in the program editor and ready to begin.

To quit the editor use EXIT (repeatedly).

EXECUTING

To execute (or run) a program highlight it in the program list and press F1 (EXE).

EDITING

If you want to edit an existing program in the program list, highlight it and press F2.

ERRORS

If an error occurs during a program a message will display on the screen. Pressing the EXIT key will open the program editor and place the cursor *somewhere* near the source of the error.

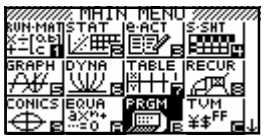
ESCAPING

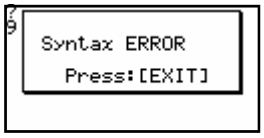
If a program gets stuck in a loop or simply won't stop try pressing AC twice.

DELETING

To delete an unwanted program go to the program list, highlight the program, press F4 and confirm *YES* with F1.

Some example screens





Programming your fx-9860G

Triangle numbers - controlled counting

The ability to repeat an action or sequence of events a specified number of times is a useful addition to our programming skills.

The key to this control is using one variable as a counter which is increased by one (typically, but not always) every time we repeat the loop.

The 'For …. Next' loop handles this control on the Casio.

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Initial problem:

Find the 20th triangle number and the sum of the first 20 triangle numbers.

```
•          1
• •        1+2 = 3
• • •      1+2+3 = 6
• • • •    1+2+3+..
• • • • •
```

General solution:

1. Set both T and S to 0. T will store the current triangle number and S will be used to keep a running sum of all triangle numbers.
2. Start a 'For' loop using N as the counter with starting value 1.
3. Add N to T (to get the Nth triangle number) and store in memory T.
4. Add T to S (to get the sum of the first N triangle numbers) and store in memory S.
5. Repeat steps 3 and 4 until N reaches 20 (The 'For … Next' loop automatically increases N by 1 each time through the loop).
6. Display T and S.

Example commands and screens

```
0→T↵
0→S↵
For 1→N To 20↵
T+N→T↵
S+T→S↵
Next↵
T◢
S◢
```

```
210
1540
- Disp -
```

Note.
To increase N in steps of 3 (eg 1, 4, 7, 11, etc) add the step size as shown here:

```
For 1→N To 20 Step 3↵
```