

## Programs

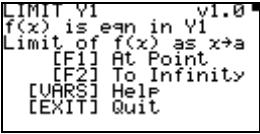
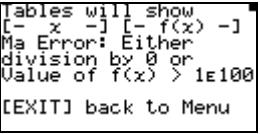
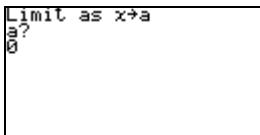
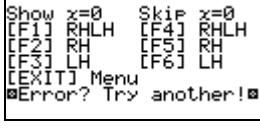
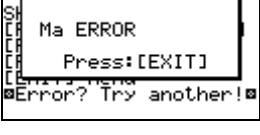
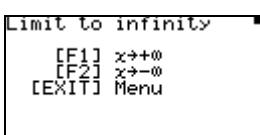
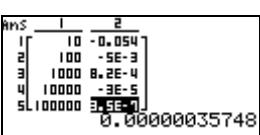
This edition of fxNews contains seven programs in file **PROG07V3.g1m**

There is also the third of our four-part tutorial '*How to write a program for the fx-9860G*' that explains how to write your own programs or modify existing ones.

Program List	
FXNEWSPL	: 1240
LIMIT Y1	* : 1584
MAU	* : 1896
NEWTRAPH	* : 428
NWTRPHTT	* : 992
RESIDUAL	* : 504
EXE EDIT NEW DEL DELW	D

The collection includes four updates of older programs and three new programs.

Below is a brief description of each new program and the updates.

Name	Description	
<b>LIMIT Y1</b>	This program is suitable for students wishing to explore limits numerically. When using TABLE mode, the domain must always increment in linear steps - which is often not very suitable for this type of work.	
		
Limits at a point...		
		
		
Limits to infinity...		
		

**FXNEWSPL \*** This is an example programming solution to the problem posed in the first edition of fxNews this year: *What is the next integer  $n$  greater than 48 for which both  $n + 1$  and  $n \div 2 + 1$  are both square numbers?*

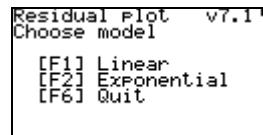
**FXNEWS P2 \*** This is another example programming solution to the problem posed in the last edition of fxNews: *Take the number 2025. Split down the middle into two 2-digit numbers 20 and 25. Sum these two numbers  $20 + 25 = 45$ . Square this result  $45^2 = 2025$ . The result is the same as the number we started with. Is there another 4-digit number with this property?*

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- \* Not password protected for ease of modification when editing as part of programming tutorial.

## Updates!

Name	Description of update
<b>NEWTRAPH</b>	This update fixes Time-Out Errors which have come to light for some combinations of initial values and functions. If you haven't used it before, the program calculates successive iterations of the Newton-Raphson algorithm to find the roots of the function stored in Y1.
<b>NWTRPHTT</b>	The same update as for the shortened version of this program above. This program, besides calculating the iterations, also illustrates the N-R process graphically, helping students to understand why N-R can sometimes fail to solve $f(x) = 0$ .
<b>MAV</b>	This update addresses some minor screen display issues. Some information screens were by-passed if users held down the EXE key for more than a brief tap. The program is used for exploring the smoothing action of moving averages when applied to time series in Lists 1 and 2 of the STAT mode.
<b>RESIDUAL</b>	This update brings much greater functionality to the original program. Users can now choose from either linear or exponential regression models to calculate residuals from.



The program calculates the regression model, residuals and then draws a residual plot to examine suitability of model.

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All programs – updates and originals - have been password protected with the word 'FXNEWS'.