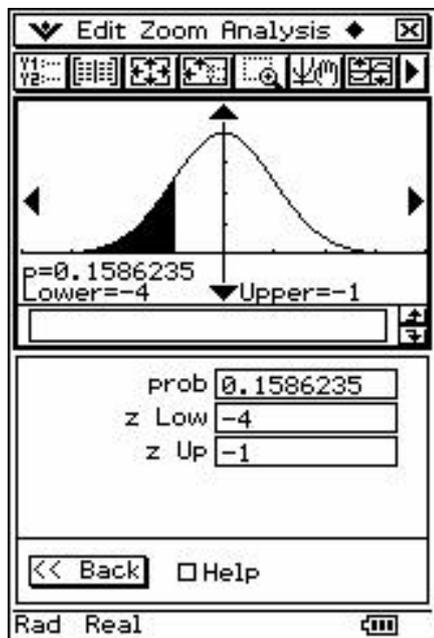


What is new in Operating System 3.0?



▼ Edit Calculations

Compound Interest

N
I%
PV
PMT
FV
P/Y
C/Y

Help Format

Solve CI End

Tuesday, July 25, 2006

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Director
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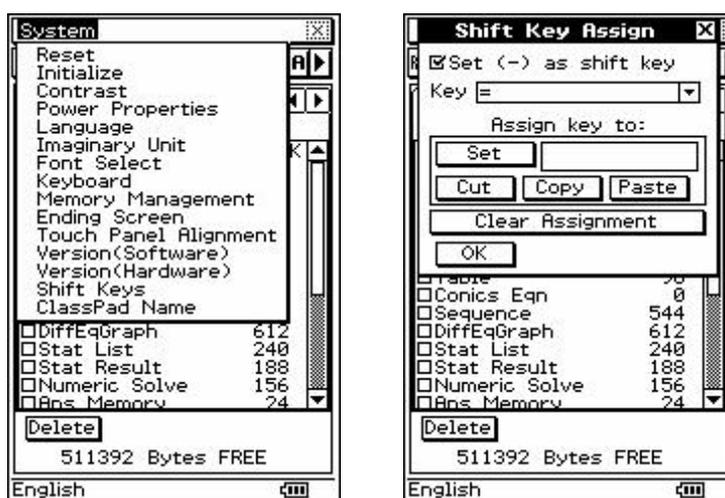
Introduction

What follows is not at all close to an exhaustive list of the additions and improvements that OS 3.0 for the ClassPad 300 Plus offers. It does, however, cover a range of improvements/additions that we think will be of direct use to the learning and doing of mathematics by secondary school students and teachers.

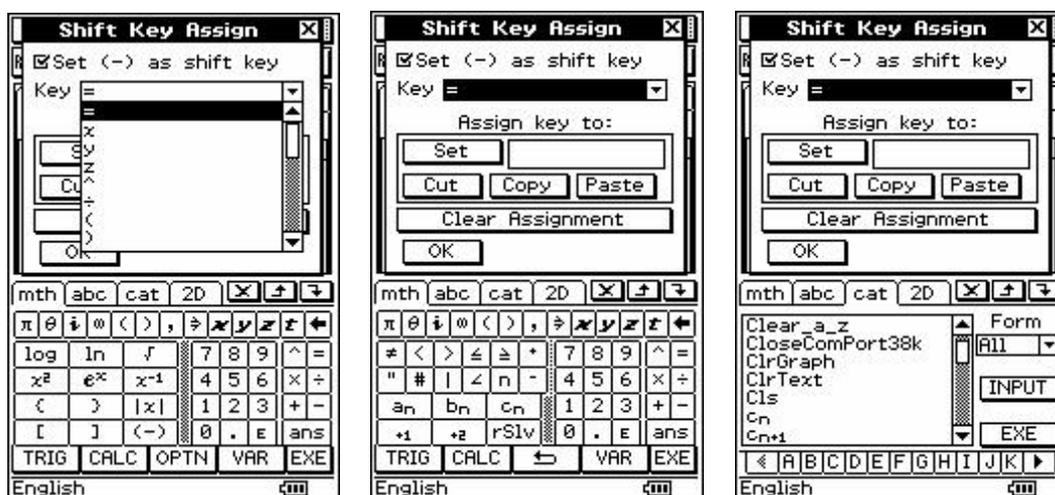
Shift Keys.

The *hard keyboard* of the CP 300 Plus has 25 keys that can now have 'shift' capabilities assigned to them.

Enter the **System** application, open the **System** menu and tap the **Shift Keys** option. Check the tick box to make the (-) key become the SHIFT key.

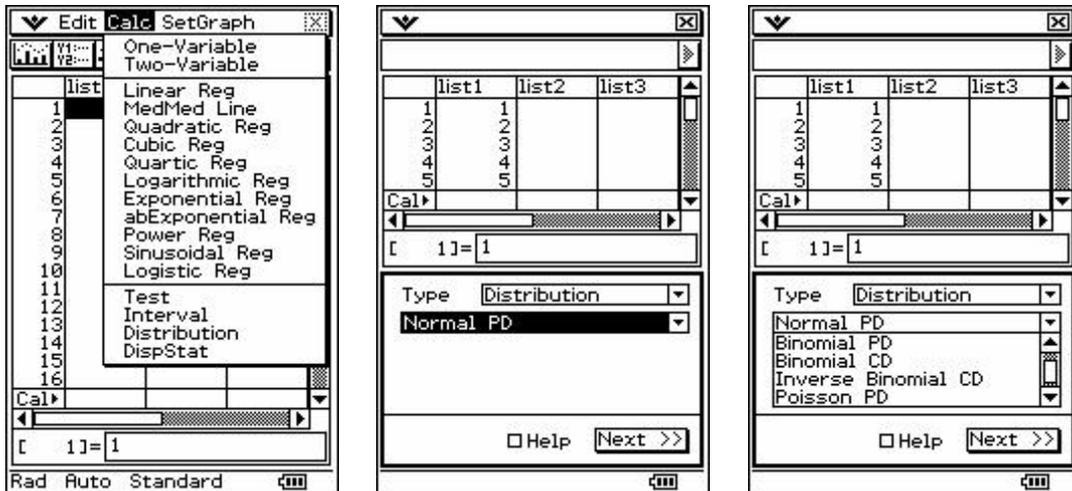


Now raise the keyboard. Any of the keys in the drop down list (DDL) can be assigned with any function from the mth keyboard (or any of the panels on the mth keyboard) or from the CATalogue. Simply have the cursor in the input box next to Set, tap the command and then tap Set.

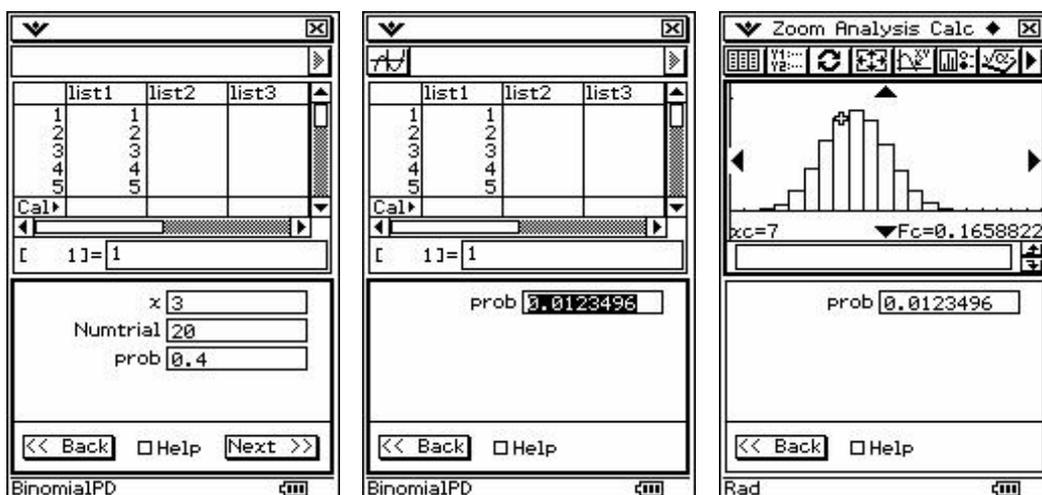


Simplified processing of statistical calculations with visualisation.

Enter the **Statistics** application, open the **Calc** menu and note that a new sub-menu appears at the bottom. Choose **Distribution** and note that a Wizard appears in the bottom half of the screen. Use the DDL to select a distribution.



Suppose that Y is a binomial variable and we wish to calculate $P(Y=3)$ given the distribution is $B(20, 0.4)$. So we choose Binomial PD from the DDL. And tap Next>>. Then we can enter the information required by the Wizard and tap Next>> again. Note that the probability value is displayed and also there is a Graph icon in the top left corner. When tapped, a graphical display of $B(20,0.4)$ is given. Note it is traceable (automatically trace mode is activated when the graph is drawn) so other probabilities can be quickly determined.



Tapping <<Back allows you to start over with another distribution if you wish.

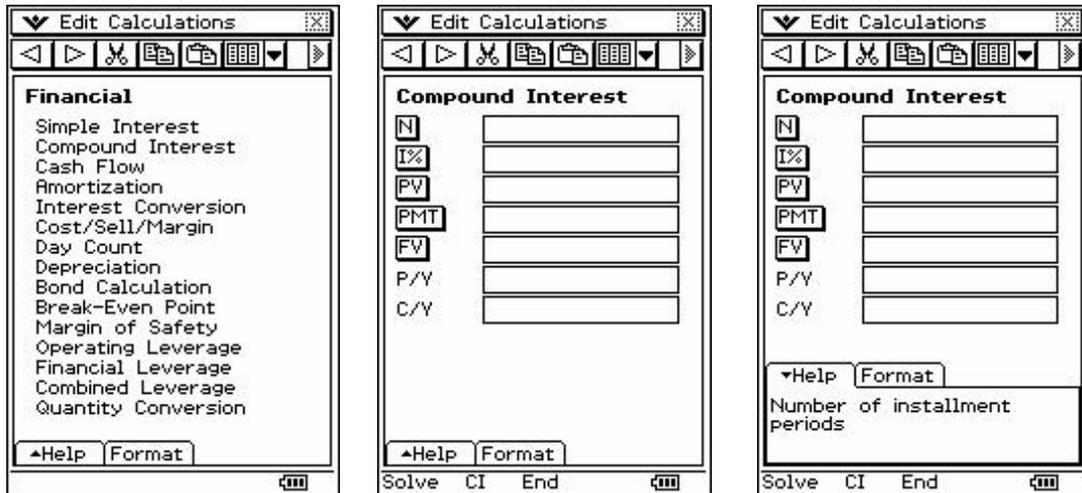
Note to close the graph, make the window active by tapping in it and then tapping the Windows type X in the top right hand corner.

Note also that Hypothesis Tests and Confidence Intervals can be computed.

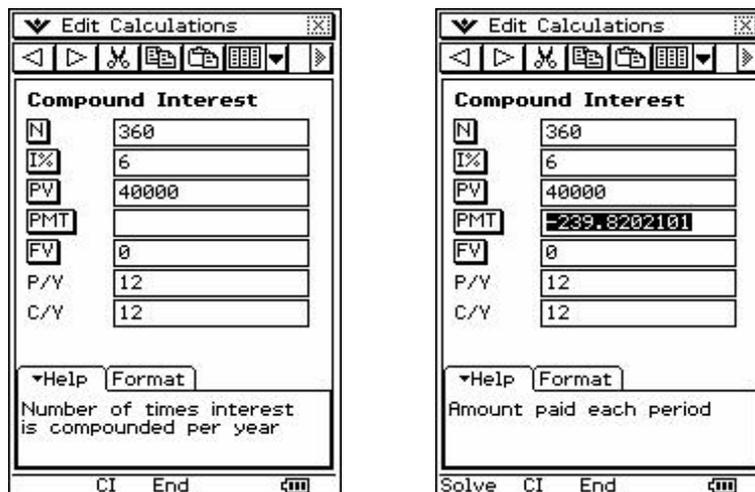
TVM – the financial wizard.

Enter the TVM application; you will see it has an amazing array of abilities. Tap Compound Interest. You will see that the variables associated with compound interest (including Annuity calculations) are laid out with input boxes ready to be filled.

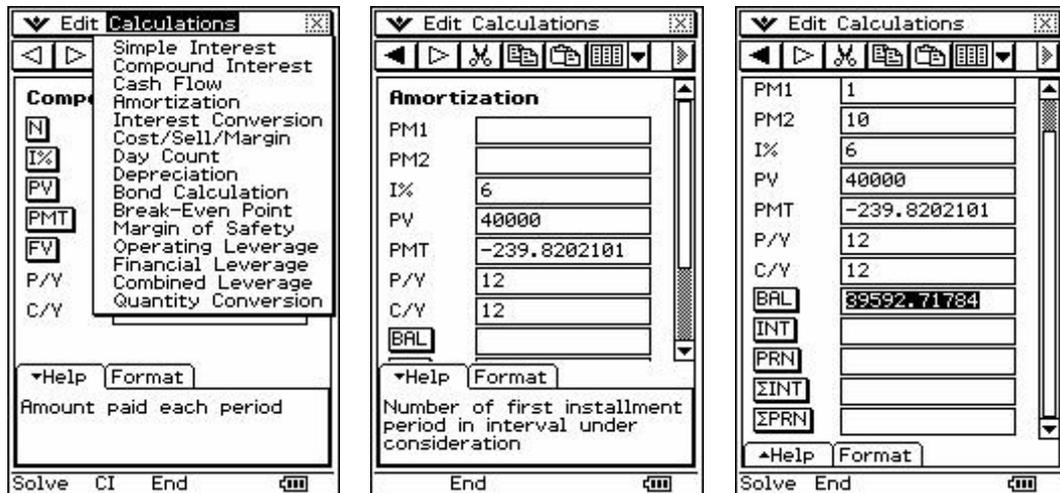
If you are not sure what they mean, tap into one and then tap **Help** at the bottom of the screen.



Suppose that we wish to determine the size of the repayments on a loan of \$400 000 for which the interest rate is 6% p.a. compounded monthly and the term of the loan is for 30 years. Then we enter, as seen below left, and then simply tap the variable we wish to compute.



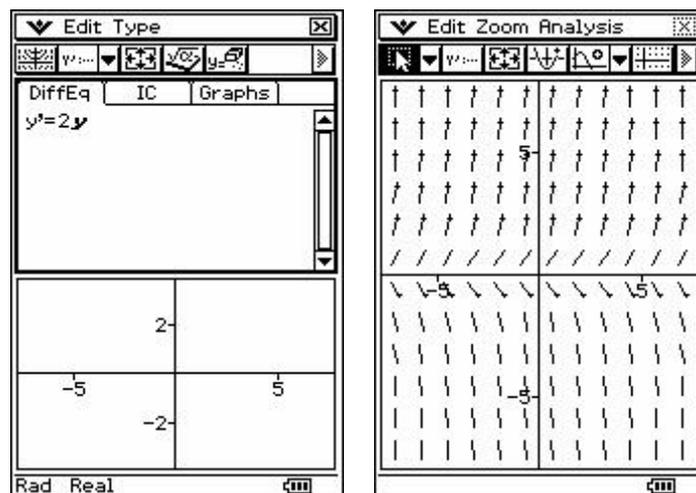
Now tap the Calculation menu and note the Amortization option. The appropriate values from our previous problem are carried over and now we can carry out some 'what if' exercises.



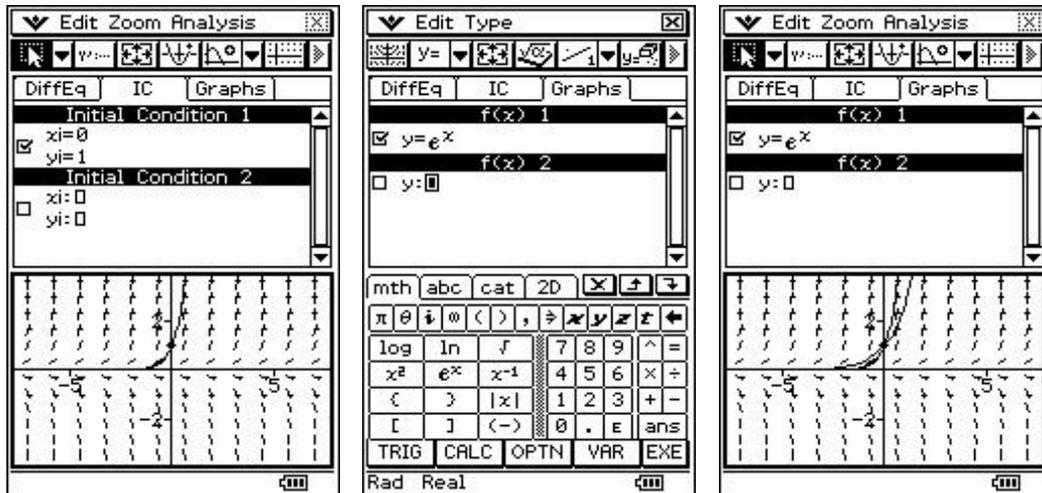
Have fun.

Differential Equations and Slope Fields.

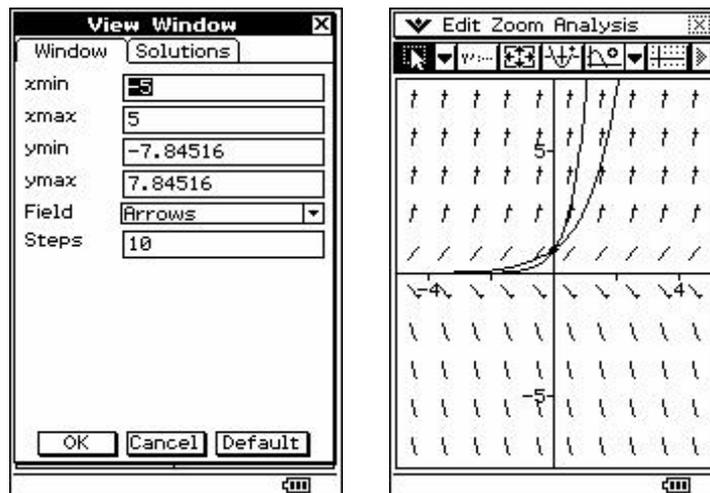
Enter the **DiffEqGraph** application. Enter the DE $y'=2y$. Tap the top left-most icon to have a slope field generated. Tap Resize to have the full screen view.



Now tap Resize again and tap the IC (Initial Conditions) tab. Set some ICs and then tap the Graph icon again. This will plot a path through the slope field, starting at (0,1) in this case. You can also plot the graph of a function to test your conjecture about the solution to the DE.



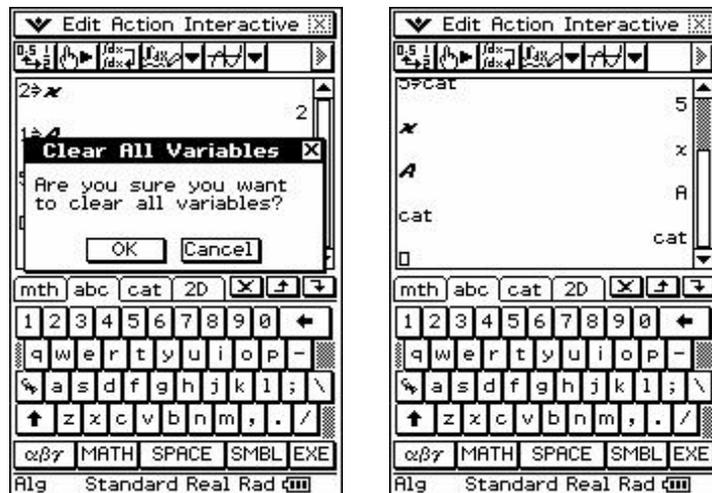
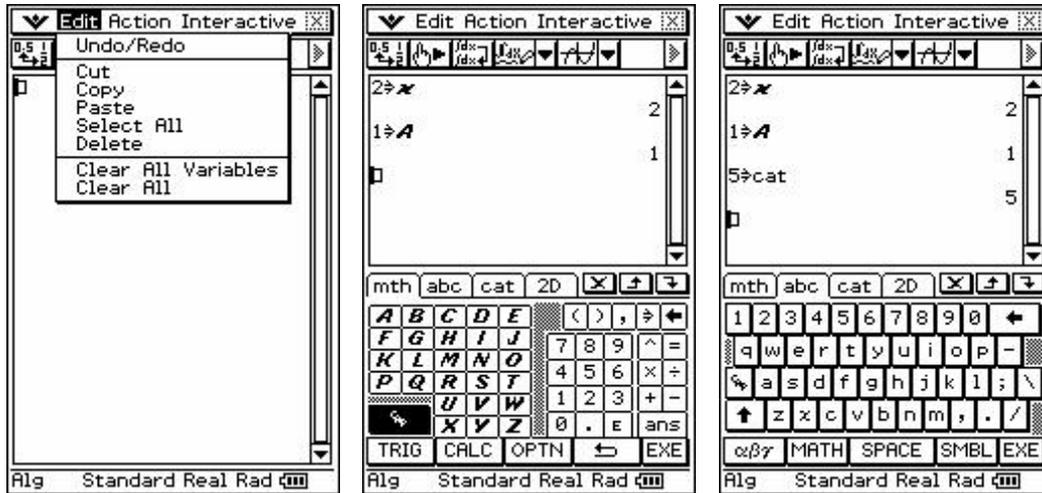
Tapping the View-Window icon reveals the following and allows you to set at will. Note the Steps setting.



Note that the Spreadsheet on the CP 300 has CAS capabilities and so making a spreadsheet to display Euler's Method numerically and graphically is quite simple. An eActivity that already does this is available from www.casioed.net.au.

What's new in the Main application?

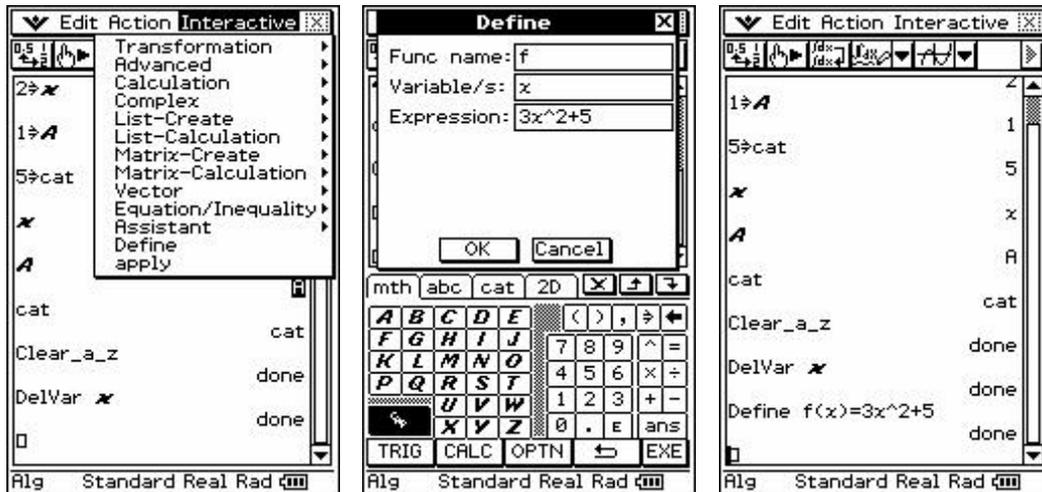
The Edit menu now has a 'Clear All Variables' command. This command clears all variables that have been set to take a numerical value.



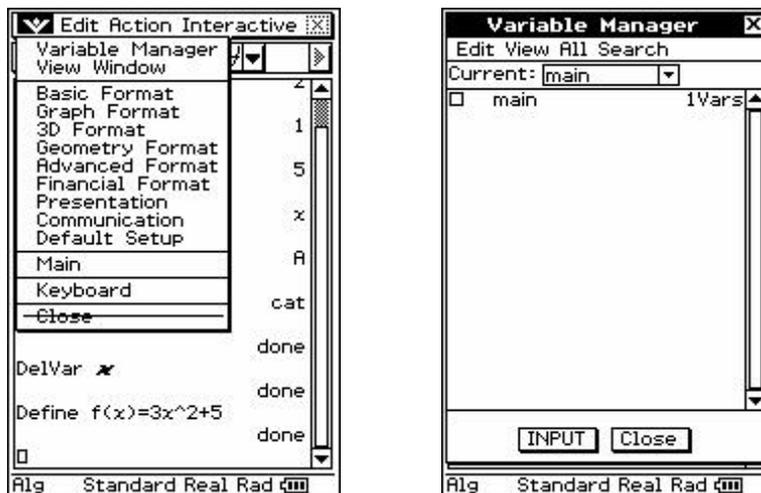
Under the Action Menu and the Command sub-menu the commands Clear_a_z and DelVar have been added to save retrieving them from the CATalogue. The first will clear all lower case and single letter variables and the latter allows you to just clear a single variable that has been allocated a numerical value.



The Interactive menu now includes the Define command. Tapping it makes the Wizard appear and we can enter as seen below. Tapping OK defines the function for further use.



Note that clearing all variables does not clear the functions that have been defined. This must be done through the variable manager.



Note that all commands in the Interactive menu can now be tapped without highlighting an input. Doing so brings up the appropriate Wizard for entry purposes. The 'old' way still works of course, as we may like to be entering functions and so on using the 2-D palettes.

Changing from degrees to radians and real to complex and so on can still be done by tapping settings and proceeding from there, but it can now also be done by simply tapping the words displayed at the base of the screen!