

## Tips and Tricks: 2006 Volume 3

In case you missed earlier volumes here's a list of previous tips and tricks.

### Volume 1 2006

- Name your calculator
- Friendly decimals: Norm1 v Norm2
- Choose Math or Linear display in Run-Mat
- Cut, Copy and Paste between applications
- Add vectors in RUN-MAT
- Leave a shadow trail when using dynamic graph
- PHYSIUM

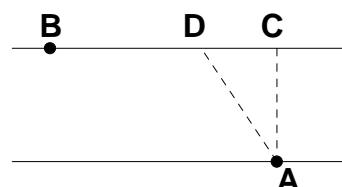
### Volume 2 2006

- Jump to any exact coordinate whilst tracing in Graph
- Find the equation of the tangent to any function in Graph
- Recursive calculations with matrices in Run
- Substitution in a function in Run

Now for some more...

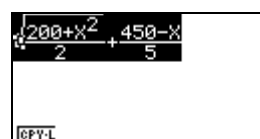
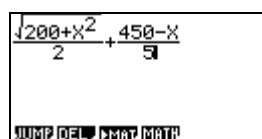
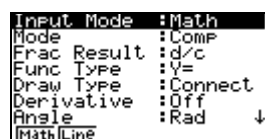
### Graphing tricky functions

Remember those optimization problems that involve traveling from A to B by swimming across a river at 2m/s and running along the riverbank at 5m/s? The resulting function is the sum of the time to swim from A to D and the time to run from D to B and might resemble

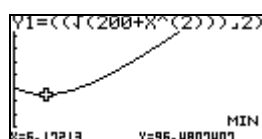
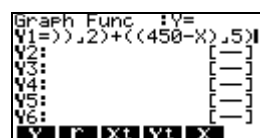
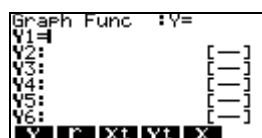


$$f(x) = \frac{\sqrt{200+x^2}}{2} + \frac{450-x}{5} \text{ where } x \text{ is the distance DC, } AC = 200 \text{ and } BC = 450.$$

One of the easiest ways for students to correctly enter this function in either graph or table is to start in RUN mode and have Input Mode set to Math. Type in the function so that it looks right and then copy and paste it into graph. Once you have the second screen, tap the keys SHIFT, 8 (CLIP), F1 (CPY:L).

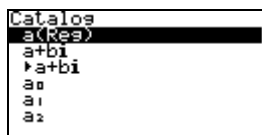


Now enter Graph mode, move to an empty line (Y1 is shown below in screen 1) and tap the right cursor key (screen 2) followed by SHIFT, 9 (PASTE), EXE.

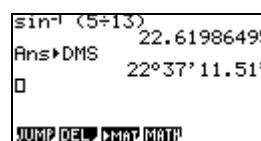
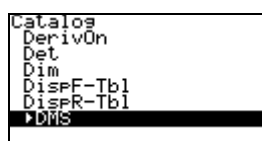
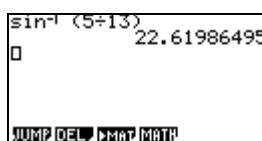


## Using the Catalog

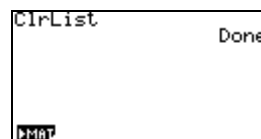
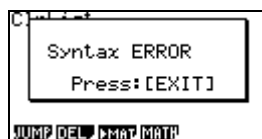
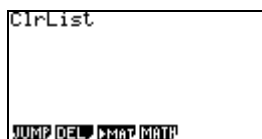
The Catalog is an alphabetic list of all the commands available on the fx-9860G. There are a few useful functions tucked away in the Catalog that can't be found elsewhere – see next tip!



To access the Catalog tap the SHIFT key followed by 4 (CATALOG). You can then choose to scroll through the list or tap the key corresponding to the first letter of the command you require and then start scrolling.



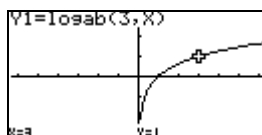
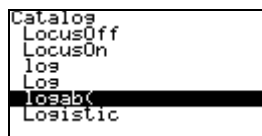
Note that many of the commands will only function when used in the appropriate mode and application. For example, in RUN the command ClrList (clears all data from all lists in Stats) returns a syntax error when used in Math input mode but works fine in Linear input mode.



## Graphs of logs to any base

Now we know how to use the catalog, let's put it to use!

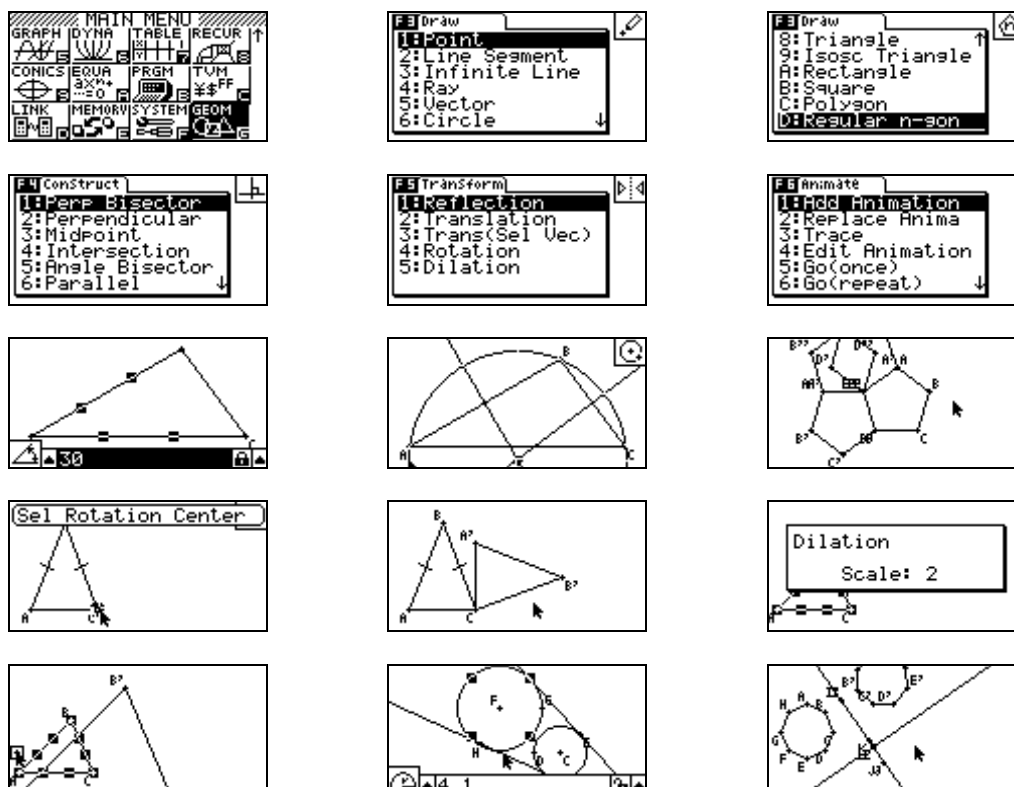
One of the new calculator functions is **logab(base, expression)**. The example below shows it in action with the graph of the function  $y = \log_3 x$ .



## Geometry

Add In's are a great feature of the new fx9860. Point your web browser to the Casio world site (software) and download a copy of the just released Geometry Add In application. (Don't forget a copy of the instruction manual while you are there!)

Here are a few screen shots of from this new software. fxNews will soon run a complete feature on using Geometry.



Note that to install Geometry (downloaded file is called geometry.g1a), read the Tutorial 'Using The FA-124 Software – Basics'.

Follow the procedure for Loading eActivity files (\*.g1e) into the fx-9860 only look for \*.g1a files instead of \*.g1e files when loading Geometry into the FA-124.