

## [9.20] Use a graphical equation editor (equation writer)

Entering complicated expressions in the command line can be prone to error. Expressions can be entered more quickly without mistakes if you can see the equation, in pretty-print, as you enter it. This feature is called an equation writer, and has been available on the HP-48 and HP-49 calculators. E.W. has written an equation writer called EQW for the TI-89/92+. EQW is the winner of the 2001 Texas Instruments App Development Contest, 68000-platform division. You can get a free version at

<http://tiger.towson.edu/~bbhatt1/ti/>

or you can buy EQW as a flash application from TI. The flash app version has more features, but the free version is more than adequate for most uses.

This screen shot shows a typical EQW screen:

The screenshot shows a TI-89/92+ calculator screen with the EQW application. The main display area shows a complex mathematical expression: 
$$\left( \frac{a \cdot x^2 + b \cdot x + c}{\sum_{k=1}^{\infty} \left( \frac{1}{k^2} \right)} + \int_{\alpha}^{\beta} \left( \frac{1}{(\sin(x))^2} \right)^{\alpha} dx \right)^{i \cdot \pi}$$
 Below the expression, a status bar contains the following text: F1-Eval | F2-Factor | F3-expand | F4-Collect | F5-Expand  
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while the command line equivalent looks like this:

$$(\sqrt{((a*x^2+b*x+c) / (\Sigma(1/k^2, k, 1, \infty))) + f(1 / (\sin(x))^2, x, \alpha, \beta)})^{(i*\pi)}$$

EQW has these features:

- EQW is a no-stub ASM program.
- Edit expressions, equations, matrices and lists.
- Return expressions to the entry line, or to Lars Frederiksen's RPN program.
- Evaluate expressions and define functions without leaving EQW.
- Store and recall expressions
- Cut, copy and paste and UNDO are supported, as well as forms for frequently-used expressions
- Use function keys to factor, expand, collect, etc.
- Scroll large expressions
- Call EQW from your own TI Basic programs, and use dedicated [DIAMOND]-key functions
- Write extensions to enhance EQW with toolbar menus, pop-up menus and other programs.
- Only 24K bytes; can be archived.
- Complete documentation with examples

Steve Chism has written a Windows application, *TI Menus*, which automates the process of creating toolbar extensions for EQW. You can download *TI Menus* at <http://www.warp2k.com/eqlib/tbmaker.htm>

Nevin McChesney has written a sophisticated equation library program, *Equation Library*, which works with EQW. For more information, see <http://www.warp2k.com/eqlib/description.htm>