TI 89/92+ Wishlist, version 13

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This list summarizes all 'wish-list' items from threads in the TI89/92+ discussion group. I have included *all* suggestions without judgement as to whether I think they are critical, silly, useless, or impossible. I have also added some of my own suggestions. Suggestions are limited to those which can be implemented with only a software change, no hardware changes. These should all apply, more or less, to both the 89 & 92+.

If I thought I had any understanding of the suggestion at all, I categorized it and may have reworded it. There is an *Unclear* category for suggestions which I couldn't figure out, or which could be more specific.

Please feel free to add to this list, or correct my misunderstanding(s).

Suggestions are not attributed to originators. Originality is difficult to ascribe in many cases, and some suggestions are repeated by many posters.

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Changes to 13.0

Starting with version 13.0 of this wish list, new or changed items are in blue italic text.

No items were removed.

File management, memory and VarLink
- Better VarLink menu (like Doors OS)
- Better file manager like PCtools 98
- Allocate more memory for variable allocation table and symbolic operations
- Hierarchical file structure; subfolder levels
- Mode settings local to each folder
- Attempt to recover memory after crash
- More than 8 characters for variable names
- Ability to create recursive lists of any size or depth
- No limit to number of variables
- Use all of free memory, not just 64K, for calculations
- Function to list all folders, and only folders
- Function to list only the programs in a folder
- Function to return list of all variables of a specific type in a folder
- Data compression and decompression (like pkzip)
- *Fix the memory leak (has this been fixed in AMS 2.05?)*
- Execute programs and functions from VarLink
- View variable contents from VarLink
- Use F7 key to execute a program
- Use F8 key to open the appropriate variable editor
- Use a full-screen window for view 'contents' in VarLink
- Execute matrix editor, program editor, etc with command-line function and variable name argument

- Change Var-Link variable type name from ASM to BINARY, since app could be a C program
- Remove Var-Link View menu item
- Put applications and system variables in a folder called SYSTEM
- Remove FLASH APPS item from APPS menu

Math functions
- Implicit differentiation
- Faster algorithms
- Solve linear DE systems
- Dot and cross products return zero-vector for undefined arguments
- Faster numeric matrix computations
- Faster non-linear system solving
- Function to find derivatives on 3D graphs
- Function to find integrals on 3D graphs
- Allow user to control accuracy of numerical integration (iterations or error bound)
- allow logic operators (and, or, etc) to operate on variables, not just constants
- Allow variable word size (in bits) for base-n arithmetic
- General linear-regression solver
- All functions in SoftWarehouse advanced math pack
- Function to return true/false if argument is an element of a list, matrix or data variable
- Display exact answers in interactive solver
- Display multiple answers as list in interactive solver
- Fast Fourier transform (FFT); compatible with CBL
- Function to find residues of functions
- Allow use of units in numeric solver
- Add option to enable and disable units
- Allow use of more than 14 digits in floating point calculations
- Gamma function
- Improve numerical differentiation routine accuracy
- Smarter CAS to simplify sums to psi & polygamma functions
- Built-in psi & polygamma functions
- Add step function and impulse functions, and include these in CAS
- Add option to calculate with significant figures
- Add functions to sort a matrix by column or row
- Base conversions to/from any base, including fractional parts
- Function to return all subsets of a list
- Solve() function operates on (f(x),x)|x={list}
- Function to solve for next number in a sequence, given sequence example
- Solve 'operator combination' problems; e.g. find x, y, and z, given x%y%z=a, where '%' is operator +, -, *, /.
- Harmonic sum function a*b/(a+b)
- Gradient function, numeric and symbolic
- Curl function, numeric and symbolic
- Divergence function, numeric and symbolic
- Laplacian function, numeric and symbolic
- *Add Grobner bases function*
- *Add polynomial GCD function*
- *Add functions for symbolic eigenvalues and eigenvectors*
- *Add prime number generator; return nth prime number*
- *Add Euler number function*
- *Add Catalan number function*
- *Add set functions for union, intersection and power sets*
- *Add tensor algebra and analysis functions*
- *Add function which returns 'true' if argument function f(x) is a polynomial in x*
- *Solve inequalities*

- Capability to define operator functions, such as the Hamiltonian operator
- Incorporate Lars Fredericksen's DiffEq program
- Perform number base conversions in Approx mode, without "Domain Error" message

Symbolic algebra
- 'much better' capabilities
- fast 'unpart' function, opposite of 'part'
- use sec, csc, cot in simplifying expressions
- handle more symbolic integrals
- Laplace transform (s-transform) and inverse
- Z-transform and inverse
- option to show symbolic evaluations 'step-by-step', not just the final answer
- option to disable and/or delay automatic simplification of results
- rationalize denominators such that 1/sqr(x) returns sqr(x)/x
- apply user-defined functions in CAS; e.g. 1/cos(x) = sec(x)
- *Integrate special functions into CAS: zeta, Bessel, hypergeomtric, etc.*
- *Add ability to extract free variables from an expression*
- *Add ability to convert between exponential, trigonometric and hyperbolic forms of an expression*

TIBasic
- Faster operation
- faster 'for' loop
- OFF function
- read/write access to all variable types, including DATA variables
- access to all built-in applications, including matrix, data and text editors
- access to all file management functions
- Much more secure Try...Else...EndTry system
- Allow use of Try...EndTry in functions
- function to return list of variables in current folder
- function to return list of folders
- function to create screen button
- function to create screen check-box
- function to create pull-down menu
- function to bracket argument position in a list. Ex: bracket({1,2,3},1.5) = 1
- function to write directly to history screen 'answer' ('ans') area
- function to return size of variables in bytes
- symmetrical commands to read & write elements of all data structures
- commands to read & write strings to the i/o port
- program access to ALL built-in functions and operations
- use large fonts in programs
- execute program or function (user or built-in) as argument of 'item' command
- function to return battery status, preferably as a voltage or percent
- ability to grey-out items in toolbar menus
- ability to grey-out toolbar titles
- *Add two functions to hide and restore toolbar display. Hidden toolbar temporarily reappears if a function key is pressed.*
- Allow access to variable & data structure pointers
- Allow use of classes (object-oriented programming structures)
- better syntax error parsing and location
- Allow RETURN to return more than one value
- turn off toolbar & status line display, to use full LCD screen
- compiler
- nSolve and NewPlot should use local variables, not just global variables.
- User-defined binary operators; x {arg} y == arg(x,y)

- History area ToAns() function: add entry to the history area
- History area ClrAns() function: clear one or more entries from the history area
- History area SwapAns() function: swap two history area entries
- History area DimHist() function: change dimension (size) of history area
- History area: allow display of entries to be optional to save memory
- History area: make history entries interactive so that operations can be done on them.
- LCDio() function to grab & save an I/O screen snapshot
- LCDhome() function to grab & save a home screen snapshot
- Allow user & built-in function names as function call arguments
- Enhance exp->list to accept lists of variables, not just a single variable, and also search for 'and' in addition to 'or'.
- Allow functions to use ALL 89/92+ built-in functions and instructions
- Include screen location parameters for Input [promptstring],var
- trap 'questionable' accuracy & other warnings with 'try ... endtry'
- allow sort instruction in functions
- Progress indicator; moving-bar style; specify maximum, minimum and current value
- Allow format instruction to work with numbers larger than 10^{14}.
- Built-in TIBasic debugger with step-through
- Speed up dim(), rowdim() and coldim() for lists and matrices with large elements
- *Make variable names case-sensitive; i.e. 'ABC' is not the same variable as 'abc'*
- *Change conditional test operation to correctly evaluate sequential logical operators without errors; first 'false' result terminates conditional evaluation.*
- *Add Switch or Case statement; e.g. Switch ord_var case_1, case_2, ... case_n, case_else, where case_n is executed if ord_var = n.*

Graphing
- Custom graph screen size (resize graph screen)
- A 3D parametric graphing program
- 3D data plots (plot xyz points w/descenders to xy plane)
- Faster 2D and 3D plotting
- Scrolling operation for large graphs
- Trace graphs for complex functions
- XY plot with logarithmic x- and/or y-axis
- Multiple trace types for different traces (dots, dashes, dot-dash, etc)
- Bar plots
- 3D parametric plots
- Pie graphs
- Pictographs
- Let left & right cursor pad keys control eye<theta>; up & down keys control eye<phi>
- 3D plots of functions that return more than one value
- Simultaneously plot multiple 3D functions
- Direct plotting of inequalities with shading. Ex: y>ax + b; shade graph above ax+b.
- Plot 3D vectors
- Truth plots
- Function to delete data plots in programs & functions
- Grayscale graphing
- Faster graphing
- "Infinity plots": x- and/or y-axis scaled exponentially from 1/infinity to infinity
- *Add slow zoom capability in 2D and 3D plots*
- *Improve axes labels in plots: labels should be closer to axes*
- *Change function graphing to work with expressions with units*

GraphLink & calc-to-calc transfer
- Specify target folder in calc-calc transfer

- Improve GraphLink connection success reliability
- Ability to resize editor windows in GraphLink
- Ability to choose fonts in GraphLink
- Keyboard shortcuts for all special characters in GraphLink
- *Restore ability to transmit matrices from PC to calculator*
- *Add emulator and protocol functions to GraphLink so that CBL programs can be tested on the PC*

New applications
- Financial and economics applications and formulas
- Formula/equation library (as in HP48G)
- 'Help' application that describes all functions & arguments
- Mechanical engineering application like ME*Pro
- Civil engineering application like CE*Pro
- Chemical engineering application (Chem*Pro?)
- Number line program
- Equation writer (like HP48/49)
- Object-oriented programming
- Built-in C compiler, with math functions
- Mandelbrot/Julia set plotter
- 3D geometry
- Chat program
- Custom menu manager: create, modify, recall and save custom menus
- *Remove interactive solver; or make it an optional flash application*
- *A full-featured text editor, with multiple font sizes and 'find' and 'replace' functions*

Miscellaneous
- Function to convert between algebraic expression and RPL list
- Function to detokenize an algebraic expression to RPL list
- Function to convert RPL list to algebraic expression
- Text file viewer like xetal+
- Spreadsheet features for data editor
- Multi-cell cut&paste in matrix editor
- Comparisons on strings including "_" character don't result in invalid use of units error
- Display horizontal lines between items in the history display
- nth-root key
- x^2 key
- Menu under apps that lists only programs
- Ability to enter equations in pretty-print (equation editor)
- True custom keyboard: assign any function/program to any key
- Scrolling operation for 89, so that 92+ programs run unmodified
- Don't recalculate function entries in 'ask' table
- Use equation pretty print in equation solver
- Allow user-defined functions in pretty print, ex: $\log(b)(x)$
- Allow use of pretty print in text editor
- Allow use of pretty print in dialog boxes
- UNDO key
- Add key combination to move cursor 5 or 10 characters at once.
- Allow various typeface ('font') sizes.
- Improved unit entry (like HP48/49)
- Execute text scripts from the command line
- Format displayed numbers with comma (U.S) or period. Select option in Mode.
- Use pretty-print in Graph screen
- Ability to show/hide menus and status bar
- Password protection/encryption

- Ability to set the automatic shut-down time
- *Change [ON] key operation such that pressing [ON] turns the calculator off, if no program is running; eliminate need to press [2nd] first.*
- *Remove 24K exec & asm limit*
- Allow removal of built-in applications
- Move toolbars to display bottom & status to display top
- *Add option to move the function key tab display to the bottom of the display.*
- *Add abiltiy to scale function key tab display automatically, for equal tab widths.*
- Remove status bar text about pressing arrow keys & enter when menu displayed
- Remove ENTER=OK and ESC=CANCEL buttons in dialog boxes
- *Add ability to change the messages for [ENTER] and [ESC] keys in dialog boxes.*
- Allow access to various FORMATS menu items with MODE key in applications
- Remove Cut, Copy & Paste items from the tools menu
- Remove Home menu item from APPS menu
- Remove the Clean Up menu from the toolbar
- Remove TI website plug that is shown with [DIAMOND]+[APPS]
- Multitasking OS
- Display subscripts in subscripted variables with real subscripts; M[1,2] as $M_{1,2}$
- Clear home screen by pressing ON (but: how are programs interrupted?)
- Add Mode setting to define thousands' separator as "," or "."; support European conventions
- *Add an EDIT function to [F6] Contents Display, that starts the appropriate editor: program, data/matrix, etc.*
- *Add ability to evaluate subexpressions as they are entered on the command line (like HP71B)*
- *Add a TI program archive web site, with programs sorted by function name.*

Unclear?
- Use of grayscale in graphmenu
- A microfont interface
- Ability to use any kind of data in expressions (bijective transformation to string, ability to include in lists etc...)
- Ability for 'display format' at MODE level.
- Simplified (stylized) menu titles.