SciCalc

Scientific Calculator
for the Macintosh

Version 1.0

Copyright © 1992, Steven R. Costenoble
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Internet: `matsrc@vaxc.hofstra.edu`
GEnie: `S.Costenoble` SciCalc is a scientific calculator with the features I liked best from my
last several (real) calculators. It uses algebraic entry with the usual order of operations, and with
parentheses available to change that order. It computes the standard scientific functions, plus one-

variable statistics (average, standard deviation, and (n–1)-weighted standard deviation). The statistics are available at all times (no statistics "mode"). I had some fun with the graphics; I hope you like them.

SciCalc has been run successfully on a MacIIsi and on a MacPlus, under System 6.0.7 and System 7. It will probably run on any System from 4.1 on, but it has not been tested.

Details on the functions are available through balloon help in System 7. For those using System 6 or earlier, or philosophically opposed to balloons, here are some of the less obvious details.

- Second Functions: Most of the buttons have second functions. You can get these by clicking the "2nd" key first, or by holding down the Shift key while clicking a button with the mouse.

- Clicking "C" once clears the displayed value; clicking twice clears all pending calculations.

- The degrees/radians button changes the interpretation of the arguments to the trig functions; the current setting is displayed in the upper left. The second function of this button does the same, but in addition converts the displayed value from degrees to radians or vice-versa.

- The general power (y^x) button behaves like a binary operator (+, –, etc.), with y as the first number entered and x as the second. Thus, to find 3^5 you would click 3 y^x 5 =.

- The "$x \leftrightarrow y$" button switches the arguments to any binary operation. E.g., clicking 2 – 3 $x \leftrightarrow y$ = will compute 3–2. What the button actually does is swap the displayed value and the most recent value on the stack.

- Statistics: Use "CLS" to clear the statistics. Use $\sum+$ to enter the displayed value as a data point, and use $\sum-$ to remove the displayed value from the list of data points; the number of data points is then displayed. The button "n" shows you the number of data points, "x bar" gives you the average, σ_n computes the standard deviation, and σ_{n-1} computes the (n–1)-weighted standard deviation. These are all second functions of other buttons.

- There are 10 memories. "STO" is used to store the display value in one of the memories, and "RCL" is used to recall a value. Follow either button with one of the digits 0-9. The "CLM" button clears all of the memories to 0.

- The arrow "➜" removes the last digit entered, or the decimal point.

- Keyboard equivalents. The effect of some buttons can be achieved by typing the right characters from your keyboard:

Button	**Keyboard**
π	p, P, π, ∏
Clear	c, C, Clear
(	(

```
)              )
÷              /, ÷
0-9            0-9
.              *, x
%              %
-              -
EE             e, E
+              +
→              →, Delete
±              ±, ≠
.              .
=              =, Return, Enter
```

Further Details.

The displayed value, the values stored in memory, the data for statistics, and the position of the calculator on the screen are all remembered between sessions. (These are saved in a file in the Preferences folder in the System folder.)

The displayed value can be copied to the clipboard for pasting into other applications. Numbers are represented as text in the usual notation, e.g., `1.234E-567`. "Cut" copies and clears the calculator. If there is text on the clipboard that can be interpreted as a number, you can paste this into the calculator.

Factorials can be computed up to `1750!`, close to the limit of the largest number representable on the Mac.

You can have up to 512 pending operations and left parentheses. This should be more than sufficient for any practical use.

The color graphics work best on a screen with 256 colors. They will also work with 16 colors, but they will affect the colors used in other programs (and look strange when the calculator is in the background). In particular, they will force the Finder and some of the fancy System 7 color touches into black and white. On a screen with 4 or fewer colors the calculator will be drawn in black and white. I have not tested what will happen, and would be interested in hearing what does happen, if the calculator is dragged halfway between two screens with different numbers of colors. The cases that may look bad are when one screen has many colors and the other has only 4 or 2.

Shareware Plea.

I am releasing this program as shareware, and asking for $10 if you use it. (After all, you can go out and buy a real calculator that does all this for $20.) What will you get for paying the fee besides a warm feeling and my undying gratitude? Well, I will be much more willing to listen to complaints and suggestions, and much more willing to release further versions.

Pseudo Legal Stuff.

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This software is being distributed as is. I make no claims as to its correctness or usability. I've done what I can to clean out the bugs, but I'm willing to believe there are some left. Let me know.