

Nonlin BETA 0.1

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Description:

Nonlin is a program for nonlinear regression. This is a preview release. There are two major limitations:

- ◆ You cannot specify the modeling function
(this will hopefully be added in the next beta release)
- ◆ You cannot specify the list of derivatives of the modeling function
(this may be unnecessary if I do some estack manipulation in the program)

Help screen (accessed using nonlin() without arguments):

```
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Syntax: NonLin(xdata,ydata,func,params,derList,reltol,abstol)

xdata: list of x-values
ydata: list of y-values
func: function to model the data with (input as string)
params: list of guesses for the parameters
derList: list of derivatives of the function wrt parameters
reltol: relative tolerance
abstol: absolute tolerance

Note: the func and derList inputs are not working right now

Example:
NonLin(-5,-2,-1,1,3,5), (127.151,379,421,460,426),
p1+p2*x^(p3*x), (580,0,-180,0,-0.160),
(1,e^(p3*x),p2*x*x*e^(p3*x)),(10^-4,10^-2))
```

Computation screen (accessed using nonlin(arg1,arg2,...)):

```
Starting computation... (Press [ON] at any time to abort)

xdata: -5 -3 -1 1 3 5
ydata: 16 40 268 310 349 315
params: 580 -180 -0.16
tol: r1=1e-4, abs=0.01
.....
```

Results screen:

```
Parameters:
4.1247e+2 -1.5715e+2 -1.9945e-1

OUT:
6.883683e+7
1.157156e+2
1.82113e-2
4.008949e+2
2.4e+1
2.3e+1
0e+0

Last residual vector:
-29.5 86.6 -47.4 -26.3 -22.9 39.5
```

The program returns the best-fit values of the parameters as a list.

Disclaimer:

This program is currently in beta and may provide inaccurate results or may crash or hang. I am not responsible for any damage done to your calculator. To reset the calculator, press:

[2nd][LOCK][ON] on the TI-92 Plus

[2nd][LEFT][RIGHT][ON] on the TI-89

If this doesn't reset the calculator, take out a battery, press and hold [(-)] while you insert the battery.

Of course, this does not mean your calculator will definitely crash or hang :-). In fact, you should be able to break a calculation by pressing [ON].

Please let me know if you get inaccurate results or any undesirable behavior; I will try to fix it. Thanks.