

TI-83 Plus Application Polynomial Root Finder

1. Introduction

POLYROOT was designed to calculate roots of a real polynomial up to the 10th degree. It was developed for usage in schools, since you don't need to solve complex or high order polynomials there. Its main advantages are the overwhelming calculation speed and the intuitive user interface.

This application was created by Sebastian Theiss in 2001 and got the first price at the "TI Application Development Contest". For further information visit www.softheiss.de .

2. Installation

Just send the application to your TI-83 Plus calculator using the TI-GRAPH LINK cable and the provided TI-GRAPH LINK software. Make sure that you have the latest operating system software installed to optimize the performance of your calculator and the application.

To check the operating system version, press [2nd] [MEM], and then select About. The version number is displayed below the product name and should be at least 1.13 .

You can download a free copy of the latest operating system software from education.ti.com/softwareupdate. Follow the link to Operating Systems.

3. Features

Press the [APPS] key and select the entry "Polynom..." to run the application. If you want to enter the polynomial, you have to enter its degree at the "order=" prompt at first.

E.g. enter 4 if you want to solve the polynomial $x^4 + 3x^3 - 12x^2 - 20x + 48$.

After pressing [ENTER] the application will run the coefficient editor.

Now enter the coefficients of the polynomial {1, 3, -12, -20, 48} and press [ENTER] after each coefficient to move the cursor to the next line.

Alternatively you can use the [F1] list command to load the coefficient values from a list variable.

```
a4x^4+...+a1x+a0=0
a4=1
a3=3
a2=-12
a1=-20
a0=48
CLR 44 Solv
```

Use the [F5] Solv command to calculate the polynomial roots. Press [F1] list to store the results in a list, press [STO] to write a single root to a variable and [F2] cpls to store the coefficients in a list.

```
POLYNOM roots
x1=2
x2=2
x3=-3
x4=-4
list cpls Coef Quit New
```

4. Contact

If you have any questions or suggestions e-mail to support@softheiss.de or feedback@softheiss.de.

Visit www.softheiss.de to get informations about other useful applications and tools.

Thank you for using softheiss software.