ROOT ACCURACY

PURPOSE
Specify the root accuracy for the ROOTS command.

DESCRIPTION
When DATAPLOT finds roots, it computes

\[ \frac{\Delta x}{x} \]

where \( \Delta x \) is the difference between two iterations in the root finding algorithm and \( x \) is the current value of the root. If this value is less than the root accuracy, then convergence is assumed.

SYNTAX
ROOT ACCURACY <val>
where <val> is a number or parameter that specifies the root accuracy.

EXAMPLES
ROOT ACCURACY 0.001
ROOT ACCURACY 0.00001

DEFAULT
0.000001

SYNONYMS
None

RELATED COMMANDS
ROOTS = Find the real roots of an equation.
COMPLEX ROOTS = Find the complex roots of a polynomial.

APPLICATIONS
Roots of an equation

IMPLEMENTATION DATE
This command was activated 94/2 (earlier versions ignored this command and used a hard-coded value of 0.000001).

PROGRAM
LET FUNCTION F = 2*X**3 + X**2 -4*X + 2
ROOT ACCURACY 0.0001
LET R = ROOTS F WRT X FOR X = -10 TO 10