

Teaching mathematics using MathematicaTM

A basic course

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Since the first time they were introduced, MathematicaTM and all similar systems of C.A. (Computer Algebra), have been useful to change both the way people looked and thought of didactics in mathematics. Students are no longer passive watchers of a process, which used to be distant and unrelated to them. Although a teaching methodology essentially meant for a major participation of the student has always been available, using new teaching tools supported by computer software have opened possibilities only superficially explored. The visualisation through computation and testing are now becoming a fundamental condition for learning.

The computer based education (CBE), or as Kulik (1986) used to call it, "the third mile stone" in the development of computers and the related didactics, represents a link between the traditional teaching techniques and computer technology and it also offers to the tutors a unique opportunity to widen their educational horizons. As a matter of fact what results stimulating for C.B.E. users is the desire of finding and employing the "new", to redefine the "progress report" (Mac Daniel 1985).

Efficient computer based tutors can be realised inside a Notebook of MathematicaTM software.

MathematicaTM is a software able to do symbolic and numeric computations and able to manipulate (generate and modify) 2D and 3D images and graphs. We present the version 4.0 for Windows95/98, even if it is now available a version for Sun, OS2, Unix, Linux, Mac, etc.

The aim of the workshop can be summarise in the following points:

- Syntax and basic rules for a "good conversation"
- How to use the Help On Line
- Some additional notions about the basic objects and functions
- Some tricks for doing efficient symbolic computation with MathematicaTM
- The complex numbers
- The basic 2D-3D graphical functions