MAPLE ESSENTIALS FOR CALCULUS TEACHERS

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Here is a brief guide to the conference materials, and the thinking behind them.

Many mathematics teachers are reluctant to adopt a Computer Algebra System such as Maple because they feel it will entail a big learning curve. This used to be true: however, recent developments allow teachers to use Maple intuitively without any programming. I hope after my presentation will have the confidence to get up and running in minutes.

The **overview** consists of the Powerpoint slides used to frame the discussion. We will cover some background material on Maple versions, Teaching considerations, and (importantly) how to get discounts for students (and a free copy for yourself).

Most of the presentation will focus on a **tutorial**: I will post a self-paced version of this so you can load it and try it after the conference. The core interface ideas we will cover are:

- Freely intermixing text and mathematics. Older versions of maple separated text and commands. While you can still do this, you don't have to separate your math and text any more.
- Using **palettes** to insert mathematics operations without needing to know Maple programming commands.
- Using **context menus**: right-clicking on an expression or equation will bring up a menu of math commands. Maple 'predicts' what you might want to do, and gives you appropriate options. For example, if you type in an equation and right-click, you will get equation solving options.
- A range of supplied **tutors, assistants** and **tasks** that cover many areas of algebra and calculus. Many of these animate ideas like Riemann Sums, Difference Quotients, and so on.

After the conference you can use the tutorial yourself to explore these ideas further. I'll include some more advanced commands and ideas from multi-variable calculus, differential equations, and linear algebra so you can explore them if you wish.

As for using Maple as a teaching aid: It can be used by you alone, occasionally by students, or extensively by students. Personally I use it extensively as a demonstration tool, to prepare solutions for assignments, and so on. I also have students in more advanced courses use it for portions of take-home assignments. I'll include some **examples** of my solutions and demos on the conference web site.

However, I also use Maple very informally and loosely, to inspire students. I've often given informal demos to students who are filing in to the next class! Calculating Pi to 10000 decimal places in an instant gets even the most jaded students' attention.

I hope you will find this material useful!

Best wishes,

John Mitchell