Putting Mathematics on the Web
Easier than Ever!

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`http://www.jcu.edu/math/ictcm2001/`

Using simple, inexpensive software tools, it is possible to post mathematics on the web in a variety of forms. This talk has discussed the following techniques:

Direct Embedding in HTML: Many simple, one-line mathematical expressions can be inserted into web pages by appropriate use of italics, horizontal spacing, superscripts and subscripts, all of which are standard in HTML. Because no graphic images are involved, the pages load quickly and can be viewed with any browser. There are many good WYSIWYG HTML editors available at little or no cost. The one that we use is Netscape Composer, which is included in the free Netscape Communicator package. (`http://www.netscape.com`)

MathType: For the many situations in which mathematical expressions are too complex to create with an HTML editor, the newest release of the mathematical expression editor MathType (version 5) can be used in conjunction with your word processor to create web pages that include excellent renditions of the mathematics, and which can be viewed with virtually any browser. Although MathType 5 has a number of additional features, the web page creation feature alone is well worth the academic price of $99. In addition, the MathType web site is a treasure trove of information on various approaches to putting math on the web, as well as providing information on their products. (`http://www.mathtype.com`)

Adobe Acrobat: When you want to post mathematical material in a form that is as close as possible to the original, then Adobe Acrobat is exactly what you need! Working with your word processor, Acrobat produces a version of your document in pdf format (portable document format). The pdf file can be viewed with virtually any browser, as long as the Acrobat Reader plug-in is installed. Acrobat Reader is a free download from Adobe, and most people already have it on their computers. (Using Acrobat requires, of course, that you have already created a document with a word processor and a mathematical expression editor such as MathType.) Adobe Acrobat can be purchased from a variety of sources. At John Carroll University, we have purchased Acrobat from Software Express. (The current academic price is $58.95 at `http://www.swexpress.com`.)

TeX: The top-of-the-line in mathematical typesetting quality is, beyond all doubt, TeX. The learning curve is steep, however, so if you have never used TeX, you may not want to start now if your goal is simply to put some mathematical material on the web. But if you are already a TeX user, you will be glad to know that software to convert TeX

documents to pdf format is free! The version of TeX that we use is MiKTeX, available *free* from the author, Christian Schenk (`http://www.miktex.org`). This TeX implementation comes complete with an excellent previewer and the TeX-to-pdf converter software. A very nice Windows shell for MiKTeX is WinEdt, available for the academic price of $40 (`http://www.winedt.com`). Hard-core Tex-ers may also wish to consider the TeX-to-HTML translator TTH, which is also available free from its author, Ian Hutchinson (`http://hutchinson.belmont.ma.us/tth/`).

LiveMath: LiveMath, the current reincarnation of the software formerly known as Theorist and MathView, is a computer algebra system that is built around a structure of "propositions," and "conclusions" that are tied to those propositions. A change to a proposition causes an immediate cascade of changes through the conclusions. LiveMath notebooks can be embedded in web pages, and their functionality is made available over the web by means of a free plug-in. By including LiveMath notebooks in your web pages, you can have true interactive mathematics on the web with absolutely no programming, and at a very reasonable cost! Only the *developer* of the web pages incurs the cost of $99 (plus support, if desired) for "LiveMath Maker," the software that creates the interactive notebooks. Viewers of the pages need only to install the free plug-in. (`http://www.livemath.com`)

Other Tools: An additional software tool that will simplify your life is an image editor for editing and saving graphs generated with a computer algebra system or a calculator. We use Paint Shop Pro, which also includes a nice animated GIF editor for a total download price of $99. (`http://www.jasc.com`)

Free Trials: With the exception of Adobe Acrobat, all of the software mentioned above is available either free or on a limited free trial basis.

Examples: For examples of mathematical material posted in the ways discussed above, please visit our web page, at **`http://www.jcu.edu/math/ictcm2001/`**.

Comments and suggestions are most welcome: spitz@jcu.edu or bdambrosia@jcu.edu.