About 3D-XplorMath Documentation

Updated March 2015 for Version 10.9

There are two components to the 3D-XplorMath Documentation: there is of course the standard sort of documentation, explaining how to use various features and user interface elements of the program. But since 3D-XplorMath is primarily concerned with mathematical content, accompanying the program is a substantial amount of mathematical documentation that is easily available while the program is running.

In fact, 3D-XplorMath has built into it the detailed information required to visualize nearly two hundred different interesting mathematical objects (and more are constantly being added). Now while a picture may be worth a great many words—and a good mathematical visualization can by itself convey a large amount of information—the full meaning of even the best visualization can only be grasped when it is viewed in the context of a textual explanation that tells what makes that particular object special, how it is defined, and the mathematical significance of various aspects of the graphic image. For this reason, each of the mathematical objects in the repertory of

3D-XplorMath has associated to it a piece of documentation that we shall refer to as its ATO (About This Object).

After you select an object from one of the menus of objects, you will almost immediately see a default visualization of that object, and usually the very next thing you should do is to select About This Object from the Documentation menu to learn a little about what it is that you are viewing. We should admit at the outset that many of the ATOs are currently fairly primitive, containing little more than the formulas that define the objects that they are referring to. But gradually more and more objects are getting refined ATOs that contain a good deal of interesting mathematical lore. Such objects are marked by a blue diamond in the menu from which you select them, and in addition, when you choose one of these, a button marked ATO will appear on the screen, inviting you to click it with the mouse (which is equivalent to choosing About This Object from the Documentation menu).

The various objects are grouped into a number of Categories, such as Surfaces, Plane Curves, Space

Curves, Conformal Maps, etc., and each Category has associated to it a piece of documentation called its ATC (About This Category). If you are going to be spending some time looking at various objects from a given category, then it is a good idea to choose About This Category from the Documentation menu and read the panel that comes up.

As for the documentation for the program itself, a basic version can be found in the Help menu, and in particular we recommend that you at least glance at "Once Over Lightly" and the two "Getting Started" items there. This documentation is built into the program (and so it is guaranteed to be there) but in these days of multi-media, it suffers from being formatted as plain vanilla text. There is in addition a much more extensive version of the program documentation that is formatted as hypertext (html) and that will open in your web browser if you select Local HTML Documentation in the Documentation menu. These web pages come with the standard distribution of the 3D-XplorMath program in a folder called 3DFSdocs, and will be found by the program if you place that folder either in the same folder as the running copy of 3D-XplorMath, or else in the Application Support

folder inside the System folder. The 3DFSdocs folder also contains many ATOs and ATCs in PDF format, and if you place that folder as suggested above then you will have the luxury of reading these files with Acrobat.

Finally, we should mention that you can on your own add to the documentaion that will be available from the Documentation menu while the program is running. There is a folder called USERDocs in the 3D-XplorMath application folder, and the name of any file that you place in this folder will become an item of the User Topics submenu of the Documentation menu. When a user selects a filename from the User Topics menu, the corresponding file will be opened, just as if its icon had been double-clicked in the Finder. You are **not** restricted to text files—this will work also for PDF files, JPEG (and other picture files), and even Quicktime movies. If you place files in a folder and drag that folder into the USERDocs menu, then the name of that folder will become the name of a submenu of the User Topics menu, and the files in that folder will be items of that submenu (and yes, since you asked, this does work recursively). You do not need to put an actual folder in the USER-

Docs folder—an alias to it is just as good (and you can give the alias any name that you want to appear as the submenu title). For example, you may find it convenient to put an alias to the Settings Folder in USERDocs folder.

While there are certainly many other ways to use this feature, our actual motivation for adding it was to make available a mechanism for an instructor using 3D-XplorMath as a teaching aid in a mathematics course to put various course-related resources in the Documentation menu.