Chapter 2
On-line Resources

Mathcad has a full on-line Help system, but with Mathcad you can also access mathematical and technical content located on your computer or on the World Wide Web. Mathcad gives you a direct link to the *Collaboratory*, a unique Web-based messaging system that connects you to the community of Mathcad users. Mathcad also comes with the *Resource Center*, a Mathcad Electronic Book containing an extensive collection of tutorials, examples, and reference information, with links to further resources on the World Wide Web. Additional Mathcad Electronic Books are available from MathSoft or your local software distributor.

The following sections make up this chapter:

Internet access in Mathcad

What you need to connect to Web-based resources from within Mathcad.

The Collaboratory

How to retrieve and post files to the Collaboratory, a Web-based service for communicating with other Mathcad users.

Resource Center

The Electronic Book that is both a library of reference content on your desktop and a gateway to resources on the World Wide Web.

Using Electronic Books

Opening, navigating, and annotating Mathcad Electronic Books.

Help and context sensitive help

On-line Help on product features.

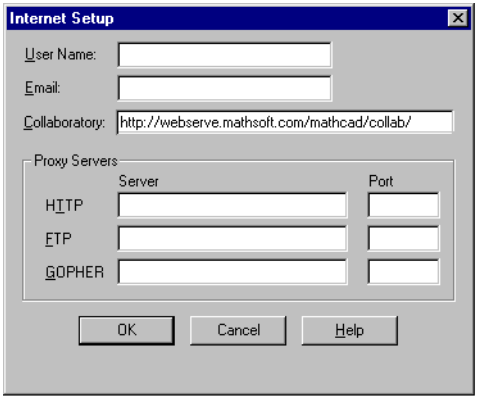
Internet access in Mathcad

A number of the on-line Mathcad resources described in this chapter are located not on your own computer or on a local network but on the Internet, the global network that includes the World Wide Web. When you choose **Collaboratory** from the **File** menu, for example, you are requesting information from a file server on the World Wide Web.

To access these resources on the Internet you need:

- Networking software to support a 32-bit Internet (TCP/IP) application. Such software is usually part of the networking services of your operating system; see your operating system documentation for details.
- A direct or dial-up connection to the Internet, with appropriate hardware and communications software. Consult your system administrator or Internet access provider for more information about your Internet connection.

Before accessing the Internet through Mathcad, you also need to know whether you must use a proxy server to access the Internet. If you use a proxy, ask your system administrator for the proxy machine's name or Internet Protocol (IP) address, as well as the port number (socket) you use to connect to it. You may specify separate proxy servers for each of the three Internet protocols understood by Mathcad: HTTP, for the World Wide Web; FTP, an older file transfer protocol; and GOPHER, an older protocol for access to information archives. Once you have this information, choose **Internet Setup** from the **File** menu. Then enter this information in the appropriate places in the Internet Setup dialog box.



The remaining information in the Internet Setup dialog box was entered at the time you installed Mathcad, but you may modify it here at any time:

- Your name, which will appear on any Collaboratory messages you send from within Mathcad.
- Your Internet electronic mail address, which will appear on any Collaboratory messages you send from within Mathcad.

- The URL for the Collaboratory server you contact when you choose **Collaboratory** from the **File** menu.

The Collaboratory

If you have a dial-up or direct Internet connection, you can access the MathSoft Collaboratory server. The Collaboratory is an interactive World Wide Web service that puts you in contact with a community of Mathcad users. The Collaboratory consists of a group of forums where you can contribute files, post messages, download files contributed by other users, and read messages posted by other Mathcad users. You'll find that the Collaboratory combines some of the best features of a computer bulletin board or an on-line news group with the convenience of sharing worksheets or other files created using Mathcad.

To access the Collaboratory, choose **Collaboratory** from the **File** menu. Mathcad displays the Collaboratory dialog box as shown in Figure 2-1.

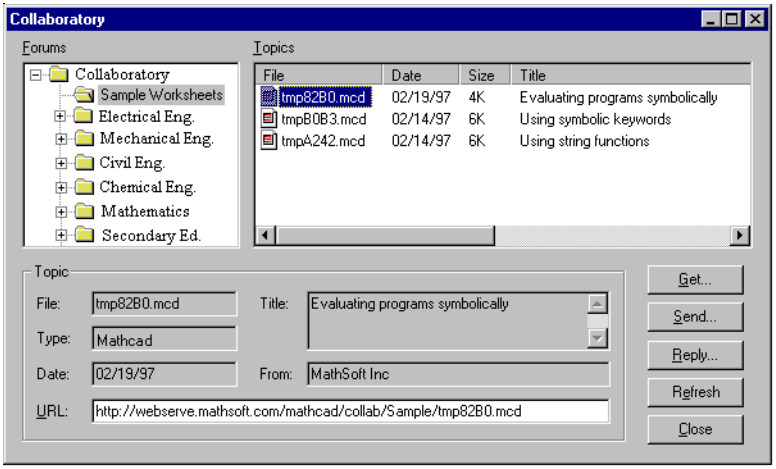


Figure 2-1: Opening the Collaboratory from Mathcad. Available forums and topics will change over time.

- **Forums and Topics:** You can post and retrieve messages from the available forums, which will evolve over time. Each forum contains one or more topics. Click on a forum name to display the available topics in the "Topics" scrolling list to the right. If a title is indented, it's a reply to the previous topic.
- **Topic Information:** When you click on a topic, information about it displays in the lower part of the Collaboratory dialog box. You'll see the name of the file, the format of the file, the date it was posted, its location on the Collaboratory server, the title given to it by its author, and the author's name.

- **Buttons:** The **"**Get," "Send," and "Reply" buttons are used to retrieve, post, and reply to files on the Collaboratory, respectively. You can post and retrieve a worksheet, another type of file, or a text message. Use the "Refresh" button to redisplay the list of topics and forums. The "Close" button closes the Collaboratory dialog box.

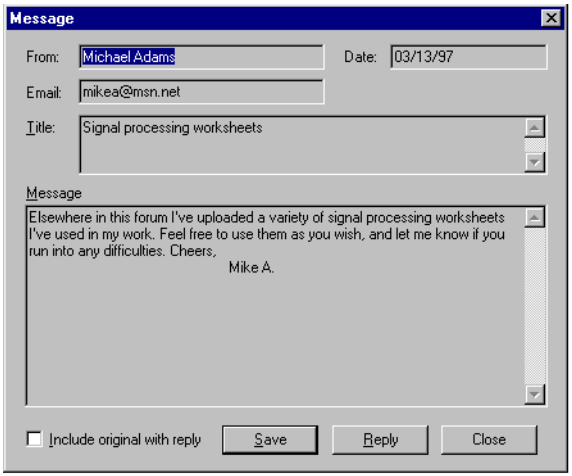
Note: MathSoft maintains the Collaboratory server as a free service, open to all in the Mathcad community. Be sure to read the Collaboratory Agreement posted in the top level of the Collaboratory for important legal information and disclaimers. Although the Collaboratory is monitored by MathSoft, it is not designed for product technical support. If you need technical support, see the contact information that accompanied your Mathcad installation media.

Opening a worksheet or other file stored in the Collaboratory

To open a worksheet or other file stored in the Collaboratory:

- Choose **Collaboratory** from the **File** menu.
- Click on the appropriate forum from the list of forums in the upper left corner of the dialog box.
- Once you've selected a forum, click on one of the topics shown in the scrolling list at the upper right corner of the dialog box.
- You'll see some additional information on that topic in the lower half of the dialog box. Examine this information to see if you want to go ahead and open the topic.
- Click the "Get" button.

Depending on the type of file, one of three things will happen. If the file is text, you'll see the text in a message box as shown below. Use the "Reply" button to reply to the message. If the file is a worksheet it will open in its own worksheet window. If the file is binary, you'll be prompted for a place to save the file.



Sending a worksheet to the Collaboratory

If you want to send a worksheet you've created, or any other file, to the Collaboratory:

- Choose **Collaboratory** from the **File** menu.
- Check the list of forums in the upper left corner of the dialog box. Click on the forum to which you want to send your file.
- Click the "Send" button.
- Click on the "Send my Current File" if the worksheet you'd like to post is currently open. If it isn't, click on the "Send Another File" button.
- Enter the path to the file in the File text box. Alternatively, click the "Browse" button to locate the file.
- Enter a title in the Title text box. This is the text that will appear whenever anyone clicks on this file.
- Click the "Send" button.

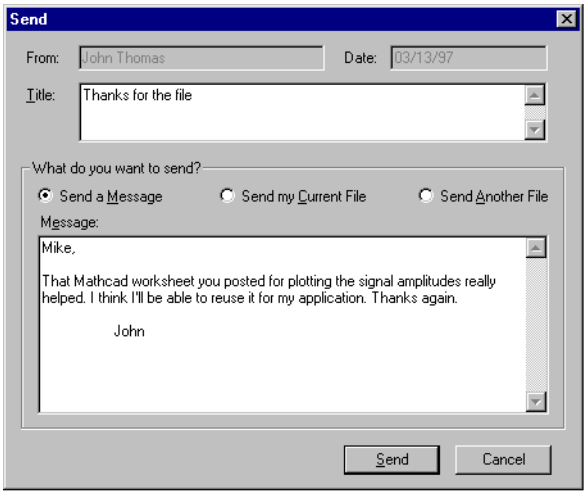
You'll see your file appear in the Topics window on the upper right corner of the dialog box. The "From:" text box will contain your "User Name" as it is specified in the Internet Setup dialog box. Choose **Internet Setup** from the **File** menu to change the user name as described in the section "Internet access in Mathcad" on page 40.

Sending a text message to the Collaboratory

If you'd like to write a text message and send it to the Collaboratory:

- Choose **Collaboratory** from the **File** menu.
- Check the list of forums in the upper left corner of the dialog box. Click on the forum to which you want to send your text message.
- Click the "Send" button to see the Send dialog box.
- Click on the "Send a Message" button.
- Enter a title in the Title text box. This is the text that will appear whenever anyone scrolls through the Topics list of the forum.

- Type your message into the Message text box, as shown below:



- Click the “Send” button.

You'll see your message appear in the Topics window on the upper right corner of the dialog box.

Deleting a topic from the Collaboratory

If you posted a file or a message to the Collaboratory but would like to remove it:

- Choose **Collaboratory** from the **File** menu.
- Check the list of forums in the upper left corner of the dialog box. Click on the forum containing the topic you want to delete.
- Once you've selected the forum, click on the topic you want to delete. The topics are in the scrolling list at the upper right corner of the dialog box.
- Press [**Del**].

After you confirm that you want to delete the topic, you'll see your topic disappear from the Topics window on the upper right corner of the dialog box. Note that if your file or message has received any responses, you won’t be able to delete it.

Opening a worksheet from another World Wide Web server

If you know the address of a Mathcad worksheet on the World Wide Web, you can use the Collaboratory dialog box to open that worksheet:

- Choose **Collaboratory** from the **File** menu.
- In the “URL” box at the bottom, delete any address that you see and then type the URL of the worksheet you want to open. The URL is typically of the form **http://some.server.name/directories/worksheet.mcd**

- Click the “Get” button.

The Mathcad worksheet will appear in its own worksheet window.

See “Web browsing in the Resource Center” on page 46 for a more generic method of browsing the Web from within Mathcad.

Resource Center

If you learn best from examples, want information you can put to work immediately in your Mathcad worksheets, or wish to access any page on the World Wide Web from within Mathcad, choose **Resource Center** from the **Help** menu. You will see a Mathcad Electronic Book in a custom window with its own toolbar, as shown in Figure 2-2.

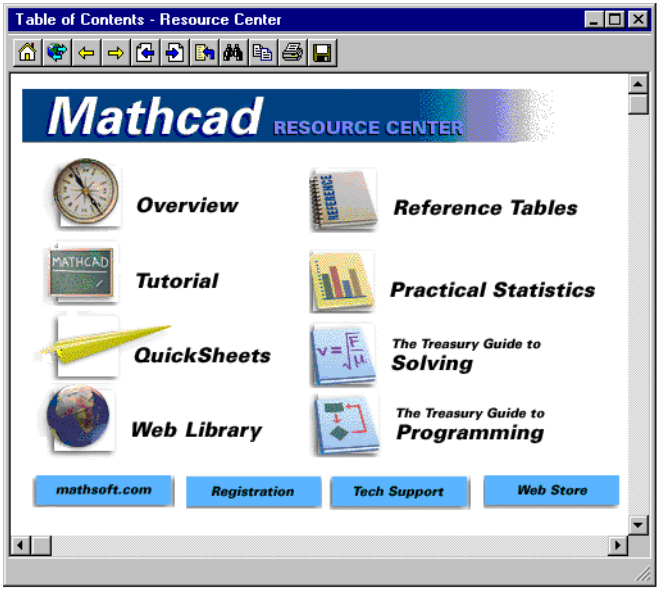


Figure 2-2: Resource Center for Mathcad Professional. Topics available in Mathcad Standard or other editions differ slightly.

The Resource Center offers:

- A comprehensive Mathcad Electronic Book containing a collection of tutorials, examples, and reference information. Simply drag and drop information from the Resource Center into your own Mathcad worksheets.
- Immediate access to Mathcad worksheets on MathSoft’s World Wide Web site or other Internet sites.

- Access to the full Web-browsing functionality of Microsoft Internet Explorer from within the Mathcad environment.

Browsing the Resource Center

The Resource Center is a *Mathcad Electronic Book*—a hyperlinked collection of Mathcad worksheets. As in other hypertext systems, you move around a Mathcad Electronic Book just by clicking on icons or underlined text. You can also use the toolbar buttons at the top of the Resource Center window. For more information about using the toolbar buttons to move around an Electronic Book and copying information from the Electronic Book to your worksheets, see "Using Electronic Books" on page 48.

Here are brief descriptions of the topics available in the Resource Center:

- **Overview**. A high level introduction to Mathcad's computational features.
- **Tutorial**. Step-by-step guidance for new users on creating math, text, and graphics regions.
- **QuickSheets**. A collection of hundreds of pre-made Mathcad worksheets, from factoring a number or computing a mortgage payment to solving a system of equations. The QuickSheets also contain special pages on which you can save any text or math you want quick access to. Look for "Personal QuickSheets" in the table of contents. Anything you enter in these sheets is automatically saved when you close the Resource Center. Changes made to any other pages in the Resource Center are discarded when you close the Resource Center.
- **Web Library**. If you have Internet access, jump directly to a growing library of Mathcad worksheets and Electronic Books on the World Wide Web. See "Opening a worksheet from another World Wide Web server" on page 44 for information about accessing other Mathcad worksheets on the Web. See also "Web browsing in the Resource Center" below.
- **Reference Tables**. Look up physical constants, chemical and physical data, and mathematical formulas you can use in your Mathcad worksheets.
- **Practical Statistics**. An introduction to hypothesis testing and data analysis in Mathcad.
- **The Treasury Guide to Solving**. In-depth discussion of methods to solve equations in Mathcad, excerpted from *The Mathcad Treasury*, the best-selling Mathcad Electronic Book by Paul R. Lorczak.

Pro

- **The Treasury Guide to Programming**. In-depth discussion of programming operators and programming techniques in Mathcad Professional, also excerpted from *The Mathcad Treasury*.

Web browsing in the Resource Center

If you have Internet access, the Web Library button in the Resource Center connects you to a collection of Mathcad worksheets on the World Wide Web. You can also use the Resource Center window to browse to any location on the World Wide Web and open standard Hypertext Mark-up Language (HTML) and other Web pages, like those

you can view with a standard Web-browsing application, in addition to Mathcad worksheets. You have the convenience of accessing all of the rich information resources of the Internet without leaving the Mathcad environment.

To browse to any World Wide Web page from within the Resource Center window:

- Click on the *Web Toolbar* button (the one that looks like a globe) on the Resource Center toolbar. As shown below, an additional toolbar with an "Address" line appears below the Resource Center toolbar to indicate that you are now in a Web-browsing mode:

- In the "Address" box type a Uniform Resource Locator (URL) for a document on the World Wide Web. To visit the MathSoft home page, for example, type **`http://www.mathsoft.com/`** . If you have Internet access and the server is available, you will load the requested page in your Resource Center window, as shown in Figure 2-3.

Figure 2-3: Browsing the World Wide Web from within the Resource Center.

The remaining buttons on the Web Toolbar let you bookmark the page for a later visit. reload the current page, and interrupt the current file transfer. When you are in Web-browsing mode and click with the right mouse button on the Resource Center window, Mathcad displays a context menu with commands appropriate for viewing Web pages.

Many of the buttons on the Resource Center toolbar remain active when you are in Web-browsing mode, so that you can copy, save, or print material you locate on the Web, or backtrack to pages you previously viewed. When you click on the Table of Contents button you return to the Table of Contents for the Resource Center.

You may use the Resource Center in Web-browsing mode to open Mathcad worksheets on the Web. Simply type the URL of a Mathcad worksheet in the "Address" box in the Web Toolbar.

When the Resource Center window is in Web-browsing mode, Mathcad is actually using a Web-browsing OLE control provided by Microsoft Internet Explorer. Web browsing in Mathcad requires Microsoft Internet Explorer version 3.02 or later to be installed on your system. Although Microsoft Internet Explorer is installed when you install Mathcad, you can refer to Microsoft Corporation's Web site at

`http://www.microsoft.com/`

for licensing and support information about Microsoft Internet Explorer and to download the latest version.

Use the buttons at the bottom of the Resource Center Table of Contents as shortcuts to the following pages on MathSoft's World Wide Web site:

- **mathsoft.com**: MathSoft home page.
- **Registration**: On-line product registration form.
- **Tech Support**: Technical support pages.
- **Web Store:** Purchase additional MathSoft products on-line.

Using Electronic Books

MathSoft and selected third-party publishers produce Mathcad Electronic Books, which are disk- and CD-based electronic publications that provide technical professionals, professors, and students with a wide range of technical reference and educational content, all created with Mathcad. Electronic Books help you get more out of Mathcad, because:

- Every page of an Electronic Book is a live Mathcad worksheet. You can change values, calculate results, and experiment right on the electronic "page."
- If you have your own Mathcad worksheet open, you can copy working examples and formulas from the Electronic Book simply by dragging and dropping them into your worksheet.

The Resource Center, which comes with Mathcad, is itself an Electronic Book, and more than 50 additional titles are now available, including the best-selling *The Mathcad Treasury*, by Paul R. Lorczak. If you are using Mathcad Professional, your Resource

Center includes two chapters excerpted from this Book. For more information about Mathcad Electronic Books and other products, contact MathSoft or your local software distributor or reseller, or click on the Web Store button in the Resource Center.

Opening an Electronic Book

To open an Electronic Book you have installed,

- Choose **Open Book** from the **Help** menu.
- Use the Open Book dialog box to locate the book. The file extension **.hbk** is used for Mathcad Electronic Book files. The title for any book you locate is displayed at the bottom of the dialog box.
- Click "Open."

You may also open an Electronic Book you have installed via the **File** menu:

- Choose **Open** from the **File** menu.
- Set the "Files of Type" box to "Mathcad Electronic Book (*.hbk)." The file extension **.hbk** is used for Mathcad Electronic Book files.
- Browse to find one of the available Electronic Books you have installed.
- Click "Open."

The Electronic Book opens in its own window with a navigational toolbar at the top, as shown in Figure 2-4.

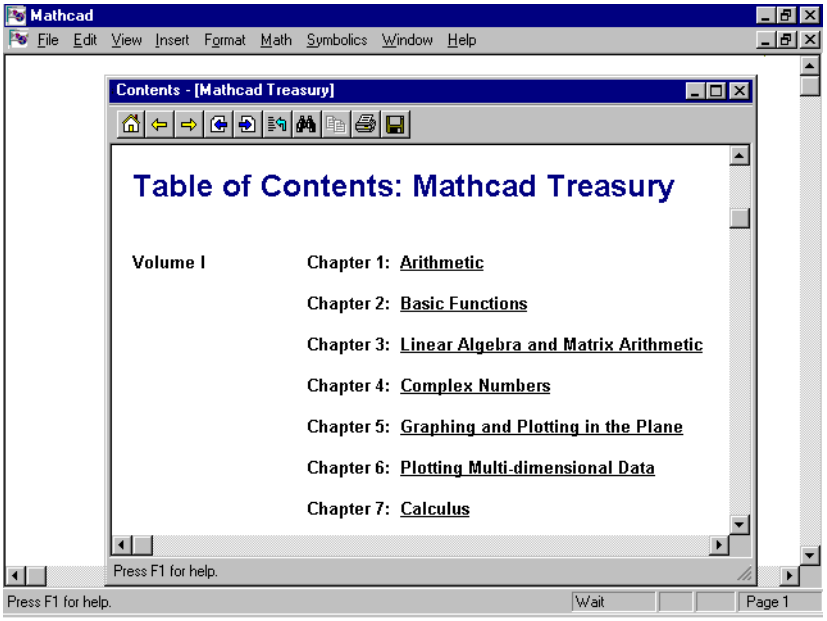


Figure 2-4: A Mathcad Electronic Book opens in its own window with a custom toolbar.

When you click in the book with the *right* mouse button, you will see a Books context menu with commands appropriate for using your Book.

Moving around an Electronic Book

As in other hypertext systems, you click on underlined text or icons to move from section to section. The mouse pointer automatically changes into the shape of a hand when you let it hover over a hypertext link, and a message appears at the bottom of the window that tells you what will happen when you click on the link. Then, when you click on a link or cross-reference, you automatically open the appropriate section or display information in a pop-up window, depending on how the book is organized.

You can also use the buttons on the toolbar at the top of the Electronic Book window to navigate the Electronic Book and take advantage of the content you find there:

Button	Function
	Jumps to the Table of Contents, the page that displays when you first open the Electronic Book.
	Backtracks to whatever document was last viewed.
	Reverses the last backtrack.
	Goes backward one section in the Electronic Book.
	Goes forward one section in the Electronic Book.
	Displays list of documents most recently viewed.
	Searches the Electronic Book for a particular term.
	Copies selected regions to the clipboard.
	Prints current section of the Electronic Book.
	Saves current section of the Electronic Book.

Some Electronic Books show additional buttons in the toolbar. The Resource Center toolbar, for example, has a button that opens an additional toolbar for Web browsing in the Resource Center window, as described in "Web browsing in the Resource Center" on page 46.

Use the key combinations [**Shift**][**PgDn**] and [**Shift**][**PgUp**] to move down or up in increments of one page within the current section of the Electronic Book. To move one screen to the right or left, click to the right or left of the scroll box in the horizontal scroll bar.

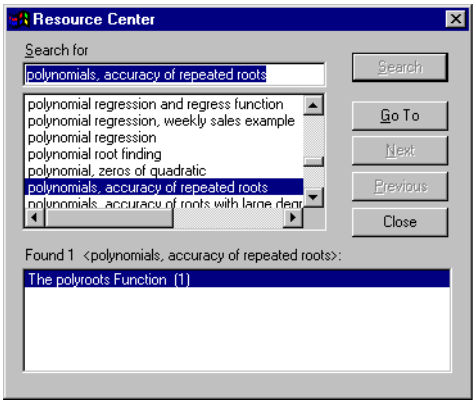
Mathcad keeps a record of where you've been in the Electronic Book. When you click on the *Back* button, Mathcad goes back to the last section you opened and the page you were on when you left it. Backtracking is especially useful when you have clicked to look at a cross reference and you want to go back to the section you just came from.

If you don't want to go back one section at a time, click on the *History* button in the Electronic Book toolbar. This opens a window listing all the sections you've viewed since you first opened the Electronic Book. And if your Book has a Web Toolbar, you can use the Bookmark button to save the location of a section to visit at a later date.

Finding information in an Electronic Book

In addition to using the Table of Contents to find topics in the Electronic Book, you can search for topics or phrases. To do so:

- Click on the *Search* button in the Electronic Book toolbar to open the Search dialog box shown below.
- Type a word or phrase in the "Search for" text box. As you type, the scrolling list displays words or phrases that closely match the letters you type.
- Select a word or phrase and click "Search" to see a list of topics containing that entry and the number of times it occurs in each topic.
- Choose one of these topics and click on "Go To." Mathcad opens the Electronic Book section containing the entry you want to search for.



Click on "Next" or "Previous" to bring the next or previous occurrence of the entry into the window. If "Next" is grayed out, the last occurrence of that word is currently visible. If "Previous" is grayed out, the first occurrence of that word is currently visible.

Note that this feature will not locate any annotations you may have saved using the **Annotate Book** command, described in "Annotating an Electronic Book" on page 53.

Copying information from an Electronic Book

There are two ways to copy information from an Electronic Book into your Mathcad worksheet:

- You can use the clipboard by selecting text or equations in the Electronic Book, using the *Copy* button on the toolbar in the Electronic Book window, clicking on the appropriate spot in your worksheet and choosing **Paste** from the **Edit** menu, or
- You can drag regions from the Book window and drop them into your worksheet.

To drag regions from an Electronic Book to your worksheet, first select them. To do so:

- Press and hold down the mouse button to anchor one corner of the selection rectangle.
- Without letting go of the mouse button, move the mouse so as to enclose everything you want to select inside the selection rectangle.
- Release the mouse button. Mathcad encloses the regions you have selected in dashed selection rectangles. If you select only one region, Mathcad surrounds it with a selection box.

Now drag a copy of the selected regions into your worksheet, as shown in Figure 2-5.

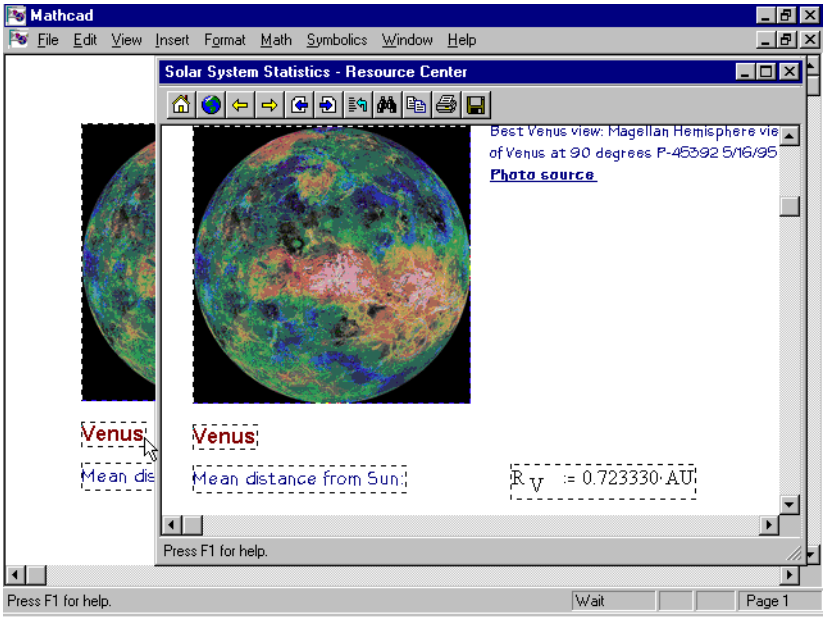


Figure 2-5: Copying selected regions from an Electronic Book to a worksheet.

To do so:

- Place the pointer over any selected region in the Electronic Book. The pointer will turn into a small hand.
- Hold down the mouse button. Without letting go of the button, move the mouse. You will see the rectangular outlines of the selected regions move as you move the mouse.

- Drag the regions in to the destination worksheet. Let go of the mouse button when you have positioned the regions to your liking.

Printing and saving a section from an Electronic Book

To print the current section of the Electronic Book,

- Click on the *Print* button in the Electronic Book toolbar.
- Use the Print dialog box to control what pages to print and what printer to print on.

To save the current section of the Electronic Book,

- Click on the *Save* button in the Electronic Book toolbar.
- Use the Save As dialog box to specify a location and format for the worksheet you want to save.

For more information about printing and saving Mathcad worksheets, see Chapter 4, "Worksheet Management."

Annotating an Electronic Book

While you have an Electronic Book open, you may edit any of the math you see, enter text, and create graphs directly in the Electronic Book window. By default, when you make changes in an Electronic Book, Mathcad remembers those changes as long as the book is open. When you close the book, whatever changes you make are lost. The next time you open that Electronic Book, it will appear as if it had never been changed at all.

To save a copy of your edited Electronic Book, choose **Annotate Book** from the context menu before making any changes. (Click on the Electronic Book window with the right mouse button to see the context menu.) This places a checkmark beside the menu command to indicate that you can now save an annotated copy of your Electronic Book. The original copy of your Electronic Book will, of course, remain untouched.

As you make changes and type in your Electronic Book, you may want to mark the regions you change. To do so, choose **Highlight Changes** from the Books context menu. After you've done so, Mathcad displays any changed regions in a different color. You can set this color by choosing **Color⇒Annotation** from the **Format** menu. To stop highlighting regions, choose **Highlight Changes** from the context menu again. This removes the checkmark from beside the menu command and disables this feature.

Once you've made changes in your Electronic Book, choose one of the following from the Books context menu. You will have the option of:

- Choosing **Save Section** to save the changes you've made in the section you're working on, or
- Choosing **Save All Changes** to save all changes since you last opened the book.

Once Mathcad saves an annotated copy of the Electronic Book, you'll see an asterisk beside the title whenever you turn to an annotated section. The next time you open that Electronic Book, Mathcad will open the annotated rather than the original copy.

If you've made changes to an Electronic Book and you *haven't* chosen one of the above options, you'll be given the option of saving all changes you have made or of reviewing the changed sections, one at a time, and deciding whether to save or discard the changes.

Deleting your annotations

Once you've saved an edited copy of an Electronic Book, Mathcad will open up that copy rather than the original unedited copy. Whenever you turn to a section that's been annotated and saved, you'll see a "*" in the title bar beside that section's title.

To see the original section, as it appeared in the original copy of the Electronic Book before you made any changes, choose **View Original Section** from the Books context menu. If you want to go back to the corresponding section in the annotated copy of the Electronic Book, choose **View Edited Section** from the context menu.

To delete the annotations permanently in a particular section, choose **Restore Section** from the Books context menu. To delete your annotated copy of the Electronic Book altogether, choose **Restore All**.

Help and context sensitive help

Mathcad provides several ways to get help on product features through a traditional on-line Help system. To see Mathcad's on-line Help at any time, choose **Mathcad Help** from the **Help** menu, or press [**F1**].

Choose **Tip of the Day** from the **Help** menu for a series of helpful hints on using Mathcad. Mathcad automatically displays one of these tips whenever you start it if "Show Tips at Startup" is checked.

You can get context sensitive help while using Mathcad. For menu commands, click on the command and read the message line at the bottom of your window. For toolbar or palette buttons, hold the pointer over the button momentarily to see a tool tip.

You can also get more detailed help on menu commands or on many operators and error messages. To do so:

- Click on an error message, a built-in function or variable, or an operator.
- Press [**F1**] to bring up the relevant Help screen.

To get help on menu commands or on any of the palette buttons:

- Press [**Shift**][**F1**]. Mathcad changes the pointer into a question mark.
- Choose a command from the menu. Mathcad shows the relevant Help screen.
- Click on any palette button. Mathcad displays the operator's name and a keyboard shortcut on the message line.

To resume editing, press [**Esc**] or [**Shift**][**F1**]. The pointer back into an arrow.