MAPLE IN TEXAS A&M MATHEMATICS COURSES

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1 Maple Under X/Motif

1.1 Invocation

To invoke Maple V Release 3 under the X Window System Motif Window Manager, proceed as follows.

1. Sit down at an X terminal; locate the Backspace key—this is used for corrections.
2. Using the mouse, move the pointer to the appropriate CalcLab server name, as follows:

   ```
   BLOC 125, calclab1   BLOC 126, calclab1
   BLOC 127, calclab2   BLOC 130, calclab3
   BLOC 131, calclab4   HELD 004, science1
   ```

   Click once with the **LEFT** mouse button. Then click on OK.
3. Type your CalcLab userid; press Return; type your password; press Return.
4. Click on Login; soon a Maple worksheet window will appear. Use Maple, referring to *CalcLabs with Maple V* (Math 151, 152, 171, 172), *Solving ODEs with Maple V* (Math 308), or other course materials.
5. When you are finished, move the pointer to the background area and click to obtain the Root Menu. Select Logout, then Yes.

1.2 Help Pages

- To randomly explore Maple help pages, click on Help, then Help Browser. Subsequently select topics and click on the Help button.
- To search for commands related to a topic, click on Help, then Keyword Search. Type in a search string, then click on Search. Select an item, then click on the Help button.
- To directly obtain help on a specific Maple command, proceed as follows:
  - For complete information, type *?topic* at a Maple input prompt, where *topic* is the command of interest.
  - For help on a command's calling sequence and parameters, type *??topic*.
  - For examples dealing with a specific command, type *???topic*.

1.3 Restarting (resets variables and packages)

- Click on File; click on New; click on Restart. Alternatively, type **restart;** at a Maple input prompt.
- You **MUST** reload or autoload any packages you use.

1.4 Saving a Worksheet

1. When saving a session for the first time (or to save a session under a different file name), click on File, then on Save As.
2. Edit the file name in the Selection field or type in a lowercase file name; for example, *lab4a.ms;* the *.ms* suffix is important!
3. Click on Save.
4. **Make sure you periodically save changes to your session by selecting Save from the File menu every five or ten minutes!**
5. Every half-hour or so, use Save As to save another version of your session (e.g., *lab4b.ms, lab4c.ms,* etc.). This way, if you really mess things up, you can go back to an earlier version!

1.5 Printing a Worksheet

To print your Maple worksheet proceed as follows. Output will appear in Blocker 133. (The printer staff initially place CalcLab printouts in the column of boxes to the right of the PC and Mac boxes. Printed on the header page is a *CALCLAB* banner, your userid, the date, time, etc.)

1. Click on File, then Print.
2. Click on the Printer Command radio button, then on OK.

Alternatively, you may print your worksheet via Xprint. This alternative mechanism for printing is useful if you wish to route your printout to a place other than Blocker 133. The help desk staff in Computer & Information Services (CIS) open access labs can help you set up an Xprint account. See Subsection 3.1 for details of how to print a Maple worksheet using Xprint.

1.6 Loading a Worksheet

1. Click on File, then Open.
2. Edit the file name in the Selection field or type in the name of the *.ms* worksheet. If it is one of your files, you know its name; otherwise, ask your TA or partner. (Alternatively, select a worksheet from the *.ms* list.)
3. Click on Load.

1.7 Exporting a Text File

1. Click on File, then Export as Text.
2. Edit the file name in the Selection field or type in a lowercase text file name; for example, *lab4a.txt;* the *.txt* suffix is important!
3. Click on Export.

1.8 Importing a Text File

1. Click on File, then Import Text.
2. Edit the file name in the Selection field or type in a lowercase text file name. If it is one of your files, you know its name; otherwise, ask your TA or partner. (Alternatively, select a text file from the *.txt* list.)
3. Click on Import.

1.9 Killing/Reinvoking Maple

- If Maple locks up, you may forcibly kill it as follows:
  1. Click on the background area to obtain the Root Menu.
  2. Click on Utilities, then Destroy Window.
  3. Click within the Maple window.
- To reinvoke Maple, proceed as follows:
  1. Click on the background area to obtain the Root Menu.
  2. Click on Programs.
  3. Click on Maple.

2 Maple Availability

2.1 Weekly Lab Class

In lab class and during open hours, you'll use Maple under X/Motif. Make sure you have read your lab assignment and any supplementary materials *beforehand!* Please be on time to class.

2.2 Open Hours

It is CRITICAL that you spend time doing Maple outside your lab class. To facilitate this, lab staff are on hand to assist you during open hours. They'll selectively open Blocker 131, 130, 127, and 125 (in that order), based on demand. **Under no circumstances are you to interrupt a TA's or instructor's lab class, day or night.** Either wait until open hours or go to a TAMU computing center (see the next subsection). Schedules are posted both in the CalcLabs and electronically on the Web. They specify exactly what goes on in each room each hour of the day. Here are the current open hours.

DAYS	HOURS			
Monday–Thursday	7:00	pm	– 12:00	mid
Friday (BLOC 127)	9:00	am	– 5:00	pm
Saturday	12:00	noon	– 6:00	pm
Sunday	12:00	noon	– 12:00	mid

2.3 Micro X-Win in TAMU Computing Centers

ATTENTION! In Maple under X-Win, Backspace is realized as *Shift*-Backspace. Also, middle mouse button functionality is attained by pressing the left and right mouse buttons *simultaneously*. Here's how to invoke this X emulator from a PC in a TAMU computing center.

0. If necessary, restore (open) the Communications folder.
1. Double click on the X-win icon. A small window entitled "X-Win" opens. Then a window entitled "Single X Window" fills the entire screen.
2. Minimize this Single X Window. It is now an icon at the bottom of the screen. (To minimize a window, click once with the left mouse button on the downward-pointing arrow button in the upper right corner of the window. You use the left mouse button for most operations.)
3. Now click on the Sessions menu in the X-Win window and randomly select one of CalcLab servers: CalcLab 1/2/3/4.
4. The pointer will momentarily disappear. Move your mouse around and the pointer will reappear near the bottom of the screen.
5. Move the pointer to the Single X Window icon at the bottom of the screen and double click on it.
6. The relevant CalcLab login window appears within a full screen Single X Window, the "root window." (If not, select a different server—see Item #3 above.)
7. Login by typing your CalcLab userid and password in the usual manner.
8. The login messages screen appears. Read the messages and note if you have any new email.
9. Click on Login. The usual clients appear in the root window (Maple, pine, and a clock.)
10. Work on your assignment, saving your work early and often.
11. When you are finished, **remember to logout!**
    - Click on the background to obtain the Root Menu.
    - Select Logout.
    - Wait a few seconds. Verify the logout by clicking on OK.
    - Soon your client windows close.
    - Finally, close the Single X Window.

Micro X-Win is an X Window System emulator which runs under Microsoft Windows. It is available in all CIS open access labs around campus. The closest one to the Blocker CalcLabs is down the hall in Blocker 133.

With Micro X-Win on a PC, it's just like sitting in front of an X terminal in the CalcLabs. You do not need to transfer files back and forth between the servers and the PC hard disk. This is because you *are* logged into a CalcLab server, with its vaunted speed and reliability. This way you can work during the day when you have time between your classes under the same environment that you use in Maple lab. (This is a win/win situation: you get your work done, while TAs and instructors don't have their classes interrupted!) Moreover, if the CalcLabs are full during open hours, Micro X-Win provides additional accessibility down the hall and throughout the campus.

2.4 Other University Platforms

You may use Maple under Microsoft Windows on a PC or under Multifinder on a Mac in the CIS open access labs. Check with the Web for specific hours of operation. This is not as convenient as directly accessing the CalcLabs via Micro X-Win, since you have to transfer files between systems.

2.5 Home PC or Mac

The Student Edition of Maple V Release 3 is available for Microsoft Windows and the Macintosh from local bookstores.

2.6 Infobahn: The Bleeding Edge

Those of you in dorms or apartment complexes having Ethernet access to the University may use Maple under the X Window System directly from your room! You'll need an Ethernet card, jumper cable, and X Window System networking software. Visit the Help Desk in Blocker 133 for more information.

3 Hard Copy of a Worksheet

3.1 Printing a Worksheet

If necessary, set up an Xprint account via CLAIM; see Subsection 3.3. (You only need to do this once during the semester.)

1. Make sure you have saved your worksheet; say as *lab4a.ms*.

2. Click on File, then Print. Click on OK. (This creates a PostScript file with the same prefix as your worksheet, but with a *.ps* suffix; in our case, *lab4a.ps*.)

3. Click on the background area to obtain the Root Menu. Click on Programs, then on Terminal. At the Unix prompt type the following command.

   - xprint –d *dest* –b *box* *PostScript_file*

   For example, the command

   - xprint –d kodak –b 501a lab4a.ps

   would send the printout to the high-speed Kodak printer at the West Campus Open Access Computing Lab and specify a box number at the Blocker Open Access Computing Lab.

4. The system prompts you for your Xprint userid and password.

5. Your file will print at the printer destination you chose. The staff may initially place it on the counter. If you don't pick it up within a period of time, it will be delivered to the box number you specified. (NOTE: In Blocker 133, Xprint output is initially placed in boxes below the regular CalcLab prinouts. It is arranged alphabetically by userid.)

3.2 Destinations and Box Numbers

3.2.1 Printer Destinations

```
kodak   West Campus Computing Lab
qmsacc  Blocker Computing Lab
qmsrcc  Read Computing Lab
qmswcc  Wisenbaker Computing Lab
xerox   Teague Computing Lab
```

3.2.2 Where is My Box Number?

```
001a-017d  Teague Computing Lab
101a-117e  Reed Computing Lab
301a-301h  Wisenbaker Computing Lab
302a-302b  Wisenbacker Computing Lab
501a-506d  Blocker Computing Lab
800-810    Bio/Bio Computing Lab
901a-909d  West Campus Computing Lab
```

3.3 Obtaining an Xprint Account

Click on the background area to obtain the Root Menu. Click on Programs, then x3270. Finally, click on CLAIM. Proceed as follows.

1. Type your student ID without punctuation—usually, though not always, your social security number; e.g., 123456789. Press Return.

2. Type your CLAIM password. Press Return. (If you have trouble with this step, obtain assistance at a CIS Help Desk.)

3. Type '1,' then Return. [Logon-ID (User-ID or Username) Subsystem]

4. Type '3,' then Return. [Select Computer Systems for a Logon-ID]

5. Type in your Logon-ID, which is usually the same as your CalcLab userid.)

6. (Tab or space down to Xprint and type 'x,' then press Return.)

7. (Follow the instructions for choosing an Xprint password.)

8. (After you have finished following all instructions, tab or space to the command field and type 'e' and Return to exit CLAIM. Then close the window.)

4 Pine: Electronic Mail (email)

Under the X Window System on a CalcLab machine, three images initially appear:

1. A clock in the upper right corner of your display. This let's you know when it's time to leave!

2. A Maple worksheet window in which you work on your assignment.

3. An icon for **pine** in the lower left corner of the screen.

You use **pine** to send email. Simply click once on its icon and then click Restore (alternatively, double click on the icon). Refer to the handout "Generic First Week Maple Lab", Section D, for minimal details on sending messages with pine. You can generally figure out how to do something in **pine** just by looking at its menus or hints at the bottom of its screens. *Bon appétit!*

5 Helping Your TA or Instructor

On occasion you may be required to submit your work electronically (say, for a Maple quiz or exam). To send your assignment to your TA or instructor via email as a **text** (*.txt*) file, proceed as follows.

1. Make sure that at the very top of your Maple worksheet the following information appears in a text region (or as Maple comments).
   - Assignment Number and/or Title
   - Section #, Your Name, Student ID
2. Export your Maple worksheet as a text file (refer to Subsection 1.7).
3. Next, open **pine** and compose a message (c). In the header region, enter:
   - To: *Your TA's or instructor's userid, as specified*
   - Subject: *Section #, Your Name, Student ID, Assignment*

   For example:
   - To: *inewton*
   - Subject: *Section 505, J. Doe, 987–65–4321, Quiz 2*
4. In the message region, read in your text file by typing Control-R and then the file name. (Instead of typing the file name, you may alternatively type Control-T and then use the arrow keys to select from a file list. This eliminates typing errors!)
5. In the message region you'll see the text of your Maple session (except for graphics, which are stripped out). To send the message, type Control-X, then 'y.'

6 Helping Your Partner

Recall that when you and your partner are working in Maple lab, only ONE of you is logged in. The person who is logged in has Maple files associated with the current assignment saved under his or her account, whereas the partner has NOTHING! Accordingly, you help your partner by sending a copy of your worksheet via email as a **worksheet** (*.ms*) file. Proceed as follows.

1. Make sure that at the very top of your Maple worksheet the following information appears in a text region (or as Maple input comments). Let's say the name of your Maple worksheet is *lab4c.ms*.
   - Assignment Number and/or Title
   - Section #, Your Name, Student ID
   - Section #, Partner's Name, Student ID
2. Next, open **pine** and compose a message (c). In the header region, enter:
   - To: *Your partner's userid*
   - Attachment: *Worksheet (.ms) name*
   - Subject: *Section #, Your Name, Student ID, Assignment*

   For example:
   - To: *partner*
   - Attachment: *lab4c.ms*
   - Subject: *Section 505, J. Doe, 987–65–4321, Lab 4*

   Note that when you're in **pine's** attachment header region, you may alternatively specify the worksheet file name by typing Control-T, and then using the arrow keys to select from a file list. This eliminates typing errors!
3. In the message region, type a cordial greeting to your partner. To send the message, type Control-X, then 'y.'
4. Your partner will subsequently save the attachment using **pine's** 'V' command.

7 Computing at Texas A&M

The document "Computing at Texas A&M: A world of opportunity for students" is available at the Help Desk in Blocker 133. This is 'a guide to computing resources and facilities provided by Computing and Information Services [CIS] for the students of Texas A&M University.'

This superb pamphlet contains a wealth of information on every aspect of generally available computing resources at the University. In particular, it contains detailed information on file transfer via FTP (file transfer protocol) and remote logons via Telnet. We briefly address these issues as they relate to Maple in Mathematics courses.

7.1 File Transfer via FTP

At the University, windowed versions of Maple are available under the X Window System on X terminals, Microsoft Windows on PCs, and Multifinder on Macintoshes. The standard format worksheet (*.ms*) files from any platform may be transferred to another platform and read in. Proceed as follows (these instructions are for a PC; those for a Macintosh are similar).

1. If necessary, open up the Communications folder by double clicking on its icon.
2. Double click on Winsock FTP, a Microsoft Windows version of FTP.

3. Connect to a CalcLab machine as follows. (You may alternatively move from field to field by using the Tab key.) **Do NOT press Enter until the last step!**

4. Double click in Host name field and type in one of the following.

   - calclab1.math.tamu.edu
   - calclab2.math.tamu.edu
   - calclab3.math.tamu.edu
   - calclab4.math.tamu.edu

5. Double click in User ID field and type in your CalcLab userid.

6. Double click in Password field and type in your CalcLab password. **Now press Enter.**

Soon you connect to the chosen CalcLab server and two lists of files appear. The left one lists files on your PC's hard drive; the right lists files on your CalcLab account.

- Change to the TEMP directory on your hard drive by clicking on TEMP in the left file list and then on Chg Dir (alternatively, just double click on TEMP).
- Click on the ASCII radio button. This ensures ASCII (text) transfer, which preserves end-of-lines.

7.1.1 From PC to CalcLab

- To transfer a single worksheet file from the PC to your CalcLab account, proceed as follows.

  1. Click once on the desired *.ms* file from the left list.
  2. Click on the right arrow between the lists.

  (Alternatively, double click on the desired file from the left list.)

- To transfer a block of files from the PC to your CalcLab account, proceed as follows.

  1. Click once on the first file in the block from the left list.
  2. Hold down the Shift key and click once on the last file in the block.
  3. Finally, click on the right arrow between the lists.

7.1.2 From CalcLab to PC

- To transfer a single worksheet file from your CalcLab account to the PC, proceed as follows.

  1. Click once on the desired *.ms* file from the right list.
  2. Click on the left arrow between the lists.

  (Alternatively, double click on the desired file from the right list.)

- To transfer a block of files from to your CalcLab account to the PC, proceed as follows.

  1. Click once on the first file in the block from the right list.
  2. Hold down the Shift key and click once on the last file in the block.
  3. Finally, click on the left arrow between the lists.

7.2 Remote Logins via Telnet

You may remotely login to your CalcLab account from a PC or Macintosh, typically to read your email via **pine**. Proceed as follows (these instructions are for a PC; those for a Macintosh are similar).

1. If necessary, open the Communications folder by double clicking on its icon.

2. Double click on the Telnet icon.

3. To connect to a CalcLab machine, click on File, then New, and type one of the following in the Host Name field. (In the Name field, just type CalcLab.)

   - calclab1.math.tamu.edu
   - calclab2.math.tamu.edu
   - calclab3.math.tamu.edu
   - calclab4.math.tamu.edu

4. Type in your CalcLab userid.

5. Type in your CalcLab password.

Soon you connect to the chosen CalcLab server and a Unix prompt appears (e.g., calclab1%). You may now issue Unix commands. (For introductory Unix handouts, visit the Unix Help Desk in Wisenbacker 048. We mention four commands:

- **pine** (for email)
- **ls** (to list the files in your CalcLab account)
- **rm** *filename* (to remove a file from your CalcLab account)
- **exit** (to logout—**IMPORTANT!**)

7.3 Communications From Home

With a modem and appropriate communications software, you may transfer files and remotely login from your home machine. Refer to the documentation which came with your software as well as to the booklet "Computing at Texas A&M."

8 Questions?

Should you have further questions, successively contact the following people in the manner indicated until you receive an answer.

- Ask a lab staff member during CalcLab open hours.
- Ask your TA in your computer lab or recitation, or send email to your TA.
- Ask your instructor in lecture or send email to your instructor.
- Send email with your questions or suggestions to *belmonte@calclab.math.tamu.edu*.

9 Notes

1. **NO FOOD, DRINK, OR TOBACCO PRODUCTS ARE PERMITTED DURING ANY LAB CLASSES OR OPEN HOURS!!** The full CalcLab Policy Statement may be viewed on-line. First click on the background to obtain the Root Menu. Select Utilities, then System Policies.
2. *Periodically change your CalcLab password as follows.*
   (a) Click on the background area to obtain the Root Menu.
   (b) Click on Utilities.
   (c) Click on Change Password.
   (d) Follow the prompts in the window which appears.
3. COPY and PASTE TEXT as follows.
   (a) Move the pointer to the beginning of the text selection.
   (b) Press and hold down the left mouse button.
   (c) Sweep the pointer through the text selection, then release the left mouse button.
   (d) Select Copy from the Edit menu. Alternatively, type Control-C.
   (e) Move the pointer to the position you'd like text to appear and click with the left mouse button.
   (f) Select Paste from the Edit menu. Alternatively, type Control-V.
4. QUICKER COPY and PASTE (text only; X Window System only): Select the text, position with the left mouse button, paste with the middle mouse button.
5. COPY and PASTE GRAPHICS as follows. (Do this sparingly, since (1) graphics take up large amounts of disk space and you'll hit your quota quickly and (2) graphics are stripped out of exported text files anyway.)
   (a) Select Copy from the Edit menu in a plot window. Alternatively, type Control-C.
   (b) Move the pointer to the position in the Maple window in which you'd like the graphics to appear and click with the left mouse button.
   (c) Select Paste from the Edit menu in your Maple window. Alternatively, type Control-V.
   (d) Close your plot window!
6. An alternative way to log out of an X Window System session is the following.
   (a) Click with the MIDDLE mouse button on the background area.
   (b) Click on Logout, then on Yes.

10 Other CalcLab Software

Additional software is available on the CalcLab systems.

1. **Mosaic:** This Web browser is available for you to view information about Mathematics courses and the CalcLab systems. After opening Mosaic, simply click on the Home icon, then follow the links!
2. **Netscape 3.0:** Another Web browser.
3. **x3270:** A terminal emulator from which to access CLAIM, BONFIRE, NOTIS, and PHONBOOK.
4. **Terminal:** An xterm window in which you can type Unix commands.
5. **Xdir:** A windowed file manager and file transfer tool.
6. **MATLAB:** Mathematical software that excels at numerical computations and graphics.
7. **Calculator:** A simple scientific calculator.
8. **Editors:** Several text editors.
9. **Manual Pages:** Help pages which deal with Unix commands.
10. **LaTeX 2$_\varepsilon$:** A structured text formatting and typesetting package, especially suited to the mathematical and scientific disciplines.
11. **xdvi:** DVI previewer for the X Window System
12. **dvips:** A DVI to PostScript converter
13. **ghostview:** PostScript document viewer

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