

The SAM Network and Maple

Maple Lab for Math 142 (Lab A)

Douglas B. Meade

Department of Mathematics

University of South Carolina

Welcome to the Maple Labs at USC!

Welcome to the computer laboratories and classrooms in the Department of Mathematics at the University of South Carolina. If you are reading this as you are waiting for your lab session to begin, introduce yourself to another student in the lab and wait for your TA or instructor to begin the lab. (If you are reading this at a time other than your scheduled lab session, you should be able to follow these instructions on your own. Should you encounter any difficulties, please do not hesitate to contact your TA or lab staff member for help.)

The computer labs in the Department of Mathematics are part of the SAM (Science and Mathematics) network maintained by the College of Arts and Sciences (CAS). The majority of the funding for these labs, and other academic computing equipment (projectors, printers, ...) is from the Student Technology Fee. All of the computers in LeConte (LC) 102, 124, 303A, 401 and PSC 102 are part of the SAM network. These rooms have different hours of operation; for work outside of the weekly lab session, feel free to use the ones that are most convenient for you.

Instructions

The purpose of this week's lab is for you to become familiar with the SAM network. In particular, you will learn how to login and logout of the network and how to access Maple and the Internet. Once this is complete, you will begin to learn about Maple by viewing information provided in Maple's help system.

A. Login and Logout

1. When you are seated at a computer on the SAM network, begin the login process by pressing **Ctrl-Alt-Delete**. This will open a window in which you will be asked to enter your username and password.
2. Your lab instructor will have your *username*. Usually, the SAM usernames are created from your first and last names. For example, if your name is Jane Doe then your SAM username is likely to be **jd**oe. If this name is already assigned to another student then it is likely that a number will be appended to this name, e.g., **jd**oe2. Also, if your name is long, your last name may be truncated to 5 characters.
3. Your initial SAM *password* is your nine-digit student ID number. Enter this number (with no dashes or spaces)
4. Once you are logged in, take a look at your Windows desktop. You should see several icons, including ones for *Internet Explorer* and *Maple 9.5*. To see your personal folder on the SAM network, open **My Computer** and click on the **Z:** drive.
5. Change your password. To do this, press **Ctrl-Alt-Delete** and then click on the button labeled **Change Password**. You will need to re-enter your current password, then your new password (twice). Be sure you select a password that you will remember without writing it down. Also, the system may not accept passwords that are simple words or are otherwise too easy to guess. One recommendation is to put a number, space, or other punctuation in the middle of a word that makes sense to you.
6. Logout of the SAM network. Again, press **Ctrl-Alt-Delete**. This time, click on **Log Off ...**. Confirm that you really want to logout by pressing the button labeled **Log Off**. Prior to leaving the computer, visually verify that the computer is ready for the next user to login.
7. If there are other students waiting to use a computer, please get up from your computer and let them complete this part of the lab. Once they are done, one of you should login to the computer and complete the rest of this week's assignment.

B. Accessing the Internet and maplets

0. If you are not already logged in to the computer, please do so now. (See Step A.)
1. Internet Explorer 6.0 (IE) is the standard browser provided in the SAM computer labs. An icon for IE is on the default desktop; double click on this icon to launch IE. The IE window will open with the default home page (<http://www.cas.sc.edu/>).
2. Open the Calculus II (Math 142) Lab homepage (<http://www.math.sc.edu/~meade/142L-S05/>). Add this page to your list of favorite websites by selecting **Add to Favorites** under the **Favorites** menu at the top of the IE window.
3. From the Calculus II (Math 142) Lab homepage, click on **Lab Assignments**. This page contains the weekly lab assignments. For Lab A (this week), note that there are several *maplets*.
 - a. Click on **Shift**. This opens a user interface for testing your ability to recognize shifts of seven basic functions. To see the seven basic functions, click the **Show Basic 7 Functions** button. To test your ability to recognize shifts of these functions, click on the **Show Shifted Graph** button. Enter the formula for the displayed graph, using valid Maple syntax, in the box labeled *Answer*, then click the **Check Answer** button. (If you are having troubles, the **Show Answer** button shows the correct answer.)
 - b. Click on **FunctionPlotter**. This should open a user interface for plotting a function on a given window. (Please notify your TA if you have any problems launching or running this maplet.) To create a plot of the graph of $y = xe^{(1-x^2)}$ in a viewing window with $-4 < x < 4$ and $-2 < y < 2$, enter the function as `x*exp(1-x^2)` and fill in the bounds for x and y , then click the **Plot** button.
Here are two more examples to consider: Find a good window to display the graph of $y = \frac{\ln x}{\sqrt{x^2 + 1}}$ on the interval $0 < x < 10$. Create a nice plot of exactly one period of $y = \frac{\sin(x)}{\cos(x/4)}$.

C. A First Look at Maple

0. If you are not already logged in to the computer, please do so now. (See Step A.)
1. Locate the Maple 9.5 icon on the desktop. To launch Maple 9.5, double click on this icon. A Maple 9.5 banner will flash on your computer; this will disappear when the Maple window opens.
2. When Maple 9.5 starts, a Tip of the Day will be displayed. These tips can be useful, but most of them will not be immediately relevant to you at this point. If you do not wish to see these tips, unclick the box next to *Show tip on startup*. To see more tips, click on **Next Tip**; to close this window, click **Close**.
3. You will almost always want to have the Maple window enlarged to fill the full size of the monitor. To do this, click on the middle icon in the upper left corner of the border of the Maple window.
4. To minimize the window to an icon on the taskbar, click on the leftmost icon in the upper left corner of the border of the Maple window.
5. From the **Help** menu, scroll down to **New Users** and, from the menu that appears, select **Full Tour**. This is a quick introduction to Maple. Some of the information is not relevant at this time. You should spend some time looking at sections (1) **Working Through the New User's Tour** and (6) **Calculus**. If you have more time, also look at sections (2) **Numerical Calculations** and (4) **2-D Graphics**.
6. Lines that begin with `[>` contain executable Maple commands. Place the cursor anywhere on one of these lines and press *Enter*. The result will appear, in **dark blue**, immediately below the command.) Note that if you want to be able to return to anything you have worked on in Maple you must save your work as a Maple worksheet. To save your work either click on the icon that looks like a diskette or selecting **Save** or **Save As ...** from the **File** menu on the Maple window.
7. You are not expected to remember everything that you see in these tours. These tours simply provide an indication of some of the types of operations Maple can perform for us.
8. When you have finished the tour (or the lab session ends), do not forget to exit your Maple session (under the **File** menu, select **Exit**) and to logout of the network (see Step A).
9. To end a Maple session, click on the leftmost icon in the upper left corner of the border of the Maple window. (Other ways to end a Maple session can be found in the **File** menu.)