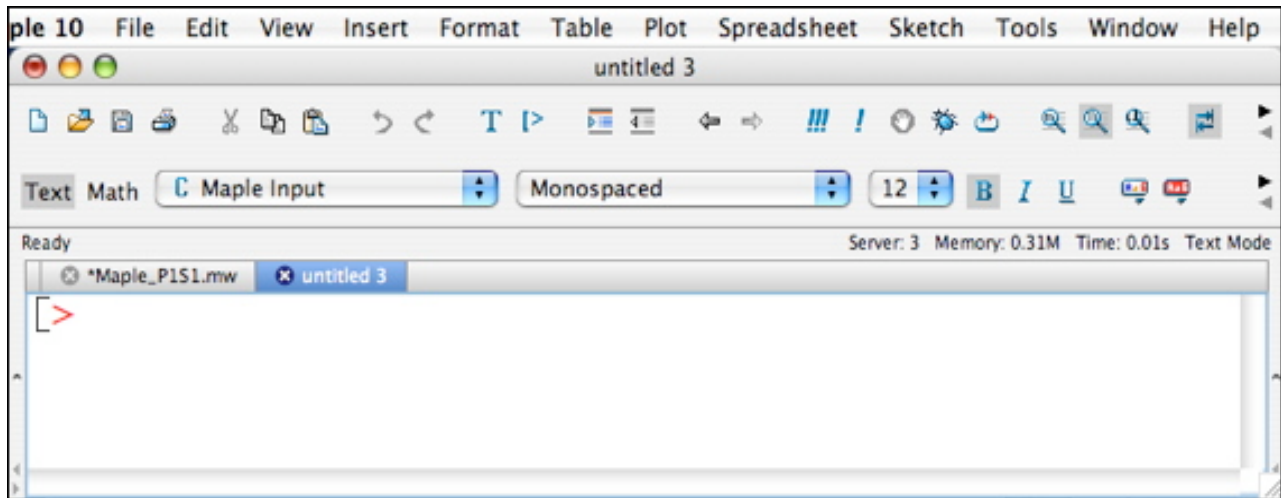


# Part I. The Maple Worksheet

## Section 1. Execution groups: Input/Output

When Maple is started up it launches to an empty window with a red input prompt,  $>$ , appearing at the top. This document is referred to as a Maple worksheet. The row of icons across the top of the worksheet (just below the File Name, 'untitled 3') is called the **Tool Bar**. The second row, consisting of icons and drop down menus, is called the **Context bar**, and the third row (very narrow) is called the **Status Bar**.



The Maple Worksheet Window

Look carefully and you will see that the input prompt appearing in the picture is enclosed in a left bracket (as are all the paragraphs in the document you are reading at this moment...this is a Maple worksheet). The bracket marks the boundaries of what Maple refers to as an Execution Group, one of the two fundamental building blocks of a Maple worksheet. The other building block is a Text Group, that is where your eyes are right now, in a Text Group.

Execution Groups contain input and processed output. The user makes a mathematical entry at the input prompt by clicking just to the right of the prompt and typing. Terminating the entry with a semicolon and pressing the [return] key (the [Enter] key on a PC) is the signal to Maple to process the entry and place the result centered directly below the input. Whatever Maple produces is called the output. As soon as the output appears (in blue) a new Execution Group is generated containing another input prompt. The entries below show the appearance of the worksheet immediately after Maple has processed the entry  $1 + 2$ .

```
> 1+2;  
3 (1)
```

When you do this you will see that the original Execution Group has expanded to include both the input,  $1+2$ , and the output,  $3$ , as shown above. The number (1) appearing on the right margin is called a **Label**. It is automatically generated by Maple and can be used in subsequent inputs to refer to this particular output.

Labels do not print in html files, see the pdf or Maple file.

### ***Input comments: Use a hash mark #***

A short comment can be placed following any input by typing a hash mark # (shift-3), Maple ignores anything typed at an input prompt following a hash mark. This is illustrated below. The first execution group is the same as the one appearing above, but with a comment. The second one displays the input and output for the computation of an antiderivative for the trigonometric expression  $\frac{\tan(x)}{\sin(x)^4}$ .

• The Maple syntax for indefinite integration of  $f(x)$  with respect to the  $x$  variable is **int( f(x) , x )**.

```
> 1+2; # A simple sum
```

$$3 \tag{2}$$

```
> int(tan(x)/sin(x)^4,x); # An integral, not so simple
```

$$-\frac{1}{2 \sin(x)^2} + \ln(\tan(x)) \tag{3}$$

So, as a worksheet is created input and output is grouped together in execution groups and text groups, each enclosed in their own left bracket. A text group will also be referred to as a text entry. The left brackets are useful during the creation of a worksheet, allowing the user to move confidently between text and mathematics. However, the brackets are a distraction for the reader of a completed worksheet and detract from the appearance of the worksheet when it is printed. Consequently, the left brackets are hidden from view in the other worksheets that make up this manual (see, for example, the Introduction). This is accomplished by pulling down the **View** menu, selecting **Hide/Show Contents...** and then deselecting **Execution Group Boundaries** in the ensuing dialogue. The brackets can be shown at any time by using the same dialogue.

### ***The pull down menus***

There is a total of thirteen pull down menus at the top of the screen when Maple is the active application on a Macintosh, twelve on a PC. The common menus are labeled, in order from left to right, as follows:

**File Edit View Insert Format Table Plot Spreadsheet Sketch Tools Window Help.**

The extra menu on the Macintosh is the Maple 10 menu at the far left.

A brief description of some of the items on some of the menus is given below.

#### **Maple 10**

The first menu choice is **Preferences...**. The ensuing dialogue allows the user to adjust the settings for various Maple tasks. For example, the **Auto Save** feature can be turned on and off or set to a different frequency. To quit Maple choose **Quit Maple 10** at the bottom of this menu (or press **Command-Q**, the **Command** key is the one next to the space bar...on both sides). On a PC the **Preferences...** dialogues are accessed by choosing **Options...** on the **Tools** menu. Exit Maple on a PC by clicking on the **x** button in the upper right corner of the worksheet window.

#### **File**

Use this menu to open, close, save, and print files. Note that the keyboard equivalent for **Save** is **Command-S** (hold down the Command key...next to the space bar...and press S...no shift). On a PC do a **Save** by pressing **Control-S**. Use it early and use it often. On a PC item called **Print Preview...** is also important. Use it before sending any job to the printer to see how the worksheet will look on paper. Macintosh users can do a print preview from the print dialogue. The **Export As...** item can be used to export the worksheet in HTML format.

## **Edit**

The **Edit** menu has the usual items such as **Cut**, **Copy**, and **Paste** along with **Undo** and **Redo**.

## **View**

Use this menu to control the appearance of the worksheet window. For example the **Tool Bar** or the **Context Bar** (the first and second rows of the worksheet window above) can be hidden from view. The user can choose to show certain **Palettes** for point and click input entry. The **Zoom Factor** controls the magnification for screen display and we have already mentioned **Hide/Show Contents...**

## **Insert**

Items on this menu can be used to insert various elements into the worksheet including new execution groups or text. There is also a choice called **Label...** that will bring up a dialogue in which the user can insert a Label number for insertion into an input entry.

## **Format**

This menu contains items that control, among other things, the character and paragraph styles in a text group. Paragraph styles can be changed and new styles can be defined.

## **Table, Plot, Spreadsheet, and Sketch**

These are all context menus. The choices are not active unless the cursor is in a Table, a Plot, a Spreadsheet, or a Sketch. These items will be discussed as the need arises. Maple also supports contextual menus. On a PC, right-click an output to access the appropriate contextual menu. On a Macintosh use a **Control-click** (or a right click if you have a two-button mouse).

## **Tools**

Maple has a spell checker, and here it is. Use it.

## **Window**

Menu items here control the positioning of multiple worksheet windows.

## **Help**

This menu provides access to the extensive help facilities available in Maple, including a mathematics dictionary. The item **Help on ...** will take you a Help page related to the word containing the cursor in the worksheet. The penultimate choice is **Manuals, Dictionary, and more**. Select it to access manuals, the dictionary, and a list of several other items to help new users get started with Maple. The last choice, **Maple on the Web**, exposes a hot list of web pages containing useful information about Maple.