

# MATH 101(04)

## FALL 2001

### Tips on using Maple

1. Every statement must end with a semicolon. Maple won't do anything unless you type semicolon-return. So

```
> 27 + 15;
```

gives the result 42.

2. You assign names to objects in Maple using the “:=” operator. For example, the command

```
> w := 5;
```

tells Maple that from now on the symbol `w` has the value 5.

3. Maple doesn't recognize implied multiplication; you have to use an asterisk. If you try to multiply the symbol `w` by 9 using the command `9w`, for instance, Maple will complain. The command

```
> 9*w;
```

will give the correct answer.

4. The help system is pretty good, and you can quickly get help on many topics by typing a question mark, followed by the command or topic name. For instance,

```
?plot;
```

will give you lots of useful information about the `plot` command.

5. Use the `plot` command to draw graphs. In its simplest form, the command takes two arguments: a formula for the function to plot, and a domain. For instance,

```
> plot(2*sin(3*x), x=0..4*Pi);
```

will draw a picture of the curve  $y = 2 \sin(3x)$  between  $x = 0$  and  $x = 4\pi$ . Many other options are available – check out `?plot` for some of them. Among the most useful is the ability to specify a range for the plot. For example,

```
> plot(1/x^2, x=-4..4, 0..5);
```

will plot the curve  $y = 1/x^2$  on the given domain, but only between  $y = 0$  and  $y = 5$ . (Check out what happens to this graph if you leave out the range specification.)

6. A function definition in Maple actually looks like a rule for assigning a number to each element of the domain. Here's the syntax:

```
> m := x -> 6*x + 1;
```

This says “we assign to `m` the rule that takes an input  $x$  and returns the value  $6x + 1$ .” A mathematician would write (more ambiguously)  $m(x) = 6x + 1$ . Now if you type `m(5)`; or `m(-7)`; or even `m(clyde)`; , Maple returns the right answer.