

## Technical Text With MAPLE

To enter the text mode simply click on the big **T** in the tool bar. Note the text menu has some of the usual word processing choices. To put math symbols into the text simply type the corresponding MAPLE syntax, highlight it, then from the **Format** menu choose **Convert to**, then **Math Expression**. For example try converting the expression  $\text{sum}((1/i)^2, i=1..infinity)$  to the corresponding math

symbol  $\sum_{i=1}^{\infty} \left(\frac{1}{i}\right)^2$ . Next notice that you can highlight particular terms in the expression by clicking on them. The corresponding MAPLE syntax for the highlighted term appears in a tool box at the top where it can be edited. Hitting **Enter** then enters the change in your expression. Try this to get each of the

following expressions from the above:  $\sum_{i=1}^{232} \left(\frac{1}{i}\right)^2$      $\sum_{i=1}^{\infty} \left(\frac{1}{2i}\right)^2$      $\sum_{i=1}^{\infty} \left(\frac{1}{i}\right)^9$      $\sum_{k=3}^{\infty} \left(\frac{1}{k}\right)^2$

Convert each of the following MAPLE syntax to the corresponding Math Expression, then experiment with changing individual terms.

a.  $\text{int}(x^4 * \exp(x), x=-a..b)$ , b.  $\text{diff}(\text{sqrt}(1+\text{sqrt}(x+1)), x)$ , c.  $\text{limit}((x^2 - c^2)/(x - c), x=c, \text{right})$ .

We have just learned the syntax for four of the most important operations in single variable calculus.

At any time clicking on the [ > icon will get us a MAPLE execution line. Try it. Then copy each of the above MAPLE input sequences onto an execution line, insert a semicolon to inform MAPLE that you are done giving commands, and hit **Enter**. Now put the cursor somewhere on the MAPLE command and click on the little **x** on the tool bar. Again individual terms in the input command can be edited just as above. Try some.

Another nice feature is the following, beginning each of the above MAPLE commands with an upper case letter tells MAPLE to return only the math expression when executing. This allows for some nice expressions to be returned like the following: (The output of which can be highlighted, copied, and pasted into text.)

```
[ > Sum((1/i)^2, i=1..infinity)=sum((1/i)^2, i=1..infinity);
```

With a little experience using text and execution command lines together, you can write your exams and worksheets and have MAPLE provide answer keys at the same time. Finally notice that one of the **Edit** options is **Remove Output From Worksheet**. This is especially nice when using MAPLE to make exams.