• Homework G. Due Friday, 31 October 2003. This assignment will be extra credit.
Create a Maple worksheet, carry out the following tasks and print out the worksheet
to hand in. Use the example worksheet at
http://www.ms.uky.edu/~rbrown/courses/ma114.f.03/hwkG.mws to learn about
the needed commands. You may use the “Open URL” command on the file menu to load
the worksheet.

1. Type your name and section number as the first line of the worksheet. If you
leave spaces, this may confuse Maple. Use the format RobertoCarlos006; If
you don’t have enough to do, see if you can find out how type your name as
text, rather than Maple input.

2. Evaluate the integral

\[ \int_{-2}^{2} \sqrt{4-x^2} \, dx \]

You will need to use the Maple word int(f(x), x=a..b); to compute the
definite integral \( \int_a^b f(x) \, dx \). Use the Maple words: int, sqrt, and a\^b which
stands for \( a^b \).

3. Pick an interesting function \( f \). Compute the derivative of \( f \) and plot \( f \) and the
derivative of \( f \) on the same axes. As indicated in the example worksheet, you
will need to use the documentation for the plot command to find out how to
plot two functions on the same graph.

4. Use the Maple word sum to compute the sum

\[ \sum_{k=1}^{101} \frac{1}{k^2 + k} \]

5. Convert the answer to the previous calculation to a decimal answer with evalf.
In Maple, we can always refer to the result of the previous calculation with \( \% \). A
more elegant approach would be to assign a name to the answer of the previous
step, and then apply evalf to the name.

6. Find the partial fraction decomposition of the rational function

\[ \frac{1}{x^2 + x} \]

Use the Maple command convert with the parfrac option.

• Where can I do this assignment? Maple 7 is available in most of the computer labs
on campus. Look on the menu entry for mathematics programs. Unfortunately, the
mathematics department has Maple 9.

October 20, 2003