Calculus Lab 2

20 September 2006

For this lab, please work in pairs.

Goals:

- Gain more experience using Maple to plot functions.

- Learn how to use Maple to solve equations.

- Practice visualizing sine and cosine graphs.

1. Use Maple to solve the equation $2^z = z + 4$ for z. Do this both graphically and using the `solve` function.

2. Sketch, on the same axes, the following pairs of functions. Then use Maple to plot the functions. If the Maple plots differ from yours, figure out why.

   (a) $\cos(x)$ and $3\cos(x) + 2$.
   (b) $\sin(x)$ and $\sin(x/3)$.
   (c) $3\sin(x)$ and $\sin(3x)$.

3. Make rough sketches of the following functions. Try these without Maple, and then use Maple to check your conjectures. These aren't easy. But they're fun.

   (a) $2^{\sin(x)}$
   (b) $\sin(2^x)$
   (c) $(\sin(x))^2$
   (d) $\sin(x^2)$
   (e) $x^2 \sin(x)$