Computer Science CSC260S — Spring 2000
St. George Campus — University of Toronto

Homework Assignment #1
Due: Monday, January 17, 2000
Partners: not allowed for this assignment
Mark: 5%

1. Write an overview of MAPLE which must include at least 3 features that surprise you positively, and 3 features that surprise you negatively. You must include some comments on the programming capabilities of MAPLE. The length of the report must be between 3 and 5 pages.

2. Consider the real functions:

$$f(x) = 2xe^{-x^2}, \qquad g(x) = \frac{(x+2)\,e^{-x^2}}{x^2-1}.$$

Use MAPLE to study the behavior of each one of these functions. At least include:

- zeros;
- coordinates of local minima, maxima and inflection points;
- limits at $+\infty$ and $-\infty$;
- right and left limits in discontinuity points.

Draw a graph for each function. Finally, compute the areas between each function and the x-axis in the first quadrant. Are the obtained results in agreement with what you were expecting? Explain.