LAB 1-Introduction to Maple

For this week, you will be working through the introductory material on Maple. See the notes from Guichard and Hundley as well as the beginning worksheet to get you started. Then, do these three brief exercises.

1. **Mean Value Theorem**: Look up a statement of the Mean Value Theorem. Give a statement of it using appropriate LaTeX typesetting. Then, find the number c that satisfies the conclusion of the MVT for $f(x) = e^{-x}$ on the interval $[0, 2]$. Plot the function, the secant line through the endpoints, and the tangent line at $x = c$ on the same set of axes, and include this figure in your report.

2. **Integration**: Evaluate the integral
$$\int \frac{dx}{x^4\sqrt{x^2 - 2}}.$$
Graph both the integrand and its antiderivative on the same set of axes. Give an algebraic explanation of why your result makes sense.

3. **Taylor Series**: Find the first five terms of the Taylor Series for $f(x) = e^{-x^2} + \cos(x)$ about $x = 0$. (You may do this by combining two known series). Graph f and its first three Taylor polynomials on the same axes, and include the graph in your report.

Submit your .pdf file with your results to the CLEo Assignment page by 5PM Monday, February 1.