Homework 5
MA/CS 375, Spring 2000
Due May 2

This homework will count as part of your grade so you must work independently. It is permissible to discuss it with your instructor, fellow students, and friends. However, the programs/scripts and report must be done only by the student doing the project. TURN IN TESTS OF ALL FUNCTIONS YOU WRITE!

i. Use 4, 8, 16 and 32 equispaced points (+1!) and the Matlab function spline to compute interpolants to the following functions:

1. e^{-x^2}, $-2 \leq x \leq 2$.
2. $\frac{1}{1+x^2}$, $-5 \leq x \leq 5$.
3. $\sqrt{x}$, $0 \leq x \leq 4$.

Plot the function together with the four interpolants on one graph. Compute the maximum error on one hundred equispaced points. (Do NOT interpolate on these.) Comment on the convergence.

ii. 3.3.10

iii. 4.2.3

iv. 4.3.1

v. 4.4.2