Assigment 1

The assigments are meant to encourage you to test by yourself some of the things that we discuss in class.

1) Here we touch the thorny issue of high level vs low level languages.

We will compare the time it takes to evaluate the average of n random numbers in mathematica (or maple or any other high level language of your choice) and in fortran. Play with the parameter n (size of the set that you average), and find out at which values of n, you can see noticeable differences between the programs written in two lanaguages.

2) Here we would like you to get a feeling for roundoff errors in numerical differntiation. Estimate the value of the derivative of cos(x) at x=1. Discuss the value of h required in your finite difference approximation scheme. Try double precision.

Can you suggest a way of obtaining a more precise answer with the data you already have ?