ASSIGNMENT 1

Due February 10, 2004 (before start of class)

Problem 1

Write a program in any high-level programming language of your own choice to perform the Monte Carlo simulation as described in the lecture. Use several hundred points at the beginning when you are developing the program. After the program has been debugged you should then increase the number of points until one simulation run takes about several seconds on your computer. Under no circumstances should you use less than several thousand points since the results may not have much significance.

Run the simulation a few times and each time either use a different seed for the random number generator, or use a different part of the random number sequence. You will notice that the resulting answers for π are different each time. This is expected of any stochastic simulation. Run it a dozen or so times and report the average result for π.

We have the following rules and guidelines for all your assignments:

1. Submit a hardcopy of your program as well as any appropriate outputs and results.

2. Don't just show the results. Always attempt to make intelligent comments about them.

3. Make sure you do your problem by yourself. No collaborations with others are allowed.

4. Of course you are always welcome to discuss the problem with me whenever you can contact me (physically, by email or phone).