COMP 312
Assignment 1
Due 9 am, Thursday, September 13, 2007
All problems are of equal value.

Reading

Brassard & Bratley, Chapters 1, 2, & 3.

Practice

Brassard & Bratley, 1.21, 1.28, 1.30, 2.6, 2.7, 2.15, 2.18, 2.19, 2.25, 3.2, 3.3, 3.4, 3.9, 3.10, 3.11, 3.14, 3.18, 3.21, 3.24.

To Be Handed In

1. Fibonacci numbers are defined by the following recurrence: $f_0 = 0, f_1 = 1, f_n = f_{n-1} + f_{n-2}$. Prove by induction that $f_n \geq (\frac{3}{2})^n$ for sufficiently large n.
2. Brassard & Bratley, 2.8
3. Brassard & Bratley, 3.5
4. Brassard & Bratley, 3.17
5. Brassard & Bratley, 3.22

Bonus

You are given a large supply of one hour fuses for explosives. They are essentially pieces of string each of them guaranteed to burn for precisely one hour. They are of varying length since a fuse does not burn at the same rate all of the time, i.e., a piece of fuse might burn quickly for some time and then slowly, etc. varying any number of times in one hour. You do not have a watch or access to any timing device. You have discovered a way to blow me up but for the plan to be successful you need a fuse that burns for precisely twenty-two minutes and thirty seconds. How do you do it?