CSE 200
Computability and Complexity
Calibration Homework
Due April 7

March 30, 2008

1. How many binary strings of length n have no two consecutive 0's? Prove your answer.
2. Assume that L is a language closed under concatenation. Prove that $L^+ = L$. When is $L^* = L$?
3. Problem 0.12, page 27 of the textbook.
4. a. Prove that any number n so that $n \textit{ mod } 4 = 3$ has a prime factor p with $p \textit{ mod } 4 = 3$. b. Prove that there are infinitely many primes p with $p \textit{ mod } 4 = 3$.
5. In your favorite programming language, write a program that takes no input and prints itself (its own code). Your program may not make system calls.