Homework 1, Due Wednesday, April 4, 2000

**Background reading** Chapters 1-13, (pages 1-253). I will be assuming that you have seen most of the stuff in the first 13 chapters. If this is not true, let me know.

**Reading** The first topics in the course will be divide and conquer and dynamic programming. Divide and conquer is not covered in one place in the text - sections from Chapters 4, 10, 31, and 35 will be covered. Read chapter 16 for dynamic programming. You should review quicksort (Sections 8.1-8.3, don’t bother about the analysis), although it will not be covered in lecture.

**Problem 1:**
Show that the Traveling Tourist Problem is NP-complete.

**Problem 2:**
Show that the three glass ball problem can be solved with $O(n^{1/3})$ ball drops.

**Problem 3:**
CLR, Page 72, Problem 4-1 a, c, e, h.

**Problem 4:**
CLR, Page 72, Problem 4-4 a, c, f.

**Problem 5:**
CLR, Page 163, Exercise 8.3-3.

**Problem 6:**
CLR, Page 163, Exercise 8.3-4.