Math 336, Combinatorics, Winter 2013

Homework 14, due Friday 3/8 (extended until 3/10!)

1. Solve the recurrence: $h_n = 12h_{n-1} - 57h_{n-2} + 134h_{n-3} - 156h_{n-4} + 72h_{n-5}$; $h_0 = h_1 = h_2 = h_3 = h_4 = 1$. Yoicks! Repeated Roots! Use computational aids, indeed.

2. Give the recurrence relation and initial values with generating function $g(x) = \frac{1 + x + x^2}{1 + x^2 + 2x^3 + x^4}$.

3. Do problems: 8.1: 1, 2.

4. Count the number of sequences of the form $a_1, \ldots, a_n$ where $1 \leq a_1 \leq a_2 \leq \cdots \leq a_n$ and $a_i \leq i$ for all $i = 1, \ldots, n$.

The grader will grade problem 8.1.1 and problem 2 above so you should write these up more carefully.