

Homework #2
Due Monday, July 13

You may discuss these problems with each other, but when it comes time to write up the solutions that you are submitting, you should do this alone.

1. Use the method of generating functions and partial fractions to find a closed formula for the sequence $1, 2, 5, 10, 21, 42, \dots$ given by $c_0 = 1, c_1 = 2, c_2 = 5$, and thereafter $c_n = 2c_{n-1} + c_{n-2} - 2c_{n-3}$.
2. Section 3.7, problem #6.
3. Section 3.8, problems #2 and #4 (they go nicely together).
4. Section 3.8, problem #5a. You do not have to prove the recurrent formula, since we did this in class. Just use it to provide a new proof by induction of formula (3.21) on page 105.
5. Section 3.8, problem #6 (this has a short answer).