MATH 4340 – Combinatorial Analysis   Assignment #8
Fall 2013

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at 15:00 on Friday November 29th in Assignment Box #34.

1. Solve the following inhomogeneous recurrence relations:

    (a) $a_n = 2a_{n-1} + n$, $a_0 = 17$.

    (b) $a_n = 4a_{n-1} - 3^n$, $a_0 = 1$.

    (c) $a_n = 3a_{n-1} - 2n + n^2$, $a_0 = 0$.

2. Use generating functions to solve the following recurrence relations:

    (a) $a_n = a_{n-1} - 3n$, $a_0 = 3$.

    (b) $a_n = 3a_{n-1} + 4a_{n-2}$, $a_0 = 1, a_1 = 2$.

    (c) $a_n = 3a_{n-1} + 2^n$, $a_0 = 1$.

    (d) $a_n = 3a_{n-1} - 2a_{n-2} + n$, $a_0 = 2, a_1 = 4$.

3. Exercise 7.5.6.

4. Exercise 7.5.14.