Written Assignment 2

due on Wednesday, March 30th, 2011

1. Solve the recurrence relation \( a_n = 2a_{n-1} + a_{n-2} - 2a_{n-3} \), \( n \geq 3 \), given \( a_0 = 1, a_1 = 3, a_2 = 6 \).
   
   (a) using the method of the generating functions,
   
   (b) using the method of the characteristic polynomial.

2. Use the method of the generating functions to solve the recurrence relation \( a_n = 5a_{n-1} - 6a_{n-2} \), \( n \geq 2 \), given \( a_0 = 1, a_1 = 4 \).

3. Use the method of the generating functions to solve the recurrence relation \( a_n = 4a_{n-1} - 3a_{n-2} \), \( n \geq 2 \), given \( a_0 = 2, a_1 = 5 \).

4. Use the method of the characteristic polynomial to solve the recurrence relation \( a_n = 5a_{n-1} - 6a_{n-2} + 3n \), \( n \geq 2 \), given \( a_0 = 2, a_1 = 14 \).