Linear Recurrence Relations

Obtain a general solution to the L.C.C., then if initial conditions are given solve for a particular solution.

1. \( a_n = 4a_{n-2} \), \( a_0 = 0 \), \( a_1 = 4 \)

2. \( a_n = -6a_{n-1} - 9a_{n-2} \), \( a_0 = 1 \), \( a_1 = 0 \)

3. \( a_n = 6a_{n-1} - 11a_{n-2} + 6a_{n-3} \)

4. \( a_n = a_{n-1} + 2a_{n-2} - 3n \)

5. \( a_n = 4a_{n-2} + 3 \cdot 2^n \)