Algorithmic Combinatorics
Exercises discussed on June 17, 2019

49. Hyper finds the solutions 3^n and $n!$ to the recurrence

$$(n-2)a(n+2) - (n^2+3n-7)a(n+1) + 3(n^2-1)a(n) = 0.$$

Compute the two factorizations of the operator corresponding to this recurrence.

50. Use Zeilberger's algorithm as presented in the lecture to determine a recurrence satisfied by $\sum_{k=0}^{n} \binom{n}{k} k$. You may use the information that the recurrence is of order one with linear coefficients.