SI 8: Finite Calculus and Recurrence Relations

1 Discreet Calculus

Recall that:

$$\sum u(x)\Delta v(x)\delta x = u(x)v(x) - \sum v(x+1)\Delta u(x)\delta x$$

1. Calculate: $\sum_{x=1}^{N}(H_x\binom{x}{m-1} + \binom{x+1}{m}x^{\underline{-1}})$

2 Recurrence Relations

2. Find the family of polynomial functions with a function equivalent to:

$$f(n) = \frac{n}{2}\%4$$

You do not need to solve for constants $a_1, a_2, ..., a_n$ of the general formula.