

演習 2. 1

$$\sum_{i=0}^n (1-x_i^2) = (1-x_0^2) + (1-x_1^2) + (1-x_2^2) + \cdots + (1-x_n^2)$$

初期値 $S_0 = (1-x_0^2)$

$n = 1$ のとき $S_1 = (1-x_0^2) + (1-x_1^2) = S_0 + (1-x_1^2)$

$n = 2$ のとき $S_2 = (1-x_0^2) + (1-x_1^2) + (1-x_2^2) = S_1 + (1-x_2^2)$

⋮

$n = k-1$ のとき $S_{k-1} = (1-x_0^2) + (1-x_1^2) + (1-x_2^2) + \cdots + (1-x_{k-1}^2) = S_{k-2} + (1-x_{k-1}^2)$

$n = k$ のとき $S_k = (1-x_0^2) + (1-x_1^2) + (1-x_2^2) + \cdots + (1-x_{k-1}^2) + (1-x_k^2) = S_{k-1} + (1-x_k^2)$

⋮

なので,

$$S_0 = (1-x_0^2)$$

$$S_i = S_{i-1} + (1-x_i^2) \quad \text{ただし, } i = 1, 2, 3, \dots, n$$