

Aufgabe 1.66

Gegeben seien folgende Größen:

n	0	1	2	3	4	5
c_n	1	1	2	2	3	3
d_{n1}	11	12	13	14	15	16
d_{n2}	-1	-2	-3	-4	-5	-6
d_{n3}	1	0	1	0	1	0

Berechnen Sie

$$\sum_{n=0}^5 c_n, \quad \sum_{i=0}^4 (c_i + 1), \quad \sum_{i=0}^4 c_{i+1}, \quad \sum_{i=0}^3 ic_i, \quad \sum_{i=3}^5 c_3,$$

$$\sum_{i=1}^5 \sum_{j=1}^2 d_{ij}, \quad \sum_{k=0}^5 d_{k2}d_{k3}, \quad \sum_{l=0}^3 d_{l1} \left(\sum_{m=2}^3 d_{lm} \right) !$$

Lösung:

$$\sum_{n=0}^5 c_n = 1 + 1 + 2 + 2 + 3 + 3 = 12,$$

$$\sum_{i=0}^4 (c_i + 1) = \sum_{i=0}^4 c_i + \sum_{i=0}^4 1 = 9 + 5 = 14, \quad \sum_{i=0}^4 c_{i+1} = \sum_{i=1}^5 c_i = 11,$$

$$\sum_{i=0}^3 ic_i = 0c_0 + 1c_1 + 2c_2 + 3c_3 = 1 + 4 + 6 = 11, \quad \sum_{i=3}^5 c_3 = c_3 + c_3 + c_3 = 6,$$

$$\sum_{i=1}^5 \sum_{j=1}^2 d_{ij} = \sum_{i=1}^5 (d_{i1} + d_{i2}) = 10 + 10 + 10 + 10 + 10 = 50,$$

$$\sum_{k=0}^5 d_{k2}d_{k3} = -1 \cdot 1 - 2 \cdot 0 - 3 \cdot 1 - 4 \cdot 0 - 5 \cdot 1 - 6 \cdot 0 = -1 - 3 - 5 = -9,$$

$$\sum_{l=0}^3 d_{l1} \left(\sum_{m=2}^3 d_{lm} \right) = \sum_{l=0}^3 d_{l1} (d_{l2} + d_{l3}) = 11 \cdot 0 + 12 \cdot (-2) + 13 \cdot (-2) + 14 \cdot (-4) = -106$$