Aufgabe 1.64

Gegeben seien folgende Größen:

j	0	1	2	3	4	5
a_j	5	4	4	3	2	1
b_{1j}	11	10	−5	10	12	13
b_{2j}	1	−2	3	−4	5	−6
b_{3j}	0	1	2	0	1	2

Berechnen Sie

$$\sum_{j=0}^{5} a_j,\ \sum_{i=1}^{5}(a_i-1),\ \sum_{i=1}^{5} a_{i-1},\ \sum_{k=0}^{3} a_2,\ \sum_{m=1}^{4} m a_m,$$

$$\sum_{i=1}^{3}\sum_{j=1}^{4} b_{ij},\ \sum_{k=0}^{5} b_{2k}b_{3k},\ \sum_{l=1}^{2}\sum_{m=0}^{2} b_{lm}a_{m+3}\ !$$

Lösung:

$$\sum_{j=0}^{5} a_j = 5+4+4+3+2+1 = 19,\ \sum_{i=1}^{5}(a_i-1) = \sum_{i=1}^{5} a_i - \sum_{n=1}^{5} 1 = 14-5 = 9,\ \sum_{i=1}^{5} a_{i-1} = \sum_{i=0}^{4} a_i = 18,$$

$$\sum_{k=0}^{3} a_2 = a_2+a_2+a_2+a_2 = 16,\quad \sum_{m=1}^{4} m a_m = 1a_1+2a_2+3a_3+4a_4 = 4+8+9+8 = 29$$

$$\sum_{i=1}^{3}\sum_{j=1}^{4} b_{ij} = \sum_{i=1}^{3}(b_{i1}+b_{i2}+b_{i3}+b_{i4}) = 27+2+4 = 33,$$

$$\sum_{k=0}^{5} b_{2k}b_{3k} = 1\cdot 0-2\cdot 1+3\cdot 2-4\cdot 0+5\cdot 1-6\cdot 2 = -3,$$

$$\sum_{l=1}^{2}\sum_{m=0}^{2} b_{lm}a_{m+3} = \sum_{l=1}^{2}(b_{l0}a_3+b_{l1}a_4+b_{l2}a_5) = (11\cdot 3+10\cdot 2-5\cdot 1)+(1\cdot 3-2\cdot 2+3\cdot 1) = 50$$