

## Exercise 1

Write out the following summations:

$$\text{(a)} \sum_{k=1}^3 k^2 \quad \text{(b)} \sum_{k=1}^3 a_k^2 \quad \text{(c)} \sum_{j=1}^3 \sum_{k=1}^3 a_{jk} b_{kj} \quad \text{(d)} \left( \sum_{j=1}^3 a_j \right)^2 = \sum_{j=1}^3 \sum_{k=1}^3 a_j a_k$$