

A random sample of 9 members is taken from the large number of members of a sports club, and their heights are measured. The heights of all the members of the club are assumed to be normally distributed. A 95% confidence interval for the population mean height,  $\mu$  metres, is calculated from the data as  $1.65 \leq \mu \leq 1.85$ .

(i) Find an unbiased estimate for the population variance. [3]

(ii) Denoting the height of a member of the club by  $x$  metres, find  $\Sigma x^2$  for this sample of 9 members. [4]