

Question 3**(4 marks)**

Solve $4e^{2x} = 81 - 5e^{2x}$ exactly for x .

Question 4**(3 marks)**

Two independent samples of different sizes were taken from a population. The first sample had sample size n_1 and the second sample had sample size n_2 . The sample proportions of males in the samples were the same. When 99% confidence intervals were calculated for each sample, it was found that the corresponding margin of error in the second sample was half that of the first sample.

What is the ratio of the two sample sizes, $\frac{n_2}{n_1}$?