4. The random variable X is normally distributed with unknown mean μ and known variance σ^2

A random sample of n observations of X produced a 99% confidence interval for μ of (0.900, 0.964)

(a) Show that the standard error used to find this confidence interval is 0.0124 to 3 significant figures.

(3)

Using the same random sample,

(b) find a 95% confidence interval for μ

Give your answers to 3 decimal places.

(4)

The r % confidence interval using the same random sample has a width of 0.04

(c) Calculate the value of r

(5)

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Question 4 continued

(Total for Question 4 is 12 marks)