7. The continuous random variable D is uniformly distributed over the interval $[x - 1, x + 5]$ where x is a constant.

A random sample of n observations of D is taken, where n is large.

(a) Use the Central Limit Theorem to find an approximate distribution for $\overline{D}$
Give your answer in terms of n and x where appropriate.

(3)

The n observations of D have a sample mean of 24.6

Given that the lower bound of the 99% confidence interval for x is 22.101 to 3 decimal places,

(b) find the value of n
Show your working clearly.

(5)

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TOTAL FOR PAPER IS 75 MARKS

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