5. A competition consists of two rounds.

The time, in minutes, taken by adults to complete round one is modelled by a normal distribution with mean 15 minutes and standard deviation 2 minutes.

(a) Use standardisation to find the proportion of adults that take less than 18 minutes to complete round one.

(2)

Only the fastest 60% of adults from round one take part in round two.

(b) Use standardisation to find the longest time that an adult can take to complete round one if they are to take part in round two.

(3)

The time, T minutes, taken by adults to complete round two is modelled by a normal distribution with mean μ

Given that $P(\mu - 10 < T < \mu + 10) = 0.95$

(c) find $P(T > \mu - 5 \mid T > \mu - 10)$

(5)

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Question 5 continued

(Total for Question 5 is 10 marks)