4. At a school athletics day, the distances, in metres, achieved by students in the long jump are modelled by the normal distribution with mean 3.3 m and standard deviation 0.6 m

(a) Using standardisation, find an estimate for the proportion of students who jump less than 2.5 m

(2)

The long jump competition consists of 2 jumps.

All the students can take part in the first jump and the 40% who jump the greatest distance in their first jump qualify for the second jump.

(b) Using standardisation, find an estimate for the minimum distance achieved in the first jump in order to qualify for the second jump.
Give your answer correct to 4 significant figures.

(3)

(c) Find an estimate for the median distance achieved in the first jump by those who qualify for the second jump.
Show your working clearly.

(3)

The distance of the second jump is independent of the distance of the first jump and is modelled with the same normal distribution.

Students who jump a distance greater than 4.1 m in their second jump receive a certificate.

At the start of the long jump competition, a student is selected at random.

(d) Find the probability that this student will receive a certificate.

(3)

(Total for Question 4 is 11 marks)