5. A string of length 40 cm is cut into 2 pieces at a random point.
The continuous random variable L represents the length of the longer piece of string.

(a) Write down the distribution of L

(2)

(b) Find the probability that the length of the longer piece of string is 28 cm to the nearest cm.

(2)

Each piece of string is used to form the perimeter of a square.

(c) Calculate the probability that the area of the larger square is less than $64\,\text{cm}^2$

(3)

(d) Calculate the probability that the difference in area between the two squares is greater than $81\,\text{cm}^2$

(4)

(Total for Question 5 is 11 marks)