1. Sam is a telephone sales representative.

For each call to a customer

- Sam either makes a sale or does not make a sale
- sales are made independently

Past records show that, for each call to a customer, the probability that Sam makes a sale is 0.2

(a) Find the probability that Sam makes

(i) exactly 2 sales in 14 calls,

(ii) more than 3 sales in 25 calls.

(4)

Sam makes n calls each day.

(b) Find the minimum value of n

(i) so that the expected number of sales each day is at least 6

(2)

(ii) so that the probability of at least 1 sale in a randomly selected day exceeds 0.95

(4)

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Question 1 continued

(Total for Question 1 is 10 marks)