1. In a large population 40% of adults use online banking.

A random sample of 50 adults is taken.

The random variable X represents the number of adults in the sample that use online banking.

(a) Find

(i) $P(X = 26)$

(2)

(ii) $P(X \geqslant 26)$

(2)

(iii) the smallest value of k such that $P(X \leqslant k) > 0.4$

(1)

A random sample of 600 adults is taken.

(b) (i) Find, using a normal approximation, the probability that no more than 222 of these 600 adults use online banking.

(5)

(ii) Explain why a normal approximation is suitable in part (b)(i)

(1)

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Question 1 continued

(Total for Question 1 is 11 marks)