7. A train travels daily between two cities.

The probability that the train arrives no more than 2 minutes late is 0.45

Bobby randomly selects 30 of these train journeys between the two cities. The random variable X represents the number of times the train arrives no more than 2 minutes late.

(a) Find $P(X > 16)$

(2)

Hallie takes a random sample of 180 of these train journeys between the two cities.

Using a normal approximation, the probability that more than k of these 180 train journeys arrive no more than 2 minutes late is less than 0.0427 to 4 decimal places.

(b) Using standardisation, find the smallest possible value of k
You must show all stages of your working.

(8)

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Question 7 continued

Question 7 continued

(Total for Question 7 is 10 marks)

TOTAL FOR PAPER IS 75 MARKS

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