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4. At a shop, past figures show that 35% of customers pay by credit card. Following the shop's decision to no longer charge a fee for using a credit card, a random sample of 20 customers is taken and 11 are found to have paid by credit card.

Hadi believes that the proportion of customers paying by credit card is now greater than 35%

(a) Test Hadi's belief at the 5% level of significance. State your hypotheses clearly.

(5)

For a random sample of 20 customers,

(b) show that 11 lies less than 2 standard deviations above the mean number of customers paying by credit card.
You may assume that 35% is the true proportion of customers who pay by credit card.

(4)

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Question 4 continued

Q4

(Total 9 marks)