6. Three events A, B and C are such that

$$\mathrm{P}(A) = 0.1 \qquad \mathrm{P}(B \mid A) = 0.3 \qquad \mathrm{P}(A \cup B) = 0.25 \qquad \mathrm{P}(C) = 0.5$$

Given that A and C are mutually exclusive

(a) find $\mathrm{P}(A \cup C)$

(1)

(b) Show that $\mathrm{P}(B) = 0.18$

(3)

Given also that B and C are independent,

(c) draw a Venn diagram to represent the events A, B and C and the probabilities associated with each region.

(5)

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Question 6 continued

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Question 6 continued

(Total for Question 6 is 9 marks)