5. The events A and B are independent.
Given that

- $\mathrm{P}(A) = \mathrm{P}(B) = x$
- $\mathrm{P}(A \cup B) = \dfrac{9}{25}$

(a) find the value of x

(2)

The events C and D are such that

- $\mathrm{P}(C) = \dfrac{11}{20}$
- $\mathrm{P}(C \mid D) = \dfrac{6}{13}$
- $\mathrm{P}(C \cup D) = 3\,\mathrm{P}(C \cap D)$

(b) Find

(i) $\mathrm{P}(D)$

(4)

(ii) $\mathrm{P}(D \mid C')$

(3)

(Total for Question 5 is 9 marks)