Solution de l'interrogation

Solution. i) De $P(B) = P(B \cap \Omega) = P(B \cap (A \cup A^c)) = P(B \cap A) + P(B \cap A^c)$ on trouve $P(B \cap A^c) = P(B) - P(B \cap A) = 0,40 - 0,15 = 0,25$.

ii) $P(A \mid B) = \frac{P(A \cap B)}{P(B)} = \frac{0,15}{0,40} = \frac{3}{8}$.

iii) $P(B \mid A) = \frac{P(A \cap B)}{P(A)} = \frac{0,15}{0,30} = \frac{1}{2}$.

iv) $P(A \mid A \cup B) = \frac{P(A \cap (A \cup B))}{P(A \cup B)} = \frac{P(A)}{P(A)+P(B)-P(A \cap B)} = \frac{0,30}{0,30+0,40-0,15} = \frac{6}{11}$.

v) $P(B \mid A \cap B) = \frac{P(B \cap A \cap B)}{P(A \cap B)} = 1$.

vi) $P(B \mid A^c) = \frac{P(B \cap A^c)}{P(A^c)} = \frac{0,25}{0,70} = \frac{5}{14}$.

vii) $P(A^c \mid B) = \frac{P(A^c \cap B)}{P(B)} = \frac{0,25}{0,40} = \frac{5}{8}$.

viii) $P(B^c \mid B) = \frac{P(B^c \cap B)}{P(B)} = \frac{P(\emptyset)}{P(B)} = 0$.