



PROBABILITY ASSIGNMENT

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1 problem

Let A and B be independent events with $P(A)=0.3$ and $P(B)=0.4$ find

- (i). $P(AB)$
- (ii). $P(A+B)$
- (iii). $P(A | B)$
- (iv). $P(B | A)$

2 solution

Since A and B are independent events, we have

$$(i). P(AB) = P(A) P(B)$$

$$P(AB) = 0.3 \times 0.4$$

$$P(AB) = 0.12$$

$$(ii). P(A+B) = P(A) + P(B) - P(AB)$$

$$P(A+B) = 0.3 + 0.4 - 0.12 = 0.58$$

$$(iii). P(A | B) = \frac{0.12}{0.40} = 0.3$$

$$(iv). P(B | A) = \frac{P(AB)}{P(A)} = \frac{0.12}{0.30} = 0.4$$