Indian Institute of Technology Hyderabad

PROBABILITY ASSIGNMENT

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1 problem

Let A and B be independent events with $\Pr(A) = 0.3$ and $\Pr(B) = 0.4$ Find

1. $\Pr(AB)$
2. $\Pr(A + B)$
3. $\Pr(A|B)$
4. $\Pr(B|A)$

2 solution

Since A and B are independent events, we have

1. $\Pr(AB) = \Pr(A)\Pr(B)$
   $\Pr(AB) = 0.3 \times 0.4$
   $\Pr(AB) = 0.12$
2. $\Pr(A + B) = \Pr(A) + \Pr(B) - \Pr(AB)$
   $\Pr(A + B) = 0.3 + 0.4 - 0.12 = 0.58$
3. $\Pr(A|B) = \dfrac{0.12}{0.40} = 0.3$
4. $\Pr(B|A) = \dfrac{\Pr(B + A)}{\Pr(A)} = \dfrac{0.12}{0.30} = 0.4$