

Assignment

Antalene (EE22BTECH11008)

Question 12.13.3.63

A and B are events such that $\Pr(A) = 0.4$ and $\Pr(B) = 0.3$ and $\Pr(A + B) = 0.5$. Then $\Pr(B'A)$ is equal to

Solution: By axioms,

$$A = A(B + B') \quad (1)$$

$$A = AB + AB' \quad (2)$$

$$\implies \Pr(A) = \Pr(AB) + \Pr(AB') \quad (3)$$

$$\implies \Pr(AB') = \Pr(A) - \Pr(AB) \quad (4)$$

we also know that,

$$\Pr(AB) = \Pr(A) + \Pr(B) - \Pr(A + B) \quad (5)$$

$$= 0.4 + 0.3 - 0.5 \quad (6)$$

$$= 0.2 \quad (7)$$

Hence,

$$\Pr(AB') = 0.4 - 0.2 \quad (8)$$

$$= 0.2 \quad (9)$$