ASSIGNMENT-13

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1 PROBABILITY 6.5

If A and B are any two events such that $P(A) + P(B) - P(A \cap B) = P(A)$, then
(A) $P(B/A) = 1$
(B) $P(A/B) = 1$
(C) $P(B/A) = 0$
(D) $P(A/B) = 0$

2 SOLUTION

Given,

$$P(A) + P(B) - P(A \cap B) = P(A) \qquad (2.0.1)$$

$$\implies P(B) = P(A \cap B) \qquad (2.0.2)$$

Also note that,

$$P(A|B)P(B) = P(A \cap B) \qquad (2.0.3)$$

From (2.0.2),

$$P(A|B)P(B) = P(B) \qquad (2.0.4)$$

If $P(B) \neq 0$, then

$$P(A|B) = 1 \qquad (2.0.5)$$