Assignment 5

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1 Question-

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 Answer-

2.1. Part(i):
As A and B are independent events

$$P(AB) = P(A) \times P(B) \tag{2.1.1}$$
$$\implies P(AB) = 0.3 \times 0.4 \tag{2.1.2}$$
$$\implies P(AB) = 0.12 \tag{2.1.3}$$

2.2. Part(ii):
We know that,

$$P(A+B) = P(A) + P(B) - P(AB) \tag{2.2.1}$$
$$\implies P(A+B) = 0.3 + 0.4 - 0.12 \tag{2.2.2}$$
$$\implies P(A+B) = 0.58 \tag{2.2.3}$$

2.3. Part(iii):
As A and B are independent events

$$P(A|B) = P(A) \tag{2.3.1}$$
$$\implies P(A|B) = 0.3 \tag{2.3.2}$$

2.4. Part(iv):
As A and B are independent events

$$P(B|A) = P(B) \tag{2.4.1}$$
$$\implies P(B) = 0.4 \tag{2.4.2}$$