Probability Assignment

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11.16.3.17
A and B are events such that $\Pr(A) = 0.42, \Pr(B) = 0.48$ and $\Pr(\text{A and B}) = 0.16$.
Determine

1. $\Pr(\text{not A})$
2. $\Pr(\text{not B})$
3. $\Pr(\text{A or B})$

Solution

Given,
$\Pr(A) = 0.42, \Pr(B) = 0.48$ and $\Pr(\text{A and B}) = 0.16$

1. $\Pr(\text{not A})$

$$\begin{aligned} \Pr(A') &= 1 - \Pr(A) && (1)\\ &= 1 - 0.42 && (2)\\ &= 0.58 && (3) \end{aligned}$$

2. $\Pr(\text{not B})$

$$\begin{aligned} \Pr(B') &= 1 - \Pr(B) && (4)\\ &= 1 - 0.48 && (5)\\ &= 0.52 && (6) \end{aligned}$$

3. $\Pr(\text{A or B})$

$$\begin{aligned} \Pr(\text{A+B}) &= \Pr(A) + \Pr(B) - \Pr(AB) && (7)\\ &= 0.42 + 0.48 - 0.16 && (8)\\ &= 0.74 && (9) \end{aligned}$$