Two events ***A*** and ***B*** are such that $P(A) = 0.35$, $P(B) = 0.6$ and $P(A \cup B) = 0.74$

a) Find $P(A \cap B)$

b) Determine whether ***A*** and ***B*** are independent.

c) Find $P(A' \cap B)$

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a)

We know that $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$0.74 = 0.35 + 0.6 - P(A \cap B)$

$P(A \cap B) = 0.21$

b)

If ***A*** and ***B*** are independent, $P(A \cap B) = P(A) \times P(B)$

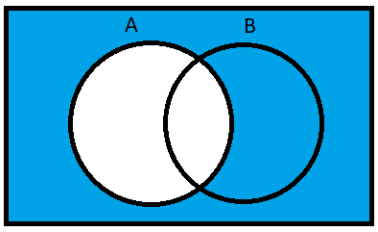
$P(A) \times P(B) = 0.35 \times 0.6 = 0.21$

$P(A \cap B) = 0.21$

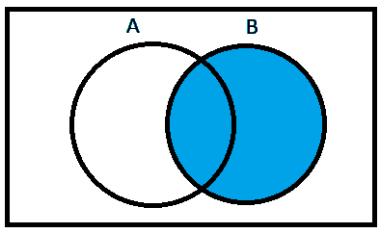
Hence, ***A*** and ***B*** are independent

c)

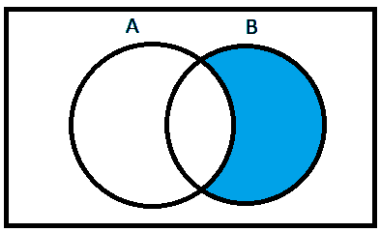
$P(A')$

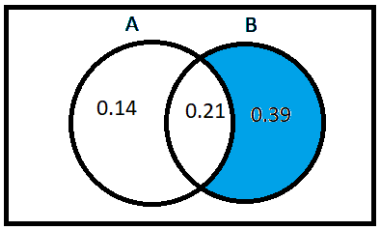


$P(B)$



$P(A' \cap B)$





$P(A' \cap B) \quad = 0.39$