Answer on Question #44946 – Math – Statistics and Probability

Suppose A and B are mutually exclusive events for which P(A)=0.3 AND P(B)=0.5 , What is the probability that (a) either A or B occurs and (b)B occurs but A does not ?

Solution

(a) The probability that either A or B occurs $P(A \cup B) = P(A) + P(B) - P(A \cap B) = P(A) + P(B) = 0.8$.
$P(A \cap B) = 0$, because A and B are mutually exclusive events

(b) By definition $P(\bar{A}|B) = \frac{P(\bar{A} \cap B)}{P(B)}$.
$P(\bar{A}|B) = 1$, because A and B are mutually exclusive (if B occurred, A will certainly not occur, so $\bar{A}$ will certainly occur). So, we get $P(\bar{A} \cap B) = P(B)P(\bar{A}|B) = P(B) = 0.5$.