Conditions

30% rate of catching the burglar; 60% rate of conviction; what the probability of both

Solution

In probability theory, a conditional probability is the probability that an event would have, conditional that another occurs. If the events are A and Brespectively, this is said to be "the probability of A given B". It is commonly notated $P(A|B)$, or sometimes $P_B(A)$. $P(A|B)$ may or may not be different from the probability of A, $P(A)$. If not, then A and B are said to be independent. For example, if a coin is flipped twice, "the outcome of the second flip" is independent of "the outcome of the first flip". However, "being run over when crossing the road" is highly dependent on "not looking before crossing".

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

$P(A \cap B) = 0.3 \cdot 0.6 = 0.18$

Answer: 18%