

CONDITIONAL PROBABILITY

The conditional probability is the probability of happening of an event of A given that another event B has already occurred.

$$P(A | B) = \frac{P(A \cap B)}{P(B)}$$

Probability of event A given B has occurred

Probability of event A occurred and event B occurred

Probability of event B

CONDITIONAL PROBABILITY

$$P(\text{TEST} | \text{DISEASE})$$

$$P(\text{TEST}) = P(\text{TEST} | \text{DISEASE}) \cdot P(\text{DISEASE}) + P(\text{TEST} | \neg \text{DISEASE}) \cdot P(\neg \text{DISEASE})$$