10 February 2018
17:34

Conditional probability:

P(A/B) = Probability of A given B.

P(B/A) = Probability of B given A.

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

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

Example: Tossing two Dice at a time.

? **What is the probability of getting sum of dice is 8 and the first dice is 3 from that?**

Sol: Let us calculate the sample space first

- Sample space = {(3,1) , (3,2), (3,3), (3,4), (3,5), (3,6)}
- Sum of dice of 8 is only in (3,5)

- Therefore P(sum=8/First dice 3) = 1/6

? **What is the probability of getting Picture card in Red colour?**

Sol: Let us calculate the sample space first

- Sample space of Red colour = {(1 to 26 cards)}
- Out of 26 Red colour cards we will have 6 Pictures.

- Therefore P(# of Pictures/# of Red colour) = 6/26

- **If it is the case of A and B are independent events, then P($A \cap B$) = P(A).$P(B)$**

- **The naive Bayes classifier is an approximation to the Bayes classifier, in which we assume that the features are conditionally independent.**