

Probability

1. A large-scale survey finds that 80% of college students enjoy eating chocolate ice cream, 65% of college students enjoy eating mango ice cream, and 55% of college student enjoy eating both chocolate and mango ice cream. What proportion of college students enjoys eating chocolate or mango ice cream or both?

2. Consider the table

X	P(X)
4	0.3
5	0.1
6	0.2
7	0.15
8	0.15
9	0.1

- a) $P(X=4 \text{ or } X=5)$
 - b) $P(X>6)$
 - c) $P(X \leq 7)$
 - d) $P(5 \leq X \leq 8)$
3. In a class, 40% of the students study Maths and science. 60% of the students study Maths. What is the probability of a student studying science given he/she is already studying Math using multiplication theorem of probability?
 4. Probability that a certain person takes a decision of launching a new product in the month of August given that she gets selected as CEO is 0.8. Probability that the person getting selected as CEO is 0.7. Find the probability that both the events occur i.e. person selected as CEO and also launch of new product in August.
 5. In a large class, the probability of randomly selecting a woman student is 0.65. The probability of randomly selecting a student who is a woman and who earned a grade A is 0.25. If you randomly select a student who is a woman, what is the probability that she earned a grade A?
 6. Probability that husband lives for more than 70 years is 0.75. Probability that his wife lives for more than 70 years is 0.72. What is the probability that both lives for more than 70 years assuming lives of husband and wife as independent?
 7. Consider a database of shopping mall of about 10,00,000 transactions. Out of these transactions, there are 40,000 transactions with purchase of soft toys and hand towel (purchased together) and 24,000 of these transactions include the room freshener purchases.
 $n\{\text{Soft Toy, Hand Towel}\} = 40,000$,
 $n\{\text{Soft Toy, Hand Towel, Room Freshener}\} = 24,000$
Find $P(\text{Room Freshener Purchased} \mid \text{Soft Toy and Hand Towel Purchased})$