XII. PROBABILITY

Example problems

1. A fair die is rolled. Find the probability of getting (i) the number 4 (ii) an even number (iii) a prime factor of 6 (iv) a number greater than 4.
2. In tossing a fair coin twice, find the probability of getting (i) two heads (ii) atleast one head (iii) exactly one tail
3. An integer is chosen from the first twenty natural numbers. What is the probability that it is a prime number?
4. There are 7 defective items in a sample of 35 items. Find the probability that an item chosen at random is non-defective.
5. Two unbiased dice are rolled once. Find the probability of getting (i) a sum 8 (ii) a doublet (iii) a sum greater than 8.
6. From a well shuffled pack of 52 playing cards, one card is drawn at random. Find the probability of getting (i) a king (ii) a black king (iii) a spade card (iv) diamond 10.
7. There are 20 boys and 15 girls in a class of 35 students. A student is chosen at random. Find the probability that the chosen student is a (i) boy (ii) girl.
8. The probability that it will rain on a particular day is 0.76. What is the probability that it will not rain on that day?
9. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is thrice that of drawing a red ball, then find the number of blue balls in the bag.
10. Find the probability that (i) a leap year selected at random will have 53 Fridays; (ii) a leap year selected at random will have only 52 Fridays; (iii) a non-leap year selected at random will have 53 Fridays.
11. If A is an event of a random experiment such that $P(A)$: $P(A)$ = 7:12, then Find $P(A)$.
12. Three coins are tossed simultaneously. Using addition theorem on probability, find the probability that either exactly two tails or at least one head turn up.
13. A die is thrown twice. Find the probability that at least one of the two throws comes up with the number 5 (use addition theorem).

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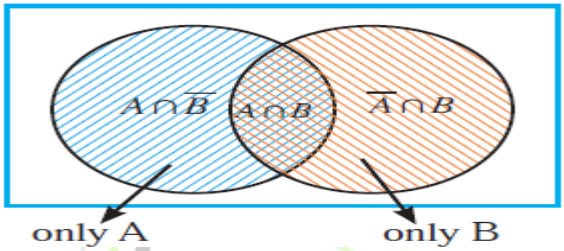
14. The probability that a girl will be selected for admission in a medical college is 0.16. The probability that she will be selected for admission in an engineering college is 0.24 and the probability that she will be selected in both, is 0.11. (i) Find the probability that she will be selected in at least one of the two colleges. (ii) Find the probability that she will be selected either in a medical college only or in an engineering college only.



15. A letter is chosen at random from the letters of the word "ENTERTAINMENT". Find the probability that the chosen letter is a vowel or *T*. (repetition of letters is allowed)
16. Let *A*, *B*, *C* be any three mutually exclusive and exhaustive events such that $P(B) = 3/2P(A)$ and $P(C) = \frac{1}{2}$ P(B) Find $P(A)$.
17. A card is drawn from a deck of 52 cards. Find the probability of getting a King or a Heart or a Red card.
18. A bag contains 10 white, 5 black, 3 green and 2 red balls. One ball is drawn at random. Find the probability that the ball drawn is white or black or green.

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