

DAY 2

1. Two players, Sangeeta and Reshma play a tennis match. It is known that the probability of Sangeeta winning the match is 0.62. What is the probability of Reshma winning the match? [Example 5]

Sol:- Given $P(\text{Sangeeta winning a match}) = 0.62$

Here only two players are there.

$$\therefore P(\text{Sangeeta winning a match}) + P(\text{Reshma winning a match}) = 1$$

$$\Rightarrow P(\text{Reshma winning a match}) = 1 - P(\text{Sangeeta winning a match}) \\ = 1 - 0.62 = 0.38$$

2. Savita and Hamida are friends. What is the probability that both will have
i) different birthdays ii) the same birthday (ignoring a leap year) [Example 6]

Sol:- Any one girl out of both have her birthday any day in 365 days

- i) If they have different Birthdays. **Suppose If Savita's Birthday is on any particular day then Hamida's Birthday must be any day in 364 days out of 365 days.**

$$\therefore P(\text{Different Birthdays}) = \frac{364}{365}$$

- ii) If they have Same Birthdays. **Suppose If Savita's Birthday is on any particular day then Hamida's Birthday also be on that day. i.e. there is only 1 day out of 365 when they have same Birthday.**

$$\therefore P(\text{Same Birthdays}) = \frac{1}{365}$$

3. Harpreet tosses two different coins simultaneously. What is the probability that she gets i) one head ii) atleast one head? [Example 9]

Sol:- Total outcomes when two coins are tossed = {HH, HT, TH, TT} = 4

- i) Outcomes of 1 head = {HT, TH} = 2 out of 4

$$\therefore P(1 \text{ Head}) = \frac{2}{4} = \frac{1}{2}$$

- ii) Outcomes of atleast 1 head = {HT, TH, HH} = 3 out of 4

$$\therefore P(\text{atleast 1 Head}) = \frac{3}{4}$$

4. A piggy bank contains hundred 50p coins, fifty ₹ 1 coins, twenty 2₹ coins and ten 5₹ coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, what is the probability that the coin

- i) will be 50p coin ii) will be 1 ₹ coin iii) will not be 5₹ coin. [Ex 15.1, Q10]

Sol:- Total number of coins = $100 + 50 + 20 + 10 = 180$

- i) Number of 50p coins = 100 out of 180

$$\therefore P(50p \text{ coins}) = \frac{100}{180} = \frac{5}{9}$$

- ii) Number of 1₹ coins = 50 out of 180

$$\therefore P(1 \text{ Re. coins}) = \frac{50}{180} = \frac{5}{18}$$

iii) Number of coins which are not ₹5 = $100 + 50 + 20 = 170$ out of 180

$$\therefore P(\text{not Rs. 5 coins}) = \frac{170}{180} = \frac{17}{18}$$

5. 12 defective pens are accidentally mixed with 132 good ones. It is not possible to just look at a pen and tell whether or not it is defective. One pen is taken out at random from this lot. Find the probability that taken pen is

i) defective pen ii) good pen

[Ex 15.1, Q16]

Sol:- Total pens = $12 + 132 = 144$

i) Number of defective pens = 12 out of 144

$$\therefore P(\text{Defective pens}) = \frac{12}{144} = \frac{1}{12}$$

ii) Number of good pens = 132 out of 144

$$\therefore P(\text{Good pens}) = \frac{132}{144} = \frac{11}{12}$$

6. A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears

i) a two digit number ii) a perfect square number

iii) A number divisible by 5.

[Ex 15.1, Q18]

Sol:- Total discs = 90

i) Two digit numbers = 10, 11, 12,, 90 = 81 out of 90

$$\therefore P(\text{Two digit number}) = \frac{81}{90} = \frac{9}{10}$$

ii) Perfect Square numbers = 1, 4, 9, 16, 25, 36, 49, 64, 81 = 9 out of 90

$$\therefore P(\text{Perfect Square number}) = \frac{9}{90} = \frac{1}{10}$$

iii) Numbers divisible by 5 = 5, 10, 15,, 80, 85, 90 = 18 out of 90

$$\therefore P(\text{Numbers divisible by 5}) = \frac{18}{90} = \frac{1}{5}$$

EXERCISE

1. Ex 15.1, Q 7, 10, 11, 15, 16, 17, 19, 21, 23