

## // Exercise - 9.2 //

- ① A company manufactures 10000 laptops in 6 months. Out of which 25 of them are found to be defective. When you choose one laptop from the manufactured, what is the probability that selected laptop is a good one.

⇒ Let  $S$  be the sample space

$$n(S) = 10000$$

~~defective~~ Number of defective laptop = 25 (given)

$$\begin{aligned} \text{Then } \& \text{ Number of good laptop} &= 10000 - 25 \\ &= 9975 \end{aligned}$$

Let  $A$  be the event of getting ~~good laptop~~ the selected laptop is a good one.

$$\therefore n(A) = 9975$$

$$\therefore P(A) = \frac{n(A)}{n(S)} = \frac{9975}{10000} = 0.9975$$

Thus, the probability of the selected laptop is a good one is 0.9975.

- ② In a survey of 400 youngsters aged 16-20 years. It was found that 191 have their voter ID card. If a youngster is selected at random, find the probability that the youngster does not have their voter ID card.

⇒ Let  $S$  be the sample space

$$n(S) = 400$$

Let  $A$  be the event of getting the youngster have voter ID card.

$$\therefore n(A) = 191$$

$$\therefore P(A) = \frac{n(A)}{n(S)} = \frac{191}{400}$$

Now,  $P(A')$  be the event of getting the youngster have not ~~not~~ voter ID card.

we know that,

$$P(A) + P(A') = 1$$

$$\begin{aligned} P(A') &= 1 - P(A) \\ &= 1 - \frac{191}{400} \\ &= \frac{400 - 191}{400} \\ &= \frac{209}{400} \end{aligned}$$

Thus, the probability of the youngster have not voter ID card is  $\frac{209}{400}$ .

③ The probability of guessing the correct answer to a certain question is  $\frac{x}{3}$ . If the probability of not guessing the correct answer is  $\frac{x}{5}$ , then find the value of  $x$ .

⇒ Let  $A$  be the event of getting of guessing the correct answer.

So,  $A'$  be the event of getting of guessing ~~the~~ not correct answer.

now, given that

$$P(A) = \frac{x}{3} \quad \text{and} \quad P(A') = \frac{x}{5}$$

We know that

$$P(A) + P(A') = 1$$

$$\frac{x}{3} + \frac{x}{5} = 1$$

$$\frac{5x + 3x}{15} = 1$$

$$8x = 15$$

$$x = \frac{15}{8}$$

Thus the value of  $x = \frac{15}{8}$



④ If a probability of a player ~~winning~~ winning a particular tennis match is 0.72. What is the probability of the player losing the match?

⇒ Let A be the event of getting the match win.

So, A' be the event of getting the match lose.

Given that

$$P(A) = 0.72$$

We know that,

$$P(A) + P(A') = 1$$

$$0.72 + P(A') = 1$$

$$P(A') = 1 - 0.72$$

$$P(A') = 0.28$$

Thus, the required probability is 0.28.

⑤ 1500 families were surveyed and following data was recorded about their maids at homes.

Type of maids	only part time	only full time	Both
Number of families	860	370	250

A family is selected at random. Find the probability that the family selected has

(i) Both types of maids (ii) Part time maids

(iii) No maids.

⇒ Let S be the sample space.

$$\therefore n(S) = 1500.$$

(i) Number of Both types maids = 250

Let A be the event of getting both types of maids.

$$\therefore n(A) = 250$$

$$\therefore P(A) = \frac{n(A)}{n(S)} = \frac{250}{1500} = \frac{1}{6}$$

Therefore, the probability of Both types of maids is  $\frac{1}{6}$ .