RBSE BOARD

SHARMA TUTION CLASSES Let's Rule it

CLASS - X th

PROBABILITY [PREVIOUS YEAR 2015-19]

① One card is drawn from a well shuffled deck of 52 cards. Calculate the probability that the card will not be an ace. [RBSE 2015]

Sol. Given that,

Total no. of cards = 52

Total no. of aces = 4

So, $P(\text{getting an ace}) = \frac{\text{No. of ace}}{\text{total no. of cards}} = \frac{4}{52} = \frac{1}{13}$

Then, $P(\text{not getting an ace}) = 1 - P(\text{get an ace})$

$= 1 - \frac{1}{13} = \frac{12}{13}$

② Neeraj and Dheeraj are friends. Find the probability of their birthdays when

(i) Birthdays are different

(ii) Birthdays are same.

Sol. Let A denote the event that they have same birthday and B denote the event that they have different birthday

(i) If they have same birthday

Therefore, the no. of cases in favourable of event A = 1

Required probability, $P(A) = \frac{1}{365}$

As, we know that,

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

$$\frac{1}{365} + P(B) = 1$$

$$P(B) = 1 - \frac{1}{365} = \frac{364}{365}$$

Then $P(B) = \frac{364}{365}$

③ A coin is tossed once. Find the probability that it is not a tail. [RBSE 2016]

Sol Given that,

A coin is tossed once

then event will be {H, T}

Total event = 2

$$P(E) = \frac{\text{no. of fav. event}}{\text{total event}} = \frac{1}{2}$$

(4) A piggy bank contain hundred coins of Rs 1, 25 coins of Rs 2, 15 coins of Rs 5, 10 coins of Rs 10. If it is equally likely that one coin will fall, when the bank is turned upside down, what is probability that the coin —
(i) will be a Rs 2 coin (ii) will not be a Rs 5 coin. [RBSE 2016]

Sol Given that,

No. of 1 Rs coin = 100
No. of 2 Rs coin = 25
No. of 5 Rs coin = 15
No of 10 Rs coin = 150, Total coins = 150

(i) $P(E) = \frac{\text{fav. event}}{\text{total event}}$

will be a Rs 2 coin, $P(E) = \frac{25}{150} = \frac{1}{6}$

(ii) will ~~not~~ be a 5 Rs coin = $\frac{15}{150} = \frac{1}{10}$, $P(E) = \frac{1}{10}$

we know that

$$P(E) + P(\text{not } E) = 1$$

$$\frac{1}{10} + P(\text{not } E) = 1$$

$$P(\text{not } E) = 1 - \frac{1}{10} = \frac{9}{10}$$

⑤ If probability of "not E" = 0.95, then find P(E). [RBSE 2017]

Sol. Simplify probability expression,

We know that,

$$P(E) + P(\bar{E}) = 1$$

$$P(\bar{E}) = 0.95$$

$$P(E) = 1 - P(\bar{E})$$

$$= 1 - 0.95 = 0.05$$

⑥ A box contain 7 red marbles, 10 white marbles and 5 green marbles. One marbles is taken out of the box at random. What is the probability that the marble taken out will be. [RBSE 2017] (i) Not red, (ii) White, (iii) Green ?

Sol Simplify the expression,

Total no. of all possible outcomes = 10 + 7 + 5 = 22

(i) Total no. of not red ball = 10 + 5 = 15

Probability (getting a ball which is not red) = $\frac{15}{22}$

(ii) No. of white ball = 10

P(white ball) = $\frac{10}{22}$

(iii) No. of green ball = 5

P(green ball) = $\frac{5}{22}$

(7) A die is thrown once. Find the probability of getting an odd solution. [RBSE - 2018]

Sol. Total outcomes that can occur are 1, 2, 3, 4, 5, 6

No. of possible outcome of a dice = 6

No. which are odd = 1, 3, 5

$$P(E) = \frac{3}{6} = \frac{1}{2}$$

(8) In a bag one white ball, two black ball and three red balls of the same size are placed. A ball is thrown at random from this bag. Find the probability (i) the ball is white (ii) the ball is not black (iii) the ball is red.

Sol. Total no. of all possible outcome = 1 + 2 + 3 = 6

(i) No. of white ball = 1

$$P(\text{getting a white ball}) = \frac{1}{6}$$

(ii) the ball that are not black = 1 + 3 = 4

$$P(\text{not getting a black ball}) = \frac{4}{6} = \frac{2}{3}$$

(iii) No. of red balls = 3

$$P(\text{getting a red ball}) = \frac{3}{6} = \frac{1}{2}$$

(9) Two players A and B played a chess match It is given that the probability of winning the match by A is 5/6. Find the probability of winning the match by B. [RBSE 2019]

Sol. Given, $P(\text{winning the match by A}) = \frac{5}{6}$

$P(\text{" " by B}) = ?$

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

$P(B) = 1 - P(A) = 1 - \frac{5}{6} = \frac{1}{6}$.

$P(B) = \frac{1}{6}$

(10) A bag contains 15 cards. The no. 1, 2, 3, 4 ... 15 are printed on them. A card is drawn at random from the bag. Find the probability that no. on the card is
(i) a prime no. (ii) a no. divisible by 2.

Sol Total no. of cards = 15

Probability of event for prime no. b/w 1 to 15 –

Prime no. (2, 3, 5, 7, 11, 13)

no. divisible by 2 (2, 4, 6, 8, 10, 12, 14)

(i) $P(\text{prime no.}) = \frac{6}{15} = \frac{2}{5}$

(ii) $P(\text{getting a no. divisible by 2}) = \frac{7}{15}$