RD Sharma Class 10 Solutions Chapter 13 Probability Ex VSAQS

Question 1.

Cards each marked with one of the numbers 4, 5, 6, ... 20 are placed in a box and mixed thoroughly. One card is drawn at random from the box what is the probability of getting an even number ?

Solution:

No. of card having marks from 4 to 20 (n) = 17

One card is drawn at random

Even numbers on the cards are 4, 6, 8, 10, 12, 14, 16, 18, 20

Total (m) = 9

$\therefore$ Probability $= \frac{m}{n} = \frac{9}{17}$

Question 2.

One card is drawn from a well shuffled deck of 52 playing cards. What is the probability of getting a non-face card ?

Solution:

No. of cards in the deck of playing cards (n) = 52

No. of face cards = $3 \times 4 = 12$

Remaining non-face cards = $52 - 12 = 40$

$\therefore$ Probability of non-face card $= \frac{40}{52} = \frac{10}{13}$

Question 3.

A bag contains 5 red, 8 green and 7 white balls. One ball is drawn at random from the bag. What is the probability of getting a white ball or a green ball ?

Solution:

In a bag there are 5 red, 8 green and 7 white balls

$\therefore$ Total balls $(n) = 5 + 8 + 7 = 20$

One ball is drawn at random

No. of white or green balls $(m) = 8 + 7 = 15$

$\therefore$ Probability of being a green or white ball

$$= \frac{m}{n} = \frac{15}{20} = \frac{3}{4}$$

Question 4.

A die is thrown once. What is the probability of getting a prime number?

Solution:

Total numbers on a die $(n) = 6$ (from 1 to 6)

Prime numbers are 2, 3, 5 i.e. 3

$\therefore$ Probability $= \frac{m}{n} = \frac{3}{6} = \frac{1}{2}$

Question 5.

A die is thrown once. What is the probability of getting a number lying between 2 and 6 ?

Solution:

Total numbers on the die = 6 (from 1 to 6)

$\therefore$ Probability of number lying between 2 and 6

(i.e. 3, 4, 5) $= \frac{3}{6} = \frac{1}{2}$

Question 6.

A die is thrown once. What is the probability of getting an odd number ?

Solution:

Total number on a die are $(n) = 6$ (from 1 to 6)

$\therefore$ Odd numbers are 1, 3, 5 = 3

$\therefore$ Probability $= \frac{m}{n} = \frac{3}{6} = \frac{1}{2}$

Question 7.

If $\bar{E}$ denoted the complement or negation of an even E, what is the value of P(E) + P($\bar{E}$)?

Solution:

$\bar{E}$ denotes the complement of an even E

$\therefore \bar{E} + E = 1$

[$\because$ Sum of the probability of all outcomes (elementary evens) of an experiment is 1]

Question 8.

One card is drawn at random from a well shuffled deck of 52 cards. What is the probability of getting an ace ?

Solution:

Total number of cards in a deck $(n) = 52$

Number of aces in the deck $(m) = 4$

$$\therefore \text{Probability} = \frac{m}{n} = \frac{4}{52} = \frac{1}{13}$$

Question 9.

Two coins are tossed simultaneously. What is the probability of getting at least one head ?

Solution:

By tossing two coins are the following possibilities HH, HT, TH, TT = 4

Number of event having at least one head = 3

$$\text{Probability P (E)} = \frac{m}{n} = \frac{3}{4}$$

Question 10.

Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn bears a number which is a multiple of 3?

Solution:

Total number of tickets (from 1 to 20) = 20

One ticket is drawn at random

Number which are multiple of 3 are : 3, 6, 9, 12, 15, 18

Total numbers $(m) = 6$

$$\therefore \text{Probability} = \frac{m}{n} = \frac{6}{20} = \frac{3}{10}$$

Question 11.

From a well shuffled pack of cards, a card is drawn at random. Find the probability of getting a black queen.[C.B.S.E. 2008]

Solution:

No. of cards in a pack of cards $(n) = 52$

One card is drawn at random

No. of black queens $(n) = 2$

$\therefore$ Probability of getting a black queen

$$= \frac{m}{n} = \frac{2}{52} = \frac{1}{26}$$

Question 12.

A die is thrown once. Find the probability of getting a number less than 3. [CBSE 2008]

Solution:

Numbers on a die 1 to 6 $(n) = 6$

Number less than 3 are 1 and 2

$$\therefore \text{ Probability} = \frac{m}{n} = \frac{2}{6} = \frac{1}{3}$$

Question 13.

Two coines are tossed simultaneously. Find the probability of getting exactly one head. [CBSE 2009]

Solution:

$\because$ Two coins are tossed

$\therefore$ Possible outcome will be

(HH, HT, TH, TT)

Total = 4

$\therefore$ Actually outcomes will be

HT, TH = 2

$$\therefore \text{ P (E)} = \frac{\text{No. of actual outcomes}}{\text{No. of possible outcomes}}$$

$$= \frac{2}{4} = \frac{1}{2}$$

Question 14.

A die is thrown once. What is the probability of getting a number greater than 4 ? [CBSE 2010]

Solution:

Numbers greater then 4 on the dice are 5 and 6

$$\therefore \text{P (E)} = \frac{m}{n} = \frac{2}{6} = \frac{1}{3}$$

Question 15.

What is the probability that a number selected at random from the numbers 3, 4, 5,..., 9 is a multiple of 4 ? [CBSE 2010]

Solution:

Numbers 3, 4, 5, ..., 9 are 7

Multiples of 4 are 4, 8 = 2

$$\therefore \text{P (E)} = \frac{m}{n} = \frac{2}{7}$$

Question 16.

A letter of English alphabet is chosen at random. Determine the probability that the chosen letter is a consonant.

Solution:

Number of English alphabet = 26

Number of total outcomes = 26

Number of favourable outcomes = Consonants

= 26 – 5 = 21

$$\therefore \text{Probability} = \frac{21}{26}$$

Question 17.

A bag contains 3 red and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is not red? [CBSE 2017]

Solution:

Number of red balls = 3

Number of black balls = 5

Total number of balls = 3 + 5 = 8 balls

No. of favourable outcomes = 5

$$\therefore \text{Probability} = \frac{5}{8}$$

Question 18.

A number is chosen at random from the numbers, -3, -2, -1, 0,1, 2, 3. What will be the probability that the square of this number is less than or equal tori?

Solution:

Total number of outcomes = 7

Number of favourable outcomes = 3

i.e., –1, 0, 1

$\therefore$ Probability = $\frac{3}{7}$