Probability

Worksheet

Problem – 1.

If A be the event such that $P(\text{A}) = \frac{2}{5}$, then what is $P(\text{not } A)$?

Sol.

Problem – 2.

If an unbaised die is thrown, then what is the probability of getting a multiple of 3?

Sol.

Problem – 3.

Determine the probability of getting an odd number, when a single die is thrown.

Sol.

Problem – 4.

If two unbaised coins are tossed simultaneously, then find the probability of getting

(i) two heads (ii) no heads

Sol.

Problem – 5.

From a well shuffled pack of cards, a card is drawn at random. Find the probability of getting

(i) a jack card (ii) a face card

Sol.

Problem – 6.

A bag contains 4 red balls and 3 green balls. A ball is drawn at random. What is the probability that the ball drawn is green?

Sol.

Problem – 7.

Write the value of $P(E) + P(\overline{E})$, where E is an event.

Sol.

Problem – 8.

If $P(E_1)=\frac{1}{6}, P(E_2)=\frac{1}{3}$, $P(E_3)=\frac{1}{6}$, where E_1, E_2, E_3 and E_4 are elementary events of a random experiment, then what is the value of $P(E_4)$?

Sol.

State True or False for each of the following and justify your answer. (Q9 & Q10).

Problem – 9.

In any situation that has only two possible outcomes, each outcome will have probability $\frac{1}{2}$.

Sol.

Problem – 10.

When three coins are tossed together, the possible outcomes are no heads, 1 head, 2 heads and 3 heads. So, the probability of getting no heads is $\frac{1}{4}$.

Sol.

Problem – 11.

Two different dice are tossed together. Find the probability that the number on each die is even.

Sol.

Problem – 12.

A box contains 3 blue, 2 white and 4 red marbles. If a marble is drawn at random from the box, what is the probability that it will not be a red marble?

Sol.

Problem – 13.

Two dice are thrown at the same time and the product of numbers appearing on them is noted. Find the probability that the product is less than 10.

Sol.

Problem – 14.

A card is drawn at random from a well–shuffled pack of 52 playing cards. Find the probability of getting a red face card.

Sol.

Problem – 15.

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

Sol.

Problem – 16.

Two different dice are rolled simultaneously. Find the probability that the sum of numbers appearing on the two dice is 10.

Sol.

Problem – 17.

Two dice are thrown simultaneously. Find the probability of getting the sum

(i) 9 (ii) 1 (iii) a prime number

Sol.

Problem – 18.

A coin is tossed three times. Find the probability of getting:

(i) all tails (ii) at least two tails (iii) at most two tails

Sol.

Problem – 19.

A bag contains 7 green, 10 blue and 5 red balls. A ball is drawn at random. Find the probability of this ball being a:

(i) blue ball (ii) red ball or a green ball (iii) not a green ball

Sol.

Problem – 20.

A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is neither an ace nor a jack.

Sol.

Problem – 21.

All the jacks, queens and kings are removed from a deck of 52 playing cards and then well shuffled. Then one card is drawn at random. If an ace is given a value 1, find the probability that the card has a value:

(i) 5 (ii) less than 5 (iii) greater than 5

Sol.

Problem – 22.

An integer is chosen between 0 and 100. What is the probability that it is:

(i) divisible by 9? (ii) not divisible by 9?

Sol.

Problem – 23.

Cards marked with numbers 13, 14, 15, ..., 60 are placed in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that number on the card drawn is:

(i) divisible by 5 (ii) a perfect square

Sol.

Problem – 24.

Aman and Rajesh are friends. What is the probability that both will have:

(i) different birthdays? (ii) the same birthday? (Ignoring leap year)

Sol.

Problem – 25.

Two dice, one blue and one grey, are thrown at the same time. Write down all the possible outcomes. What is the probability that the sum of the two numbers appearing on the top of the dice is

(i) 8 (ii) 13 (iii) less than or equal to 12?

Sol.

Problem – 26.

A card is drawn at random from a well shuffled deck of 52 cards. Find the probability that the card is:

(i) a red card
(ii) a non–ace
(iii) a king or a jack
(iv) neither a king nor a queen

Sol.

Problem – 27.

A box contains 19 balls bearing numbers 1, 2, 3, ..., 19 respectively. A ball is drawn at random from the box. Find the probability that the number on the ball is

(i) a prime number
(ii) an even number
(iii) divisible by 3 or 5
(iv) neither divisible by 5 nor by 10

Sol.

Problem – 28.

A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 (see figure), and these are equally likely outcomes.
What is the probability that it will point at
(i) 8? (ii) an odd number?
(iii) a number greater than 2? (iv) a number less than 9?

Sol.

Problem – 29.

(i) A lot of 20 bulbs contain 4 defective ones. One bulb is drawn at random from the lot. What is the probability that this bulb is defective?

(ii) Suppose the bulb drawn in (i) is not defective and is not replaced. Now one bulb is drawn at random from the rest. What is the probability that this bulb is not defective?

Sol.

Problem – 30.

A lot consists of 144 ball pens of which 20 are defective and the others are good. Kiran will buy a pen if it is good, but will not buy if it is defective.

The shopkeeper draws one pen at random and gives it to her. What is the probability that

(i) She will buy it? (ii) She will not buy it?

Sol.

Problem – 31.

If 65% of the population have black eyes, 25% have brown eyes and the remaining have blue eyes. What is the probability that a person selected at random has

(i) Blue eyes (ii) Brown or black eyes (iii) Blue or black eyes (iv) neither blue nor brown eyes

Sol.

Problem – 32.

A bag contains 5 blue balls and some red balls. If the probability of drawing a red ball from the bag is thrice that of a blue ball, find the number of red balls in the bag.

Sol.

Sol.