

**Class: IX**

**Subject: Math**

**Topic: Probability**

**No. of Questions: 20**

**Duration: 60 Min**

**Maximum Marks: 60**

1. A die is rolled once. Which of the following options is the probability of getting a number greater than 6?

- A.  $\frac{5}{6}$   
B.  $\frac{1}{6}$   
C. 1  
D. 0

Sol: D

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

The number greater than 6 will never appear on a die.

$$\Rightarrow \text{Number of possible outcomes} = 0$$

$$\text{Total number of outcomes} = 6$$

$$\therefore \text{Probability} = \frac{0}{6} = 0$$

2. A coin is tossed 700 times. Heads appears 300 times and tails appears 400 times. If the coin is tossed again, the probability of getting a heads is

- A.  $\frac{3}{7}$   
B.  $\frac{4}{7}$   
C.  $\frac{1}{7}$   
D.  $\frac{3}{4}$

Sol. A

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

Number of favorable outcomes = 300, as heads has appeared 300 times.

Total number of possible outcomes = 700, as the coin is tossed 700 times.

$$\Rightarrow \text{Probability} = \frac{300}{700} = \frac{3}{7}$$

3. The percentage of marks obtained by Shubham in three monthly unit tests is given below.

Unit test	I	II	III
Percentage of marks obtained	60	58	61

Based on the above data, what is the probability that Shubham gets at least 60% marks in a unit test?

- A.  $1/3$   
 B.  $2/3$   
 C.  $1/6$   
 D.  $1/2$

Sol: B

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

Shubham has got at least 60% in 2 terms, i.e. I and III.

$\therefore$  Number of favourable outcomes = 2

Total number of possible outcomes or events = 3

$$\text{Then, required probability} = \frac{2}{3}$$

4. A coin is tossed 500 times. Heads appears 300 times and tails appears 200 times. If the coin is tossed again, what is the probability of not getting a tails?

- A.  $\frac{2}{5}$   
 B.  $\frac{2}{3}$   
 C.  $\frac{5}{4}$   
 D.  $\frac{5}{5}$

Sol: A

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

Number of favorable outcomes  
 = 200

Total number of possible outcomes = 500

$\therefore$  Probability =  $200/500 = 2/5$

5. A die is rolled 4 times. The frequency distribution of the numbers that appeared is given below.

Trial	I	II	III	IV
Numbers appeared	3	5	2	6

One number, out of the results obtained, is selected at random. What is the probability that the selected number is a prime number?

- A.  $\frac{3}{6}$
- B.  $\frac{3}{4}$
- C.  $\frac{2}{4}$
- D.  $\frac{1}{3}$

Sol: B

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

In the four rolls of a dice, prime numbers 2, 3 and 5 occurred in the first, second and third roll, respectively.

So, the number of favourable outcomes = 3

Total number of trials = 4

$$\therefore \text{Probability} = \frac{3}{4}$$

6. The sum of probabilities of all the possible outcomes of an event is always

- A. less than 1
- B. between - 1 and 1
- C. equal to 1
- D. equal to 2

Sol: C

The sum of probabilities of all the possible outcomes of an event is always equal to 1.

7. In a basket, there are 2 mangoes and 3 oranges. What is the probability that Piram will pick up a mango?

- A.  $\frac{2}{3}$   
 B.  $\frac{2}{5}$   
 C.  $\frac{3}{5}$   
 D.  $\frac{1}{5}$

Sol: B

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

There are 2 mangoes in a basket.

∴ Number of favourable outcomes = 2

Total number of fruits = 2 mangoes + 3 oranges = 5

$$\therefore \text{Probability} = \frac{2}{5}$$

8. Out of 15 balls in a box, 5 are white in colour, 3 are red in colour and 7 are yellow in colour. Dhron picks up a ball without looking at it.

- A.  $\frac{5}{4}$   
 B.  $\frac{1}{5}$   
 C.  $\frac{1}{4}$   
 D.  $\frac{4}{5}$

Sol: D

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

If the ball is not red, then it must be white or yellow.

∴ Number of favourable outcomes = number of white balls + number of yellow balls  
 = 5 + 7 = 12

Total number of balls = 15

$$\therefore \text{Probability} = \frac{12}{15} = \frac{4}{5}$$

9. In a class, there are 7 boys and 9 girls. A student is selected at random for a scholarship. What is the probability that the student will be a girl?

- A.  $\frac{9}{16}$
- B.  $\frac{7}{16}$
- C.  $\frac{7}{9}$
- D.  $\frac{16}{9}$

Sol: A

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

Number of favourable outcomes = Number of girls = 9

Total number of outcomes = Number of boys + Number of girls  
= 7 + 9 = 16

$$\text{Probability} = \frac{9}{16}$$

10. In a cricket match, a batsman hits the boundary on 4 out of 25 balls he plays. What is the probability that he hits the boundary on a ball he played?

- A.  $\frac{21}{25}$
- B.  $\frac{4}{25}$
- C.  $\frac{4}{4}$
- D.  $\frac{4}{29}$

Sol: B

$$\text{Probability} = \frac{\text{Number of times the event has happened}}{\text{Total number of trials}}$$

Number of favourable outcomes  
 = Number of times the batsman hits a boundary  
 = 4

Total number of outcomes = Number of balls he plays  
 = 25

$$\therefore \text{Probability} = \frac{4}{25}$$

11. 21 boys and 23 girls participate in a painting competition. What is the probability that a girl wins the competition?

- A.  $\frac{23}{21}$   
 B.  $\frac{44}{44}$   
 C.  $\frac{23}{23}$   
 D.  $\frac{44}{44}$

Sol: D

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

Number of possible outcomes = number of girls = 23  
 Total number of outcomes = number of boys + number of girls = 21 + 23 = 44

$$\therefore \text{Probability that a girl wins} = \frac{\text{Number of girls}}{\text{Total number of students}} = \frac{23}{44}$$

12. In a box, there are 7 blue pens and 4 red pens. Ankit picks up a pen without looking at it. What is the probability that it will be a red pen?

- A.  $\frac{4}{11}$   
 B.  $\frac{7}{11}$   
 C.  $\frac{4}{7}$   
 D.  $\frac{11}{4}$

Sol: A

$$\begin{aligned} \text{Probability of getting a red pen} &= \frac{\text{Number of red pens}}{\text{Total number of pens}} \\ &= \frac{4}{7+4} = \frac{4}{11} \end{aligned}$$

13. In a bag, there are 5 books of Mathematics, 6 books of English and 7 books of Science. Amit picks up a book without looking at it. What is the probability that it will be a Science book?

- A.  $\frac{7}{11}$   
 B.  $\frac{11}{18}$   
 C.  $\frac{7}{18}$   
 D.  $\frac{5}{6}$

Sol: C

$$\begin{aligned} \text{Probability that the chosen book is a science book} &= \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}} \\ &= \frac{\text{Number of science books}}{\text{Total number of books}} \\ &= \frac{7}{5+6+7} = \frac{7}{18} \end{aligned}$$

14. Ashmit, Alina and Ankur are participating in a race. What is the probability that Ashmit will lose?

- A.  $\frac{1}{3}$   
 B.  $\frac{2}{3}$   
 C.  $\frac{2}{3}$   
 D.  $\frac{2}{5}$

Sol: B

$$\begin{aligned} \text{Required probability} &= \text{Probability that Ashmit will lose} \\ &= \text{Probability that Alina and Ankur will win} \end{aligned}$$

$$= \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}} = \frac{2}{3}$$

15. In a bouquet, there are 5 red roses, 6 white roses and 4 pink roses. Chestha picks up a rose without looking at it. What is the probability that it will be a red rose?

- A.  $\frac{2}{3}$
- B.  $\frac{1}{3}$
- C.  $\frac{15}{5}$
- D.  $\frac{1}{5}$

Sol: B

$$\begin{aligned} \text{Probability} &= \frac{\text{Number of red roses}}{\text{Total number of roses}} \\ &= \frac{5}{5+6+4} = \frac{5}{15} = \frac{1}{3} \end{aligned}$$

16. What is the probability of getting two heads?

- A.  $\frac{1}{4}$
- B.  $\frac{1}{2}$
- C.  $\frac{3}{4}$
- D. 1

Sol: A

$$\text{In the given situation, probability of getting two heads} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}} = \frac{1}{4}$$



17. A basket contains 12 oranges, 7 apples, 5 mangoes and 4 bananas. Sukhmeet picks up a fruit without looking at it. What is the probability that it will be an apple?

- A.  $\frac{1}{4}$   
B.  $\frac{3}{4}$   
C.  $\frac{1}{3}$   
D.  $\frac{1}{7}$

Sol: A

$$\begin{aligned}\text{Probability of picking an apple} &= \frac{\text{Number of apples}}{\text{Total number of fruits}} \\ &= \frac{7}{12+5+7+4} = \frac{7}{28} = \frac{1}{4}\end{aligned}$$

18. In an election, there are 135 male candidates and 105 female candidates. What is the probability that a female candidate will win the election?

- A.  $\frac{7}{9}$   
B.  $\frac{9}{16}$   
C.  $\frac{7}{7}$   
D.  $\frac{7}{16}$

Sol: D

$$\begin{aligned}\text{Probability} &= \frac{\text{Number of female candidates}}{\text{Total number of candidates}} \\ &= \frac{105}{135+105} = \frac{105}{240} = \frac{7}{16}\end{aligned}$$

19. In a bag, there are 4 blue balls, 7 red balls, 5 green balls and 8 pink balls. Ram picks up a ball without looking at it. What is the probability that it will not be a green ball?

- A.  $\frac{5}{24}$   
B.  $\frac{19}{24}$   
C.  $\frac{5}{19}$   
D.  $\frac{18}{24}$

Sol: B

$$\begin{aligned} \text{Probability of not picking a green ball} &= \frac{\text{Total number of balls} - \text{number of green balls}}{\text{Total number of balls}} \\ &= \frac{24 - 5}{4 + 7 + 5 + 8} = \frac{24 - 5}{24} = \frac{19}{24} \end{aligned}$$

20. In a shooting competition, the probability that Ramesh will hit the target is 0.7. What is the probability that he will miss the target?

- A. 0.6  
B. 1.7  
C. 0.7  
D. 0.3

Sol: D

$$\begin{aligned} \text{Probability of missing the target} &= 1 - \text{probability of hitting the target} \\ &= 1 - 0.7 \\ &= 0.3 \end{aligned}$$