

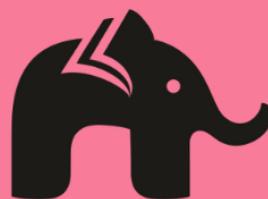
# PRACTICE MCQS

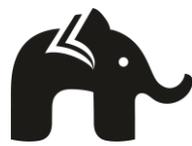
CLASS 10 MATHS (TERM - I)

**PROBABILITY**

BY

**learn-o-hub**  
learning simplified





**Question 1:**

There are 40 students in class X of a school of whom 25 are girls and 15 are boys. The probability to select one boy student is

- (a)  $\frac{1}{4}$
- (b)  $\frac{5}{8}$
- (c)  $\frac{3}{8}$
- (d)  $\frac{1}{8}$

**Answer: (c)  $\frac{3}{8}$**

Total number of students in the class = 40

So, the number of all possible outcome to select one student = 40

There are 15 boys in the class.

So, favourable outcomes for selecting one boy = 15

Now,  $P(\text{select a boy}) = \frac{15}{40} = \frac{3}{8}$

**Question 2:**

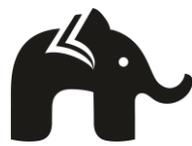
Two fair coins are tossed. What is the probability of getting at the most one head?

- (a)  $\frac{3}{4}$
- (b)  $\frac{1}{4}$
- (c)  $\frac{1}{2}$
- (d)  $\frac{3}{8}$

**Answer: (a)  $\frac{3}{4}$**

When two fair coins are tossed, then total possible outcomes are 4 i.e.

{HH, HT, TH, TT}



Getting at most one head means either one head or no head = {TT, TH, HT}

So, favourable outcome = 3

Now,  $P(\text{at most one head}) = 3/4$

**Question 3:**

Suppose we throw a die once. What is the probability of getting a number less than or equal to 4?

- (a)  $1/6$
- (b)  $2/3$
- (c)  $5/6$
- (d)  $3/4$

**Answer:(b)  $2/3$**

Let E be the event 'getting a number less than or equal to 4'.

When we throw a dice, the number of possible outcomes = 6 (1, 2, 3, 4, 5, 6)

Outcomes favourable to the event E is 4(1, 2, 3, 4)

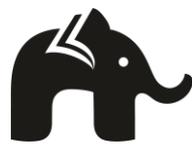
So, the number of outcomes favourable to E is 4.

Therefore,  $P(F) = 4/6 = 2/3$

**Question 4:**

One card is drawn from a well-shuffled deck of 52 cards. Calculate the probability that the card will not be an ace.

- (a)  $1/26$
- (b)  $1/13$
- (c)  $1/52$
- (d)  $12/13$



**Answer: (d) 12/13**

Let E be the event 'card drawn is not an ace'.

There are 52 cards in a well-shuffled deck.

So, the number of possible outcomes = 52

There are 4 aces in a deck.

So, the number of outcomes favourable to the event E =  $52 - 4 = 48$

Therefore,  $P(F) = 48/52 = 12/13$

**Question 5:**

A card is drawn from a well shuffled deck of cards. What is the probability that the card drawn is neither a king nor a queen?

(a) 11/13

(b) 12/13

(c) 11/26

(d) 11/52

**Answer: (a) 11/13**

Total number of possible outcomes = 52

Let E be the event that the drawn card is neither a king nor a queen.

Total number of kings and queens =  $4+4=8$

So, there are  $52 - 8=44$  cards that are neither king nor queen.

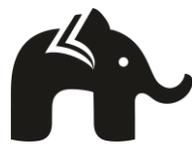
Total number of favourable outcomes = 44

Hence, required probability,

$P(E) = \text{Total number of outcomes}/\text{Favourable outcomes}$

$$= 44/52$$

$$= 11/13$$

**Question 6:**

Two dice are thrown at the same time. What is the probability that different numbers appear on the top of the both dice?

- (a)  $1/6$
- (b)  $1/36$
- (c)  $5/6$
- (d)  $1/3$

**Answer: (c)  $5/6$**

When two dice are thrown, total possible outcomes = 36

(1, 1) (1, 2) (1, 3) (1, 4) (1, 5) (1, 6)  
(2, 1) (2, 2) (2, 3) (2, 4) (2, 5) (2, 6)  
(3, 1) (3, 2) (3, 3) (3, 4) (3, 5) (3, 6)  
(4, 1) (4, 2) (4, 3) (4, 4) (4, 5) (4, 6)  
(5, 1) (5, 2) (5, 3) (5, 4) (5, 5) (5, 6)  
(6, 1) (6, 2) (6, 3) (6, 4) (6, 5) (6, 6)

Out of 36, same number on both dice appears 6 times.

i.e. (1, 1) (2, 2) (3, 3) (4, 4) (5, 5) (6, 6)

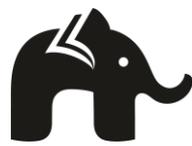
So, different numbers appear on the top of the both dice =  $36 - 6 = 30$

Now,  $P(\text{different numbers appear on the top of the both dice}) = 30/36 = 5/6$

**Question 7:**

Which of the following can be the probability of an event?

- (a) -0.4
- (b) 1.004
- (c)  $18/23$
- (d)  $10/7$



**Answer: (c) 18/23**

The probability of an event E can neither be a negative value, nor it can exceed unity. i.e.  $0 \leq P(E) \leq 1$ .

From the above options, 18/23 lies between 0 and 1.

**Question 8:**

The letters of the word SOCIETY are placed at random in a row. The probability of getting a vowel is

- (a) 1/7
- (b) 2/7
- (c) 3/7
- (d) 4/7

**Answer: (c) 3/7**

Given, word is SOCIETY

Total letters = 7

No. of vowel = 3 [Since vowel are O, I, E]

So,  $P(\text{selecting a vowel}) = 3/7$

**Question 9:**

Cards bearing numbers 3 to 20 are placed in a bag and mixed thoroughly. A card is taken out from the bag at random. The probability that the number on the card taken out is a prime number, is

- (a) 1/20
- (b) 3/4
- (c) 7/18
- (d) 2/9



**Answer: (c) 7/18**

Cards bearing numbers 3 to 20 are placed in a bag.

Total cards = 18

Cards with prime numbers are 3, 5, 7, 11, 13, 17, 19 = 7

So,  $P(\text{prime number}) = 7/18$

**Question 10:**

A girl calculates that the probability of her winning the first prize in a lottery is  $9/100$ . If 5,000 tickets are sold, how many tickets has she bought?

- (a) 1000
- (b) 775
- (c) 450
- (d) 300

**Answer: (c) 450**

Total tickets sold = 5000

Winning probability =  $9/100$

Now, number of ticket bought =  $(9/100) * 5000 = 450$

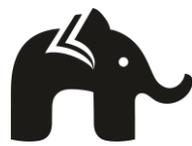
**Question11:**

Following table shows the birth month of 40 students of class X.

Jan	Feb	March	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
3	4	2	2	5	1	2	5	3	4	4	4

The probability that a student was born in August, is

- (a)  $2/5$
- (b)  $3/7$



(c)  $7/15$

(d)  $1/8$

**Answer: (d)  $1/8$**

Total number of students = 40

So, total possible outcome to select a student = 40

Let A be the event that the birth of a chosen student is in August.

So, favourable outcome = 5

Now,  $P(A) = 5/40 = 1/8$

**Question12:**

A fair dice is rolled. Probability of getting a number  $x$  such that  $1 \leq x \leq 6$ , is

(a) 0

(b)  $> 1$

(c) between 0 and 1

(d) 1

**Answer: (d) 1**

When a dice is rolled, total possible outcome = 6 i.e. 1, 2, 3, 4, 5, 6

We have to select a number  $x$  such that  $1 \leq x \leq 6$ .

So, it is a sure event.

Therefore, probability of this event is 1.

**Question13:**

Match the following:

1. Probability of sure event

A.  $1/2$

2. Probability of impossible event

B. 0



3. A and B are complementary events

C. 1

D.  $P(B) = 1 - P(A)$

E.  $P(A) = P(B)$

(a)  $(1) \rightarrow (A), (2) \rightarrow (B), (3) \rightarrow (C)$

(b)  $(1) \rightarrow (B), (2) \rightarrow (A), (3) \rightarrow (C)$

(c)  $(1) \rightarrow (C), (2) \rightarrow (B), (3) \rightarrow (E)$

(d)  $(1) \rightarrow (C), (2) \rightarrow (B), (3) \rightarrow (D)$

**Answer: (d)  $(1) \rightarrow (C), (2) \rightarrow (B), (3) \rightarrow (D)$**

Probability of a sure/certain event is always 1.

Probability of an impossible event is always 0.

A and B are complementary events i.e.  $P(B) = 1 - P(A)$

**Question14:**

Two dice are thrown simultaneously. The probability of getting a sum of 9 is

(a)  $1/10$

(b)  $3/10$

(c)  $1/9$

(d)  $4/9$

**Answer: (c)  $1/9$**

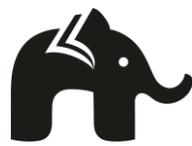
Total possible outcome when two dice are thrown = 36

Total cases in which sum of 9 can be obtained are:

$(5, 4), (4, 5), (6, 3), (3, 6)$

So, favourable outcome = 4

Now,  $P(\text{sum of } 9) = 4/36 = 1/9$



**Question15:**

A bag contains 5 red balls and some blue balls.If the probability of drawing a blue ball is double that of a red ball, then the number of blue balls in a bag is:

- (a) 5
- (b) 10
- (c) 15
- (d) 20

**Answer: (b) 10**

Let the number of blue balls be  $x$ .

Then total number of balls will be  $5 + x$ .

According to question,

$$x/(5 + x) = 2 * \{5/(5 + x)\}$$

$$\Rightarrow x/(5 + x) = 10/(5 + x)$$

$$\Rightarrow x = 10$$

**Question 16:**

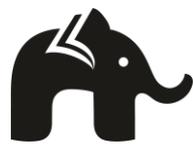
A number  $x$  is chosen at random from the numbers  $-2, -1, 0, 1, 2$ . Then the probability that  $x^2 < 2$  is?

- (a)  $1/5$
- (b)  $2/5$
- (c)  $3/5$
- (d)  $4/5$

**Answer: (c)  $3/5$**

Explanation: We have 5 numbers  $-2, -1, 0, 1, 2$

Whose squares are  $4, 1, 0, 1, 4$



So, square of 3 numbers is less than 2

Therefore, Probability is:

$$P(x^2 < 2) = 3/5$$

**Question 17:**

A card is drawn from a deck of 52 cards. The event E is that card is not an ace of hearts. The number of outcomes favourable to E is

- (a) 4
- (b) 13
- (c) 48
- (d) 51

**Answer: (d) 51**

In a deck of 52 cards, there are 13 cards of heart and 1 is ace of heart.

Given that the event E is that card is not an ace of hearts.

So, the number of outcomes favourable to E =  $52 - 1 = 51$

**Question 18:**

Two players, Sarla and Vimla, play a tennis match. It is known that the probability of Sarla winning the match is 0.62. The probability of Vimla winning the match is

- (a) 0.62
- (b) 0.38
- (c) 0.58
- (d) 0.42

**Answer: (b) 0.38**



Probability of Sarla's winning =  $P(S) = 0.62$

Probability of Vimla's winning =  $P(R)$

$$= 1 - P(S)$$

{Since events S and V are complementary}

$$= 1 - 0.62$$

$$= 0.38$$

**Question 19:**

A letter of English alphabets is chosen at random. What is the probability that it is a letter of the word 'MATHEMATICS'?

(a)  $2/7$

(b)  $5/21$

(c)  $4/13$

(d)  $1/9$

**Answer: (c)  $4/13$**

Total letters in English alphabet = 26

So, total possible outcome = 26

Given word is: MATHEMATICS

The letters of the word are {M, A, T, H, E, I, C, S}

The number of such letters is 8.

So, favourable outcome = 8

Now, required probability =  $8/26 = 4/13$

**Question 20:**

Two fair dice are rolled simultaneously. The probability that 5 will come up at least once is



- (a)  $5/36$
- (b)  $11/36$
- (c)  $12/36$
- (d)  $23/36$

**Answer: (b)  $11/36$**

Total possible outcome when two dice are thrown = 36

Total cases in which 5 will come up at least once are:

(1, 5), (2, 5), (3, 5), (4, 5), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 5)

So, favourable outcome = 11

Now,  $P(5 \text{ will come up at least once}) = 11/36$

**Question 21:**

Two dice are through together. The probability that the product of the numbers on the top of two dice is more than 36, is

- (a) 0
- (b) 1
- (c)  $1/6$
- (d)  $1/36$

**Answer: (a) 0**

Total possible outcome when two dice are thrown = 36

Total cases in product of the numbers on the top of two dice are more than 36 = 0.

So, favourable outcome = 0

Now, required probability =  $0/36 = 0$



**Question 22:**

A bag contains 4 white, 5 red and 6 blue balls. One ball is drawn at random from the bag. The probability that it is of red colour is,

- (a)  $4/15$
- (b)  $1/3$
- (c)  $2/5$
- (d)  $1/6$

**Answer: (b)  $1/3$**

Given, a bag contains 4 white, 5 red and 6 blue balls.

Total number of balls =  $4 + 5 + 6 = 15$

Total number of red balls = 5

So, favourable outcome = 5

Now,  $P(\text{a red ball}) = 5/15 = 1/3$

**Question 23:**

Three different coins are tossed together. The probability of getting exactly two heads is

- (a)  $4/7$
- (b)  $3/8$
- (c)  $1/2$
- (d)  $1/4$

**Answer: (b)  $3/8$**

When three coins are tossed together, the possible outcomes are:

{HHH, HTH, HHT, THH, THT, TTH, HTT, TTT}

So, total number of possible outcomes = 8



Favourable outcomes of exactly two heads are: {HTH, HHT, THH}

So, total number of favourable outcomes = 3

Now,  $P(\text{exactly two heads}) = \frac{3}{8}$

## Case study based questions

### Question 24:

Read the following information and answer the given questions.



Somil has two different boxes. The first box contains 50 discs which are numbered from 1 to 50 and the second box contains another 50 discs which are numbered from 51 to 100. Now he takes all the discs from both boxes and put into a third box and draws one disc among all of them. Find the probability that it bears

(i). A number which has 1 as its units digit

(a)  $\frac{1}{5}$

(b)  $\frac{1}{10}$

(c)  $\frac{1}{15}$

(d)  $\frac{1}{20}$



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(ii). A perfect square number

- (a)  $1/5$
- (b)  $1/10$
- (c)  $1/15$
- (d)  $1/20$

(iii). A number divisible by 5

- (a)  $1/5$
- (b)  $1/10$
- (c)  $1/15$
- (d)  $1/20$

(iv). A three digit number

- (a)  $1/10$
- (b)  $1/20$
- (c)  $1/50$
- (d)  $1/100$

(v). A number which contains at least one zero

- (a)  $1/5$
- (b)  $1/10$
- (c)  $1/15$
- (d)  $1/20$

**Answers:**

Total number of discs = 100



i.e. 1, 2, 3, 4, ....., 100

So, total possible outcomes = 100

**(i). (b)  $1/10$**

Total numbers which has unit digit 1 are:

1, 11, 21, 31, 41, 51, 61, 71, 81, and 91

So, favourable possible outcomes = 10

Now, required probability =  $10/100 = 1/10$

**(ii). (b)  $1/10$**

Perfect numbers from 1 to 100 are:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

So, favourable possible outcomes = 10

Now, required probability =  $10/100 = 1/10$

**(iii). (a)  $1/5$**

Numbers which are divisible by 5 from 1 to 100 are:

5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

So, favourable possible outcomes = 20

Now, required probability =  $20/100 = 1/5$

**(iv). (d)  $1/100$**

Three digit numbers from 1 to 100 is: 100

So, favourable possible outcomes = 1

Now, required probability =  $1/100$

**(v). (b)  $1/10$**



Numbers which contains at least one zero from 1 to 100 are:

10, 20, 30, 40, 50, 60, 70, 80, 90, 100

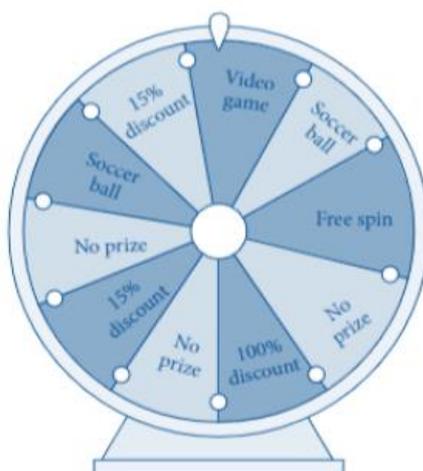
So, favourable possible outcomes = 10

Now, required probability =  $10/100 = 1/10$

**Question 25:**

In a toy shop, there is a spinning wheel for their customers. The spinning wheel has different types of prizes as shown in the figure. A customer can only spin the wheel after buying something from the shop.

Read the text and answer the following questions.



(i). If Rahul spins the wheel, the probability that he gets 15% discount, is

- (a)  $1/2$
- (b)  $1/3$
- (c)  $1/4$
- (d)  $1/5$

(ii). If Sheela spins the wheel, the probability that she gets no discount, is

- (a)  $1/10$
- (b)  $1/5$



(c)  $3/10$

(d)  $5/7$

(iii). If Rekha spins the wheel, the probability that she gets 100% discount, is

(a) 0

(b) 1

(c)  $1/10$

(d)  $1/5$

(iv). If Karan spins the wheel, the probability that he gets free spin, is

(a)  $1/5$

(b)  $1/10$

(c)  $2/5$

(d)  $1/4$

(v). If Priya spins the wheel, the probability that she gets Soccer ball, is

(a)  $1/10$

(b)  $1/5$

(c)  $3/10$

(d)  $1/4$

**Answers:**

Total number of blocks in the wheel = 10

So, total possible outcome = 10

**(i). (d)  $1/5$**

In the wheel, 15% discount has two blocks



So, favourable outcomes = 2

Now, required probability =  $2/10 = 1/5$

**(ii). (c)  $3/10$**

In the wheel, no prize has three blocks

So, favourable outcomes = 3

Now, required probability =  $3/10$

**(iii). (c)  $1/10$**

In the wheel, 100% discount has only one block

So, favourable outcomes = 1

Now, required probability =  $1/10$

**(iv). (b)  $1/10$**

In the wheel, free spin has only one block

So, favourable outcomes = 1

Now, required probability =  $1/10$

**(v). (b)  $1/5$**

In the wheel, Soccer ball has two blocks

So, favourable outcomes = 2

Now, required probability =  $2/10 = 1/5$

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