

|                     |                 |   |
|---------------------|-----------------|---|
| <b>BOARD – ICSE</b> | <b>CLASS –7</b> | <b>TOPIC – PROBABILITY SOLVED QUESTIONS</b> |
|---------------------|-----------------|---|

1. A coin is tossed 300 times and we get head: 136 times and tail: 164 times.  
When a coin is tossed at random, What is the probability of getting (i) a head, (ii) a tail?

**ANSWER:**

Total number of trials = 300

Number of times a head is obtained = 136

Number of times a tail is obtained = 164

(i) Probability of getting head = Number of times heads is obtained/ Total number of trials  
 $= 136/300 = 34/75$

(ii) Probability of getting a tail = Number of times tails is obtained/Total number of trials  
 $= 164/300 = 41/75$

- 2: Two coins are tossed simultaneously 200 times and we get two heads: 58 times, one head: 83 times: 0 head: 59 times.

When two coins are tossed at random, what is the probability of getting (i) 2 heads, (ii) 1 head, (iii) 0 head?

**ANSWER:**

Total number of trials = 200

Number of times 2 heads are obtained = 58

Number of times one head is obtained = 83

Number of times no head is obtained = 59

(i) Probability of getting 2 heads  
= Number of times 2 heads have been obtained/Total number of trials  
 $= 58/200$   
 $= 29/100$

(ii) Probability of getting 1 head = Number of times 1 head has been obtained/ Total number of trials  
 $= 83/200$

iii) Probability of getting 0 head = Number of times head has not been obtained/Total number of trials  
 $= 59/200$

3: A dice is thrown 100 times and the outcomes are noted as given below:

|           |    |    |    |    |    |   |
|-----------|----|----|----|----|----|---|
| Outcome   | 1  | 2  | 3  | 4  | 5  | 6 |
| Frequency | 21 | 14 | 18 | 15 | 23 | 9 |

When a dice is thrown at random, what is the probability of getting a (i) 3, (ii) 6, (iii) 6, (iv) 1?

**ANSWER:**

Total number of trials = 100

Number of times 3 is obtained = 18

Number of times 6 is obtained = 9

Number of times 4 is obtained = 15

Number of times 1 is obtained = 21

(i) Probability of getting a 3 =  $\frac{\text{Number of times 3 is obtained}}{\text{Total number of trials}} = \frac{18}{100} = \frac{9}{50}$

(ii) Probability of getting a 6 =  $\frac{\text{Number of times 6 is obtained}}{\text{Total number of trials}} = \frac{9}{100}$

(iii) Probability of getting a 4 =  $\frac{\text{Number of times 4 is obtained}}{\text{Total number of trials}} = \frac{15}{100} = \frac{3}{20}$

(iv) Probability of getting a 1 =  $\frac{\text{Number of times 1 is obtained}}{\text{Total number of trials}} = \frac{21}{100}$

4: In a survey of 100 ladies it was found that 36 like coffee while 64 dislike it.

Out of these ladies, one is chosen at random. What is the probability that the chosen lady (i) likes coffee, (ii) dislikes coffee?

**ANSWER:**

Total number of ladies surveyed = 100

Ladies who like coffee = 36

Ladies who do not like coffee = 64

(i) Probability of choosing a lady who likes coffee =  $\frac{\text{Number of ladies who like coffee}}{\text{Total number of ladies}} = \frac{36}{100} = \frac{9}{25}$

(ii) Probability of choosing a lady who dislikes coffee =  $\frac{\text{Number of ladies who dislike coffee}}{\text{Total number of ladies}} = \frac{64}{100} = \frac{16}{25}$

5. A coin is tossed 1000 times with the following frequencies:

Head: 445, Tail: 555

When a coin is tossed at random, what is the probability of getting (i) a head? (ii) a tail?

**ANSWER:**

Total number of times a coin is tossed = 1000

Number of times a head comes up = 445

Number of times a tail comes up = 555

(i) Probability of getting a head

$$= \text{Number of heads} / \text{Total no. of trails} = 445 / 1000 = 0.445$$

(ii) Probability of getting a tail = Number of tails / Total no. of trails =  $555 / 1000 = 0.555$

6: A die is thrown 100 times and outcomes are noted as given below:

|            |    |   |    |    |    |    |
|------------|----|---|----|----|----|----|
| Outcome:   | 1  | 2 | 3  | 4  | 5  | 6  |
| Frequency: | 21 | 9 | 14 | 23 | 18 | 15 |

If a die is thrown at random, find the probability of getting  $a/an$ .

(i) 3

(ii) 5

(iii) 4

(iv) Even number

(v) Odd number

(vi) Number less than 3.

**ANSWER:**

Total number of trials = 100

Number of times "1" comes up = 21

Number of times "2" comes up = 9

Number of times "3" comes up = 14

Number of times "4" comes up = 23

Number of times "5" comes up = 18

Number of times "6" comes up = 15

(i) Probability of getting 3

$$= \text{frequency of 3} / \text{Total no. of trails} = 14 / 100 = 0.14$$

(ii) Probability of getting 5

$$= \text{frequency of 5} / \text{Total no. of trails} = 18 / 100 = 0.18$$

(iii) Probability of getting 4

$$= \text{frequency of 4} / \text{Total no. of trails} = 23 / 100 = 0.23$$

(iv) Frequency of getting an even no. = Frequency of 2 + Frequency of 4 + Frequency of

$$6 = 9 + 23 + 15 = 47$$

Probability of getting an even no. = frequency of even no. / Total no. of trails =  $47 / 100 = 0.47$

(v) Frequency of getting an odd no. = Frequency of 1 + Frequency of 3 + Frequency of

$$5 = 21 + 14 + 18 = 53$$

Probability of getting an odd no. = frequency of odd no. / Total no. of trails =  $53 / 100 = 0.53$

(vi) Frequency of getting a no. less than 3 = Frequency of 1 + Frequency of 2 =  $21 + 9 = 30$

Probability of getting a no. less than 3

= frequency of no. less than 3 / Total no. of trials =  $30/100 = 0.30$

- 7: A box contains two pair of socks of two colours (black and white). I have picked out a white sock. I pick out one more with my eyes closed. What is the probability that I will make a pair?

**ANSWER:**

No. of socks in the box = 4

Let B and W denote black and white socks respectively.

Then we have:

$S = \{B, B, W, W\}$

If a white sock is picked out, then the total no. of socks left in the box = 3

No. of white socks left =  $2 - 1 = 1$

Probability of getting a white sock

= Number of white socks left in the box / Total no. of socks left in the box =  $1/3$

- 8: There are 10 cards numbered from 1 to 10. A card is drawn randomly. The probability of getting an even numbered card is

**ANSWER:**

The number on the cards are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

The even numbers on the cards are 2, 4, 6, 8, 10.

∴ Probability of getting an even numbered card

= Number of even numbered card / Number of cards with numbers from 1 to 10

=  $5/10 = 1/2$

- 9: A dice is rolled. The probability of getting an even prime is

**ANSWER:**

The possible numbers on a dice are 1, 2, 3, 4, 5, 6.

There is only one even prime number which is 2.

∴ Probability of getting an even prime

= Number of even prime numbers / Number of all possible outcomes on the dice =  $1/6$

- 10: There are 10 marbles in a box which are marked with the distinct numbers from 1 to 10. A marble is drawn randomly. The probability of getting prime numbered marble is.

**ANSWER:**

The numbers marked on the marbles are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

Here, the prime numbers (favorable outcomes) are 2, 3, 5, and 7.

$\therefore$  Number of favorable outcomes = 4

Therefore

Probability of getting prime numbered marble =  $4/10 = 2/5$

**11:** The probability of getting a red card from a well shuffled pack of cards is

**ANSWER:**

There are 52 cards in a standard deck. There are four different suits Diamonds (red), Clubs (black) Hearts (red), and Spades (black) each containing 13 cards.

$\therefore$  Number of red cards (favorable outcomes) =  $13 + 13 = 26$

Therefore

Probability of getting a red card =  $26/52 = 1/2$

**12:** A dice is tossed 80 times and number 5 is obtained 14 times. The probability of not getting the number 5 is

**ANSWER:**

Probability of getting 5 =  $14/80 = 7/40$

Therefore

Probability of not getting 5 =  $1 - 7/40 = 33/40$

**13.** A coin is tossed 100 times and head is obtained 59 times. The probability of getting a tail is

**ANSWER:**

Number of all possible outcomes = 100

Number of head obtained = 59

Number of tail obtained (favorable outcomes) =  $100 - 59 = 41$

Therefore

Probability of getting a tail =  $41/100$