Class 7 - Chapter 25 Data Handling - IV (Probability)

MATHEMATICS
CLASS VII
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DHANPAT RAI PUBLICATIONS

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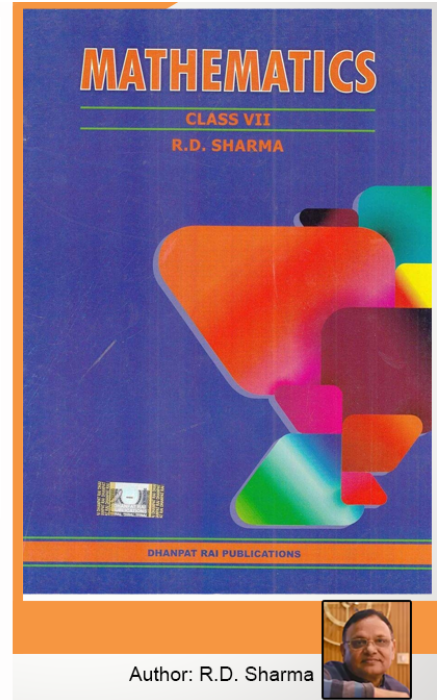
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1. A coin is tossed 1000 times with the following frequencies:

Head: 445, Tail: 555

When a coin is tossed at random, what is the probability of getting?

(i) A head?

(ii) A tail?

Solution:

Given 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 head = number of heads/total number of trails

= (445/1000)

= 0.445

(ii) Probability of getting tail = number of tail/total number of trails

= (555/1000)

= 0.555

2. 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.

Solution:

Given total number of trials = 100

(i) From the table, number of times 3 comes up = 14

Probability of getting 3 = frequency of 3/ total number of trails

= 14/100

= 7/50

(ii) From the table, number of times 5 comes up = 18

Probability of getting 5 = frequency of 5/ total number of trails

= 18/100

= 9/50

(iii) From the table, number of times 4 comes up = 23

Probability of getting 4 = frequency of 4/ total number of trails

= 23/100

(iv) Frequency of getting an even number = Frequency of 2 + Frequency of 4 + Frequency of 6

= 9 + 23 + 15

= 47

Probability of getting an even number = frequency of an even number/ total number of trails

= 47/100

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(v) Frequency of getting an even number = Frequency of 1 + Frequency of 3 + Frequency of 5

= 21 + 14 + 18

= 53

Probability of getting odd number = frequency of odd number/ total number of trails

= 53/100

(vi) Frequency of getting number less than 3 = Frequency of 1 + Frequency of 2

= 21 + 9

= 30

Probability of getting number less than 3 = frequency of number less than 3/ total number of trails

= 30/100

= 3/10

3. 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?

Solution:

Given number 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

Number of white socks left = 2 – 1 = 1

Probability of getting white socks = number of white socks left in the box/ total number of socks left in the box

= 1/3

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4. Two coins are tossed simultaneously 500 times and the outcomes are noted as given below:

Outcome:	Two heads (HH)	One head (HT or TH)	No head (TT)
Frequency:	105	275	120

If same pair of coins is tossed at random, find the probability of getting:

(i) Two heads

(ii) One head

(iii) No head.

Solution:

Given number of trials = 500

From the given table it is clear that,

Number of outcomes of two heads (HH) = 105

Number of outcomes of one head (HT or TH) = 275

Number of outcomes of no head (TT) = 120

(i) Probability of getting two heads = frequency of getting 2 heads/ total number of trials

= 105/500

= 21/100

(ii) Probability of getting one head = frequency of getting 1 heads/ total number of trials

= 275/500

= 11/20

(iii) Probability of getting no head = frequency of getting no heads/ total number of trials

= 120/500

= 6/25

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About RD Sharma

RD Sharma i*sn't the kind of author you'd bump into at lit fests. But his bestselling books have helped many* CBSE *students lose their dread of* maths. *Sunday Times profiles the tutor turned internet star*

He dreams of algorithms that would give most people nightmares. And, spends every waking hour thinking of ways to explain concepts like 'series solution of linear differential equations'. Meet Dr Ravi Dutt Sharma — mathematics teacher and author of 25 reference books — whose name evokes as much awe as the subject he teaches. And though students have used his thick tomes for the last 31 years to ace the dreaded maths exam, it's only recently that a spoof video turned the tutor into a YouTube star.

R D Sharma had a good laugh but said he shared little with his on-screen persona except for the love for maths. "I like to spend all my time thinking and writing about maths problems. I find it relaxing," he says. When he is not writing books explaining mathematical concepts for classes 6 to 12 and engineering students, Sharma is busy dispensing his duty as vice-principal and head of department of science and humanities at Delhi government's Guru Nanak Dev Institute of Technology.

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