

RD Sharma
Solutions

Class 7

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Chapter - 25
Data handling - IV
(Probability)

Exercise 25-1

Q.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 coin tossed = 1000.

Head comes up = 445 times

Tail comes up = 555 times

(i) Probability of head comes up = $\frac{445}{1000} = 0.445$

(ii) Probability of tail comes up = $\frac{\text{number of tails}}{\text{Total no. of trials}}$

$$= \frac{555}{1000} = 0.555$$

Q.2 A die is thrown 100 times and outcomes are noted as given below

out come :	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: (i) $P(\text{getting } 3) = \frac{\text{No. of time 3 comes up}}{\text{Total no. of trials}}$

$$= \frac{14}{100} = 0.14$$

(ii) $P(\text{getting } 5) = \frac{\text{No. of time 5 comes up}}{\text{Total no. of trials}}$

$$= \frac{18}{100} = 0.18$$

(iii) $P(\text{getting } 4) = \frac{\text{No. of time 4 comes up}}{\text{Total no. of trials}} = \frac{23}{100} = 0.23$

(iv) $P(\text{Even numbers}) = \frac{\text{freq. of 2} + \text{freq. of 4} + \text{freq. of 6}}{\text{Total no. of trials}}$

$$= \frac{9 + 23 + 15}{100} = \frac{47}{100} = 0.47$$

(v) $P(\text{odd numbers}) = \frac{\text{freq. of 1} + \text{freq. of 3} + \text{freq. of 5}}{\text{Total no. of trials}}$

$$= \frac{21 + 14 + 18}{100} = \frac{53}{100}$$

$$\begin{aligned}
 \text{(vi)} \quad P(\text{less than 3}) &= \frac{\text{freq of 1} + \text{freq. of 2}}{\text{Total no. of totals}} \\
 &= \frac{21+9}{100} = \frac{30}{100} = \frac{3}{10}
 \end{aligned}$$

Q.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: No. of socks in the box = 4 (Two black (B) and two white (W))

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

If one white sock is picked out. Then.

$$\text{white socks left} = 1$$

$$\text{Total socks left} = 3$$

For making a pair

$$\begin{aligned}
 P(\text{white socks}) &= \frac{\text{No. of white socks}}{\text{Total socks}} \\
 &= \frac{1}{3}
 \end{aligned}$$

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

out come :	Two heads (HH)	one head (HT or TH)	no head (TT)
Frequency	105	275	120

If a same pair of coins is tossed at random, find the probability of getting (i) Two head
(ii) one head (iii) No head

Solution : No. of times coin tossed = 500

$$(i) P(\text{Two head}) = \frac{105}{500} = \frac{21}{100}$$

$$(ii) P(\text{one head}) = \frac{275}{500} = \frac{11}{20}$$

$$(iii) P(\overset{\text{No}}{\cancel{\text{Two}}} \text{ head}) = \frac{120}{500} = \frac{12}{50} = \frac{6}{25}$$

