

chapter-25 probability Exercise-25.1

25. DATA HANDLING. Probability. Exercise - 25.1

Solution - 01 :-

Given that,
Total number of ^{times} coin is tossed = 1000 times

frequency of Head = 445

Tail = 555.

Probability of Event E $P(E) = \frac{\text{Number of trials in which the event happened}}{\text{Total No. of trials.}}$

(i) Probability of getting a head = $\frac{\text{Number of heads}}{\text{Total No. of trials.}}$

$$= \frac{445}{1000} = 0.445.$$

(ii) probability of getting a tail = $\frac{\text{Number of tails}}{\text{Total No of trials}}$

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

Solution -02:-

We have,

Number of times die thrown = 100 times.

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

(i) Probability of getting an outcome 3.

frequency of outcome 3 is '14'

Probability of getting an outcome '3' = $\frac{\text{frequency of outcome '3'}}{\text{No. of times die Thrown}}$

$$= \frac{14}{100} = \frac{7}{50}$$

(ii) Probability of getting an outcome 5 = ?

frequency of getting an outcome '5' = 18.

Probability of getting an outcome '5' = $\frac{\text{frequency of getting an outcome '5'}}{\text{No. of times die thrown}}$

$$= \frac{18}{100} = \frac{9}{50}$$

(iii) probability of getting an outcome '4' = ?

frequency of getting an outcome '4' = 23.

$$\begin{aligned}\text{probability of getting an outcome '4'} &= \frac{\text{frequency of getting an outcome '4'}}{\text{Total No. of Trials}} \\ &= \frac{23}{100}.\end{aligned}$$

(iv)

$$\begin{aligned}\text{No of times getting an even number} &= \text{frequency of} \\ &\text{getting an outcome '2'} + \text{frequency of getting an} \\ &\text{outcome '4'} + \text{frequency of getting an outcome '6'} \\ &= 9 + 23 + 15 \\ &= 47.\end{aligned}$$

Total Number of Trials = 100.

$$\begin{aligned}\text{Probability of getting an even number} &= \frac{\text{No. of times getting an even number}}{\text{Total No. of Trials}} \\ &= \frac{47}{100} \quad \text{sm}\end{aligned}$$

(v) we have:

$$\begin{aligned}\text{Frequency of getting an odd number} &= \text{Frequency of getting 1} + \text{Frequency of getting 3} \\ &\quad + \text{Frequency of getting 5} \\ &= 21 + \overset{14}{\cancel{26}} + 18 \\ &= 53.\end{aligned}$$

∴ probability of getting an odd number

$$\begin{aligned}&= \frac{\text{Frequency of getting an outcome odd number}}{\text{Total number of times die is thrown}} \\ &= \frac{53}{100} \\ \therefore P(E) &= \frac{53}{100}.\end{aligned}$$

vii) probability of getting a Number less than '3'

$$= \frac{\text{Frequency of getting a Number less than '3'}}{\text{Total number of times die is thrown}}$$

Frequency of getting Number less than 3 sm

$$\begin{aligned}&= \text{Frequency of getting 1} + \text{Frequency of getting 2} \\ &= 21 + 9 = 30.\end{aligned}$$

$$\text{Probability of getting Number less than 3} = \frac{30}{100} = \frac{3}{10}.$$

3) Solution:-

frequency of Make a pair = 2.

Total No. of Trials to Pick a sock =

Frequency of pick a white sock +

Frequency of pick out one more with
my eyes closed

$$= 1 + 2 = 3.$$

$$\text{Probability of making a pair} = \frac{1}{3}.$$

Solution-04:-

Number of times coin is tossed = 500.

(i) Frequency of getting 2 Heads = 105.

$$\text{Probability of getting '2' heads} = \frac{\text{Frequency of getting '2' Heads}}{\text{Total No. of times coin is tossed}}$$

$$= \frac{105}{500}$$

$$= \frac{21}{100}.$$

$$\text{(ii) Probability of getting one head} = \frac{\text{Frequency of getting head}}{\text{No. of times coin is tossed}}$$

$$= \frac{275}{500}$$

$$= \frac{11}{20}.$$

$$\text{(iii) Frequency of getting No head} = \frac{\text{Frequency of getting No head}}{\text{No. of trials}} = 120.$$

$$\text{Probability of getting No head} = \frac{\text{Frequency of No head}}{\text{No. of trials}} = \frac{120}{500} = \frac{6}{25}.$$