

Exercise 7.6

1. A fair coin is tossed 30 times the result of which is tabulated below. Study the table and answer the questions given below the table.

| Event | Tally Marks | Frequency |
|-------|----------------------|-----------|
| Head | | 14 |
| Tail | | 16 |

- i) How many times does 'head' appears?
- ii) How many times does 'tail' appears?
- iii) Estimate the probability of appearance of head?
- iv) Estimate the probability of appearance of tail?

Solution:

- i. How many times does 'head' appears?

Ans: head appears 14 times.

- ii. How many times does 'tail' appears?

Ans: tail appears 16 times.

- iii. Estimate the probability of appearance of head?

Ans: total outcomes = 30

Favourable condition = 14

$$P(\text{appearance of head}) = \frac{14}{30} = \frac{7}{15}$$

Hence probability = $\frac{7}{15}$

iv. **Estimate the probability of appearance of tail?**

Ans: total outcomes = 30

Favourable condition = 16

P (appearance of tail) = $\frac{16}{30} = \frac{8}{15}$

Hence probability = $\frac{8}{15}$

2. A die is tossed hundred times the result is tabulated below. Study the table and answer the questions given below the table.

| Event | Tally Marks | Frequency |
|-------|-------------|-----------|
| 1 | | 14 |
| 2 | | 17 |
| 3 | | 20 |
| 4 | | 18 |
| 5 | | 15 |
| 6 | | 16 |

- i) How many times do 3 dots appear?
- ii) How many times do 5 dots appear?
- iii) How many times does an even number of dots appear?
- iv) How many times does a prime number of dots appear?
- v) Find the probability of each one of the above cases?

Solution:

i. **How many times do 3 dots appear?**

Ans: 3 dots appear 20 times.

ii. How many times do 5 dots appear?

Ans: 5 dots appear 15.

iii. How many times does an even number of dots appear?

Ans: dots of even number appear = $17 + 18 + 16 = 51$

iv. How many times does a prime number of dots appear?

Ans: dots of even number appear = $17 + 20 + 15 = 52$

v. Find the probability of each one of the above cases?

Ans: $P(3 \text{ dots appear}) = \frac{20}{100} = \frac{1}{5}$

$P(5 \text{ dots appear}) = \frac{15}{100} = \frac{3}{20}$

$P(\text{dots of even number}) = \frac{51}{100}$

$P(\text{dots of even number}) = \frac{52}{100} = \frac{13}{20}$

3. The eggs supplied by a poultry form during a week broke during transit as follows 1%, 2%, $1\frac{1}{2}\%$, $\frac{1}{2}\%$, 1%. Find the probability of eggs that broke in a day. Calculate the number of eggs that will be broken in transiting the following number eggs.

Solution:

The probability of eggs broken?

$$\text{Day} = \frac{(1+2+1.5+0.5+1+2+1)\%}{7} = \frac{9}{7}\%$$

i. 7000

$$\text{Eggs broken from 7000} = 7000 \times \frac{9}{7} \times \frac{1}{100} = 90 \text{ eggs.}$$

ii. **8,400**

$$\text{Eggs broken from 8,400} = 8400 \times \frac{9}{7} \times \frac{1}{100} = 108 \text{ eggs.}$$

iii. **10,500**

$$\text{Eggs broken from 10,500} = 10500 \times \frac{9}{7} \times \frac{1}{100} = 135 \text{ eggs.}$$

