

### Exercise 3.4 : Solutions of Questions on Page Number : 76

Q1 : Tell whether the following is certain to happen, impossible, can happen but not certain.

- (i) You are older today than yesterday.
- (ii) A tossed coin will land heads up.
- (iii) A die when tossed shall land up with 8 on top.
- (iv) The next traffic light seen will be green.
- (v) Tomorrow will be a cloudy day.

Answer :

- (i) Certain
- (ii) Can happen but not certain
- iii. Impossible as there are only six faces on a dice marked as 1, 2, 3, 4, 5, 6 on it.
- (iv) Can happen but not certain
- (v) Can happen but not certain

Q2 : There are 6 marbles in a box with numbers from 1 to 6 marked on each of them.

- (i) What is the probability of drawing a marble with number 2?
- (ii) What is the probability of drawing a marble with number 5?

Answer :

$$(i) \text{ Probability} = \frac{\text{Number of favourable outcomes}}{\text{Number of possible outcomes}}$$

$$P(\text{appearance of } 2) = \frac{1}{6}$$

$$(ii) P(\text{appearance of } 5) = \frac{1}{6}$$

**Q3 : A coin is flipped to decide which team starts the game. What is the probability that your team will start?**

**Answer :**

A coin has two faces - Head and Tail. One team can opt either Head or Tail.

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Number of possible outcomes}}$$

$$\text{Probability (our team starts first)} = \frac{1}{2}$$

**Q4 : A box contains pairs 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 it will make a pair?**

**Answer :**

It can be observed that while closing the eyes, one can draw either a black sock or a white sock. Therefore, there are two possible cases.

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Number of possible outcomes}}$$

$$\text{Probability (a pair of white socks will be formed)} = \frac{1}{2}$$