Definition: Probability is nothing but the possibility of an event occurring. For example, when a test is conducted, then the student can either get a pass or fail. It is a state of probability.
The probability of happening of an event E is a number P(E) such that: $0 \leq P(E) \leq 1$

Probability Formula: If an event E occurs, then the empirical probability of an event to happen is:
P(E) = Number of trials in which Event happened/Total number of trials
The theoretical probability of an event E, P(E), is defined as:
P(E) = (Number of outcomes favourable to E)/(Number of all possible outcomes of the experiment)

Impossible event: The probability of an occurrence/event impossible to happen is 0. Such an event is called an impossible event.

Sure event: The probability of an event that is sure to occur is 1. Such an event is known as a sure event or a certain event.

EXERCISES

1. Two coins are tossed 500 times, and we get:
Two heads: 105 times
One head: 275 times
No head: 120 times
Find the probability of each event to occur.

2. **A tyre manufacturing company kept a record of the distance covered before a tyre needed to be replaced. The table shows the results of 1000 cases.**

Distance(in km)	Less than 4000	4000 to 9000	9001 to 14000	More than 14000
Frequency	20	210	325	445

If a tyre is bought from this company, what is the probability that:

(i) it has to be substituted before 4000 km is covered?
(ii) it will last more than 9000 km?
(iii) it has to be replaced after 4000 km and 14000 km is covered by it?

3. **Two players, Sangeet and Rashmi, play a tennis match. The probability of Sangeet winning the match is 0.62. What is the probability that Rashmi will win the match?**