15 Probability

1.) If 1 coin is tossed :- Total outcomes :- 2

{ Head H
Tail T

2.) If 2 coins are tossed simultaneously :- Total outcomes :- 2 x 2 = 4

or

If 1 coin is tossed 2 times :-

{ H H
H T
T H
T T

3.) If 3 coins are tossed simultaneously :- Total outcomes :- 2 x 2 x 2 = 8

or

If 1 coin is tossed 3 times :-

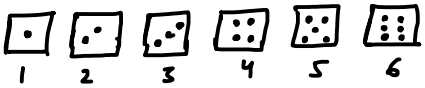
0 Tail ← H H H → 3 Heads

2 Tails { (H) T T, T (H) T, T T (H) } → 1 Head

1 Tail { (T) H H, H (T) H, H H (T) } → 2 Heads

3 Tails ← T T T → 0 Head

1.) 1 Dice is thrown :- Total outcomes :- 6



2.) If 2 Dice are thrown simultaneously :-

or

If 1 Dice is thrown 2 times :-

Total outcomes :- $6 \times 6 = 36$

	1	2	3	4	5	6
1	11	12	13	14	15	16
2	21	22	23	24	25	26
3	31	32	33	34	35	36
4	41	42	43	44	45	46
5	51	52	53	54	55	56
6	61	62	63	64	65	66

52 cards in a Deck

- 26 Red cards
  - 13 Diamond: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K
  - 13 Heart: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K
- 26 Black cards
  - 13 Clubs: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K
  - 13 Spades: 1 → Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, J → Jack, Q → Queen, K → King

J, Q, K — Face cards

* $P(E) = \frac{\text{Favourable outcomes}}{\text{Total outcomes}}$

E : Event

* $0 \leq P(E) \leq 1$

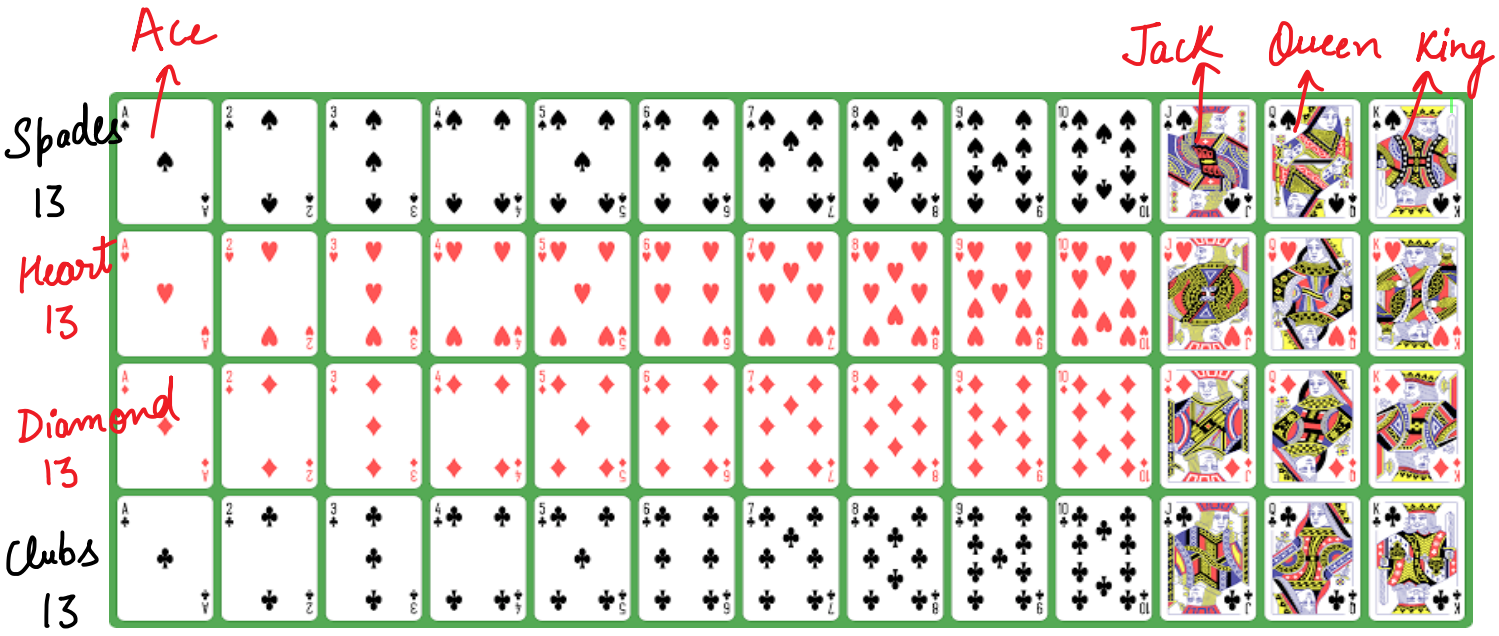
* Probability of sure event or certain event is 1.

* Probability of impossible event is 0.

* Sum of the probabilities of all elementary events of an experiment is 1.

* $P(E) + P(\bar{E}) = 1$

E : Event, $\bar{E}$: not E



leap year → 366

1 week → 7 days

52 week → 7 × 52 = 364 days

Sample Space

{ Sun Mon, Mon Tue, Tue, wed
Wed Thur, Thur Fri, Fri Sat, Sat Sun }

$$P(53 \text{ Sundays}) = \frac{2}{7}$$

Non-leap year → 365

52 weeks → 364 days

{ Sun, Mon, Tue, wed
Thur, Fri, Sat }

$$P(53 \text{ Sundays}) = \frac{1}{7}$$