Probability

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Experiment

(i) Deterministic Exp :
Produce same outcome.

(ii) Random Exp :-
Don't produce
same outcome.

Sample Space

Set of all possible outcomes.
eg :- Dice is tossed
S = {1,2,3,4,5,6}

Event

Subset of Sample Space
eg :- Even no. when dice is tossed
E = {2,4, 6}

Probability of any
event A, i.e

$0 - P(A) - 1$

If, P(A) = 0, Impossible event
If, P(A) = 1, Sure event

& $P(A) + P(\overline{A}) = 1$

Probability of happening an event A, i.e

$$P(A) \% \frac{\text{Total Favorable. outcome}}{\text{Total possible outcome.}}$$

eg :- Probability of geting even
no. on tossing a dice

$$P(\text{Even}) \% \frac{3}{6} \% \frac{1}{2}$$

Examples

(i) 2 coins tossed 500 times, we get
2H = 105 times
1 H = 275 times
0 H = 120 times

$$P(2H) \% \frac{105}{500}$$

$$P(1H) \% \frac{275}{500}$$

$$P(0H) \% \frac{120}{500}$$

(ii) 1500 families with 2 children
selected randomly

No. of girls	2	1	0
No. of family	475	814	211

$$P(2 \text{ girls}) \% \frac{475}{1500}$$

$$P(1 \text{ girl}) \% \frac{814}{1500}$$

$$P(\text{at least 1girl}) \% \frac{814 \exists 475}{1500}$$