Topic Synopsis

Random Experiment

1. Random Experiment: An experiment is called random experiment if it fulfilled the following two conditions:

i It has more than one possible outcomes.

ii It has not possible to predict the outcome in advance.

2. Outcome: A possible result of a random experiment is called its outcome.

3. Sample Space: The set of all possible outcomes of a random experiment is called the sample space associated with the experiment. Sample space is denoted by S. Each element of the sample space is called the sample point.

i **Tossing a coin once:**

Total possible outcomes = $S = \{H, T\}$

Number of possible outcomes = $2^1 = 2$

ii **Tossing a coin two times:**

Total possible outcomes = $S = \{HH, HT, TH, TT\}$

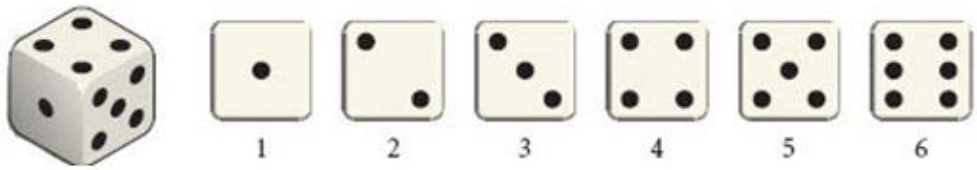
Number of possible outcomes = $2^2 = 4$

iii **Tossing a coin three times:**

Total possible outcomes = $S = \{HHH, HHT, HTH, THH, HTT, THT, TTH, TTT\}$

Number of possible outcomes = $2^3 = 8$

iv **Rolling a die once:**



Total possible outcomes = $S = \{1, 2, 3, 4, 5, 6\}$

Number of possible outcomes = $6^1 = 6$

v **Rolling two dice simultaneously:**

Total possible outcomes = $S = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6),$
$(2,1), (2,2), (2,3), (2,4), (2,5), (2,6),$
$(3,1), (3,2), (3,3), (3,4), (3,5), (3,6),$
$(4,1), (4,2), (4,3), (4,4), (4,5), (4,6),$
$(5,1), (5,2), (5,3), (5,4), (5,5), (5,6),$
$(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$

Number of possible outcomes = $6^2 = 36$

vi **Playing Cards:**