Provincial Department of Education Sabaragamuwa Week School

Week - 44

Subject: Mathematics

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Grade -10

Consider rolling an unbiased die numbered from **1** to **6.** In this random experiment,

S ={1,2,3,4,5,6} **Sample space**
A = {1,3,5}   **An event**
B={6}   **A simple event(** consisting of only one outcome)
C={4,5,6}   **A composite event (**not a simple event)

The outcomes in a random experiment has an equal likelihood of occurring, that experiment is called an experiment with **equally likely outcomes.**

In an instance where all the outcomes of a sample space are equally likely to occur, the probability of an event

Probability of the event occuring
$$= \frac{Number\ of\ elements\ in\ the\ event}{Number\ of\ elements\ in\ the\ sampale\ space}$$

$$P(A) = \frac{n(A)}{n(S)}$$

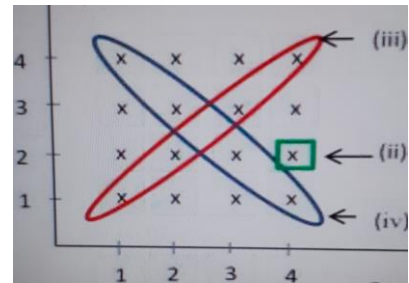In an experiment of rolling an unbiased die with its faces marked 1,2,3 and 4,
- Write the sample space and find n(S).
  S = { 1,2,3,4 }   n(S) = 4
- If the event of getting even number is A, write the element and find n(A).
  A = { 2,4 }   n(A) = 2
- Find P(A).

$$P(A) = \frac{2}{4} = \frac{1}{2}$$

1. In a random experiment of tossing an unbiased coin
   i. Write sample space.
   ii. Find the probability of getting head.
2. Write down sample space of the random experiment of rolling a unbiased die numbered from **1** to **6.**
   iii. Find the probability of getting odd number.
   iv. Find the probability of getting 4.
   v. Find the probability of getting odd number or 4
3. A bag contains 4 beads. There are 3 yellow beads and a red bead. When a bead is taken randomly,
   i. Write sample space.
   ii. Find the probability of getting a yellow bead.
   iii. Find the probability of getting a red bead.

Do the exercise 30.1

A bag contains 4 identical balls. These are numbered 1,2,3,4. A ball is taken randomly, its number recorded and then put back in the bag. A ball is taken randomly from the bag again and its number recorded .
   i. Show the relevant sample space in a grid

First take

Second take

ii) Find the probability that the first ball is numbered 4 and the second ball is numbered 2.$= \frac{1}{16}$

iii) Find the probability that the same ball is taken on both occasions. $= \frac{4}{16} = \frac{1}{4}$

iv) Find the probability that the sum of the numbers on the two balls is 5. $= \frac{4}{16} = \frac{1}{4}$

Do the exercises 30.2 and 30.3

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$ $$P(A^{/}) = 1 - P(A)$$