Provincial Department of Education – Sabaragamuwa – Week School

Subject - Mathematics

Week: 45

Grade - 10

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Independent Events

If one event of a random experiment does not affect another, the two events are called **independent**.

If $P(A \cap B) = P(A)\ P(B)$ then A & B are independent.

A & B are independent events. Then $P(A) = \frac{1}{2}$ & $P(B) = \frac{1}{3}$.

Find P(AUB)

(ii) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$= \frac{1}{2} + \frac{1}{3} - \frac{1}{6}$

$= \frac{3}{6} + \frac{2}{6} - \frac{1}{6}$

$= \frac{4}{6} = \frac{2}{3}$

Find P(A∩B)

$P(A \cap B) = P(A)\ P(B)$

$= \frac{1}{2} \text{ ⁄ } \frac{1}{3} = \frac{1}{6}$

Find answers.

(1) X & Y are independent events. Then $P(X) = \frac{1}{5}$ & $P(Y) = \frac{2}{3}$

(i) Find P(X∩Y)
(ii) Find P(X∪Y)

(2) A & B are independent events. Then $P(A) = \frac{1}{4}$ & $P(A \cap B) = \frac{1}{6}$

(i) Find P(A∩B)
(ii) Find P(A∪B)

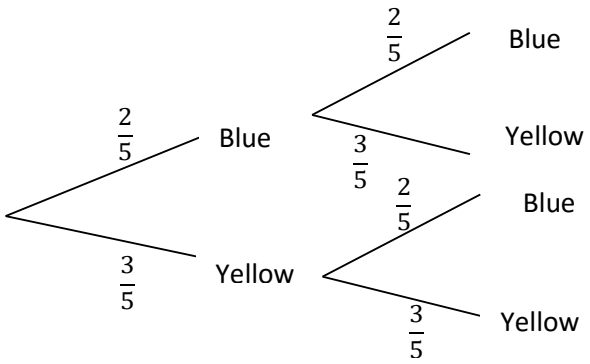
(3) Both A & B play a target shooting game. The probability of success of shooting to the target of A is $\frac{1}{4}$ & the probability of success of shooting to the target of B is $\frac{1}{2}$.

(i) Find the probability of success of shooting of the both
(ii) Find the probability that one of subordinate will succeed

Complete the **exercise 30.4**.

Tree diagrams

A bag has two identical blue beads and three green beads. First a random bead is marked with its colour and then put back in the bag and a second bead is taken and marked on its colour. Show the sample space in a tree diagram.



Find the probability of getting a blue bead first and a yellow bead second.

Here the probability of getting a blue bead first and yellow bead is P (Blue, yellow) that can be obtained by multiplying probability of getting on the road that gives those results.

P (Blue, yellow) $= \frac{2}{5} \times \frac{3}{5} = \frac{6}{25}$

Find answers.

There are 5 glass balls of the same size in a bag. 4 of them are green & the other is yellow. A ball is taken out of bag and its color is noted and put back in to the bag and again a ball is randomly taken.

i. Show the sample space of the above experiment in a tree diagram.

ii.Find the probability that both balls will turn green.

Complete the **exercise 30.5.**