

Assignment 4

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Abstract—This document contains the solution for Assignment 4 (NCERT Class 10 Exercise 15.1 Question 7)

15.1.7 [NCERT 10] : It is given that in a group of 3 students, the probability of 2 students not having the same birthday is 0.992. What is the probability that the 2 students have the same birthday

Solution:

Let the random variable X be mapped to the following set of real numbers, $X \in \{0, 1\}$, where $X = 0$ denote that "the 2 students not having the same birthday" and $X = 1$ denote that "the 2 students have the same birthday".

Given,

Probability that 2 students not having the same birthday is :

$$\Pr(X = 0) = 0.992 \quad (1)$$

Since these events are mutually exclusive and exhaustive, we get

$$\Pr(X = 0) + \Pr(X = 1) = 1 \quad (2)$$

Therefore desired probability is given by

$$\boxed{\Pr(X = 1) = 0.008} \quad (3)$$