

# AI1110: Assignment 4

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**Abstract**—This document contains the solution to Question of Chapter 15 (Probability) in the NCERT Class 10 Textbook.

**Probability Exercise 15.1 Q8.** A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is

- 1) red
- 2) not a red

**Solution.**

Let  $X \in \{0, 1\}$  is random variable that denote whether the ball is red or not a red. Here the ball being black is considered that ball being not red because only two colours are present in the bag.

Event	Description
$X=0$	ball drawn is red
$X=1$	ball drawn is not red

TABLE 1: Events

- 1) The probability that the ball drawn is red

$$\Pr(X = 0) = \frac{\text{no of red colored balls}}{\text{Total no of balls}} \quad (1)$$

$$= \frac{3}{3 + 5} \quad (2)$$

$$= 0.375 \quad (3)$$

- 2) The probability that the ball drawn is not a red, both events are mutual exculsive and exhaustive events so we can write that sum of probabilities is 1.

$$\Pr(X = 1) = 1 - \Pr(X = 0) \quad (4)$$

$$= 1 - \frac{3}{8} \quad (5)$$

$$= 0.625 \quad (6)$$

$\therefore$  the probability that the ball drawn is red and is not red are 0.375 and 0.675 respectively.