

# Assignment 6 (NCERT Class 10 Probability)

Gautam Singh (CS21BTECH11018)

**Abstract**—This document contains the solution to Example 3 of Chapter 15 (Probability) in the NCERT Class 10 Textbook.

**Example 3.** Suppose we throw a die once.

- (i) What is the probability of getting a number greater than 4?
- (ii) What is the probability of getting a number less than or equal to 4?

**Solution:** Let the random variable  $X$  denote the number that appears on rolling the die. Then, we see that the sample space is  $S = \{1, 2, 3, 4, 5, 6\}$ . The CDF can be derived from the PMF as follows:

$$F_X(k) = \sum_{i=1}^{i=k} \Pr(X = i) = k \times \frac{1}{6} = \frac{k}{6} \quad (1)$$

Hence, using Figure 1,

$$\Pr(X \leq 4) = F_X(4) = \frac{4}{6} = \frac{2}{3} \quad (2)$$

$$\Rightarrow \Pr(X > 4) = 1 - F_X(4) \quad (3)$$

$$= 1 - \frac{2}{3} = \frac{1}{3} \quad (4)$$

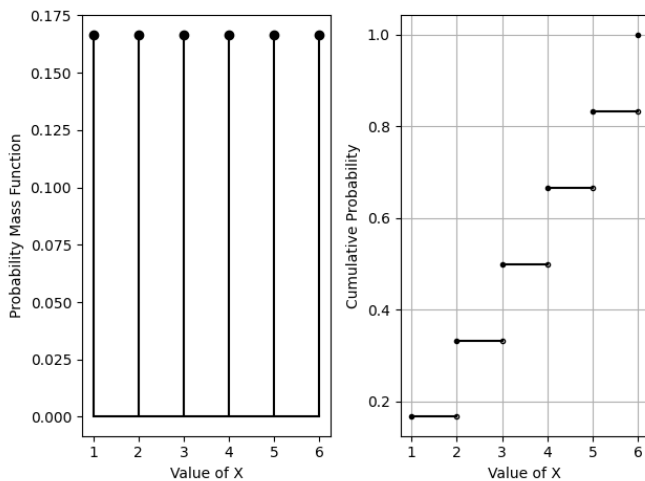


Fig. 1: Plot of the PMF (left) and CDF (right) of an unbiased die. Code: codes/6\_1.py