NCERT-11.16.4.3.1

EE24BTECH11042 - SRUJANA

QUESTION:

A die has two faces each with number ′1′, three faces each with number ′2′ and one face with number ′3′. If die is rolled once, determine P(2)

Theoretical solution:
Total no of possible outcomes = 6
Favarable outcomes = 3
probability = $\frac{3}{6}$

Computational Solution:

Let X be a random variable that represents the value of the face when dice is rolled
The PMF of X :

$$P_X(k) = \begin{cases} \frac{2}{6}, & \text{if } k = 1, \\ \frac{3}{6}, & \text{if } k = 2, \\ \frac{1}{6}, & \text{if } k = 3, \\ 0, & \text{otherwise.} \end{cases}$$

CDF of X :

$$F_X(K) = \begin{cases} 0, & x < 1, \\ \frac{2}{6}, & 1 \le x < 2, \\ \frac{5}{6}, & 2 \le x < 3, \\ 1, & x \ge 3. \end{cases}$$

Probability for the face to be 2 is : $P_X(2) = \frac{3}{6}$

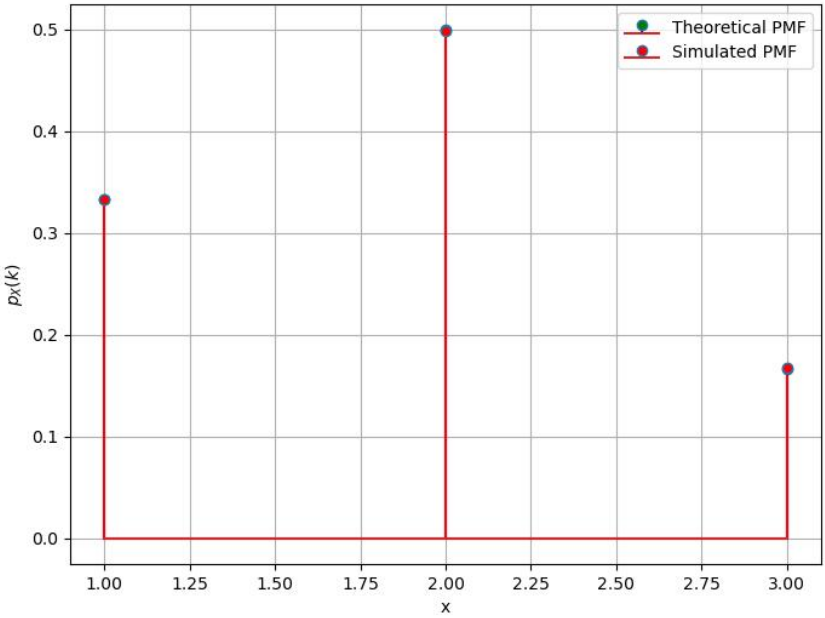

Fig. 0.1. "PMF Plot"

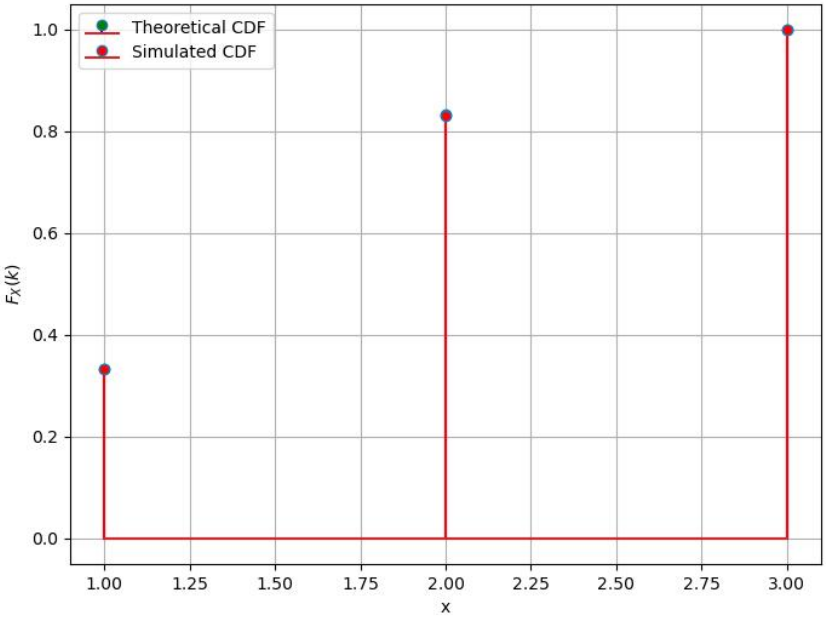

Fig. 0.2. ”CDF Plot”