Assignment 1

Amaan - EP20BTECH11003

Download all python codes from

https://github.com/amaan28/Assignment1/blob/main/Assignment1/codes/Assignment1.py

and latex-tikz codes from

https://github.com/amaan28/Assignment1/blob/main/Assignment1/Assignment1.tex

Question 5.27

Find the probability distribution of number of doublets in three throws of a pair of dice?

Solution

Let $X \in \{0, 1, 2, 3\}$ denote a random variable whose value represents the number of doublets obtained in 3 throws of a pair of dice. We can describe the whole experiment using Binomial probability distribution, given by,

$$Pr(X = r) = {}^{n}C_{r} p^{r} q^{n-r} \tag{0.0.1}$$

where symbols have their usual meaning.

Given, n=3, and, we can find,

$$Pr(doublet) = p = \frac{1}{6} \tag{0.0.2}$$

$$1 - Pr(doublet) = q = \frac{5}{6} \tag{0.0.3}$$