Assignment 5 (NCERT Class 9 Probability)

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Abstract—**This document contains the solution to Question 2 of Exercise 15.2 of Chapter 15 (Probability) in the NCERT Class 10 Textbook.**

Exercise 15.2, Q2. A die is numbered in such a way that its faces show the numbers 1, 2, 2, 3, 3, 6. It is thrown two times and the total score in two throws is noted. Complete the following table which gives a few values of the total score on the two throws:

+	1	2	2	3	3	6
1	2	3	3	4	4	7
2	3	4	4	5	5	8
2					5	
3						
3		5				9
6	7	8	8	9	9	12

TABLE I

What is the probability that the total score is

(i) even?
(ii) 6?
(iii) at least 6?

Solution: The completed table is shown below (missing entries filled in with bold):

+	1	2	2	3	3	6
1	2	3	3	4	4	7
2	3	4	4	5	5	8
2	**3**	4	4	**5**	5	**8**
3	**4**	**5**	**5**	**6**	**6**	**9**
3	**4**	5	**5**	**6**	**6**	9
6	7	8	8	9	9	12

TABLE II

Let the random variable X denote the sum of the two throws. Then, we see that the sample space is $S = \{2, 3, 4, 5, 6, 7, 8, 9, 12\}$. From Table II,

$$\Pr\left(X \equiv 0 \ (\text{mod } 2)\right) = \frac{18}{36} = \frac{1}{2} \quad (1)$$

$$\Pr\left(X = 6\right) = \frac{4}{36} = \frac{1}{9} \quad (2)$$

$$\Pr\left(X \geq 6\right) = \frac{15}{36} = \frac{5}{12} \quad (3)$$

The Python code `codes/6_1.py` creates a numpy array from `tables/intab.xlsx` and then computes the above probabilities.