ASSIGNMENT 2

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***Abstract*—This document contains the solution for Assignment 3 (Class 9 Maths NCERT Example 10).**

Example 10: 5 people were asked about the time in a week they spend in doing social work in their community. They said 10, 7, 13, 20 and 15 hours, respectively. Find the mean (or average) time in a week devoted by them for social work.

Solution: We have already studied in our earlier classes that the mean of a certain number of observations is equal to

$$\frac{\text{Sum of all the observations}}{\text{Total number of observations}}$$

To simplify our working of finding the mean, let us use a variable x_i to denote the ith observation. In this case, i can take the values from 1 to 5. So our first observation is x_1, second observation is x_2,and so on till x_5.

Also x_1 = 10 means that the value of the first observation, denoted by x_1,is 10. Similarly, x_2 = 7, x_3 = 13, x_4 = 20 and x_5 = 15.

Therefore, the mean

$$\begin{aligned}\overline{x} &= \frac{\text{Sum of all the observations}}{\text{Total number of observations}} && (1)\\ &= \frac{x_1+x_2+x_3+x_4+x_5}{5} && (2)\\ &= \frac{10+7+13+20+15}{5} && (3)\\ &= \frac{65}{3} && (4)\\ &= 13 && (5)\end{aligned}$$

So, the mean time spent by these 5 people in doing social work is 13 hours in a week.

Now, in case we are finding the mean time spent by 30 people in doing social work, writing x_1 + x_2 + x_3 +.....+ x_{30} would be a tedious job.We use the Greek symbol Σ(for the letter Sigma) for *summation*. Instead of writing x_1 + x_2 + x_3 +.....+ x_{30}, we write $\sum_{i=1}^{30} x_i$, which is read as 'the sum of x_i as i varies from 1 to 30'.

So,

$$\overline{x} = \frac{\sum_{i=1}^{30} x_i}{30} \quad (6)$$

Similarly, for n observations ,

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i}{n} \quad (7)$$