



Provincial Department of Education - Sabaragamuwa – Week School

Subject: Mathematics

Week: 4th week - 15th-21st Nov, 2020

Grade -10

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Unit 26 - Frequency Distribution (ii)

- Calculating the mean of grouped data

Calculating the mean using the assumed mean

The class intervals of a grouped frequency distribution may sometimes contain large mid-values. In such situations, finding the mean using the method what you have already learnt may not be easy. Let us consider a more suitable method of finding the mean of a distribution of this type, through an example.

Given below is the information about tourists who have arrived in a hotel.

Number of tourists	8 - 12	13 - 17	18 - 22	23 - 27	28 - 32	33 - 37	38 - 42
Number of days	5	23	22	16	10	7	7

Let us first find the mid-values which represent each of the class intervals.

Let us now assume that the mid-value 25 of the class interval 23 – 27 is the mean. That is, let us take 25 to be the assumed mean. Now let us find the **deviation** of each mid-value from the assumed mean by subtracting the assumed mean from each mid-value. We denote the deviation by (*d*).

That is, **Deviation = mid-value – assumed mean**

Class Interval	Mid - Value	Deviation(<i>d</i>)	Frequency(<i>f</i>)	(<i>fd</i>)
8 - 12	10	-15	5	-75
13 - 17	15	-10	13	-130
18 - 22	20	-5	22	-110
23 - 27	25	0	16	0
28 - 32	30	+5	10	50
33 - 37	35	+10	7	70
38 - 42	40	+15	7	105
			$\Sigma f = 80$	$\Sigma fd = -90$

Here Σf denotes the total number of families, *fd* denotes the product of the deviation and the corresponding frequency, and Σfd denotes the sum of the values in the *fd* column.

The mean is obtained by, **Mean = Assumed Mean + Mean of the Deviations**

$$\begin{aligned}\text{Mean} &= A + \frac{\Sigma fd}{\Sigma f} \\ &= 25 + \frac{(-90)}{80}\end{aligned}$$

$$\begin{aligned} &= 25 + (-1.125) \\ &= 23.875 \end{aligned}$$

- Solve the problems **1,2,3,4,5 and 6 in Excercise 26.3** from the pages **95** and **96** in your Mathematics Text Book.