

Chapter 5 – Measures of Central Tendency- Arithmetic Mean

Question 1

From the following data find an average.

3	5	7	9	11	13	17	19	20	21
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Answer:

Here, the average is calculated using a direct method.

$$(\bar{X}) = \frac{\sum X}{N}$$

$$\bar{X} = \frac{3+5+7+9+11+13+17+19+20+21}{10}$$

$$\bar{X} = \frac{125}{10}$$

$$\bar{X} = 12.5$$

Question 2

Given below are the daily income of ten families. Evaluate the average daily income.

S. No.	1	2	3	4	5	6	7	8	9	10
Daily Income	100	120	80	85	95	130	200	250	225	275

Answer:

Serial No.	Daily Income (in Rs) (X)
1	80
2	100
3	90
4	80
5	90
6	110
7	190
8	230

9	210
10	250
N = 10	ΣX= 1430

$$(\bar{X}) = \frac{\sum X}{N}$$

$$\bar{X} = \frac{80+100+90+80+90+110+190+230+210+255}{10}$$

$$\bar{X} = \frac{1430}{10}$$

$$\bar{X} = 143$$

Question 3

Find an average from the below series.

X	2	4	5	8	9
f	3	6	3	7	10

Answer:

X	f	fX
2	3	6
4	6	24
5	3	15
8	7	56
9	10	90
	N = Σf = 29	ΣfX = 191

$$\bar{X} = \frac{\sum fX}{\sum f}$$

$$\bar{X} = \frac{191}{29}$$

$$\bar{X} = 6.59$$

Therefore, the average of the above series is 6.59

Question 4

Prepare arithmetic mean from the below frequency table.

Height (in cms.)	55	58	60	62	64	65
Number of Flowers	10	12	18	12	10	7

Answer:

Height (X)	Flowers (f)	fX
55	10	550
58	12	696
60	18	1080
62	12	744
64	10	640
65	7	455
	$N = \Sigma f = 69$	$\Sigma fX = 4165$

$$\bar{X} = \frac{\Sigma fX}{\Sigma f}$$

$$\text{Or, } \bar{X} = \frac{3265}{69}$$

$$\bar{X} = 60.37$$

Question 5

From the following data arrange the mean marks acquired by the students using direct method.

Marks	0–4	4–8	8–12	12–16	16–20	20–24
No. of Students	7	9	16	8	6	4

Answer:

Class Interval (Marks)	Mid-Values (m)	Students (f)	fm
0 – 4	2	7	14
4 – 8	6		
8 – 12	10	9	54

12 – 16	14	16	160
16 – 20	18	8	112
20 – 24	22	6	108
		4	88
		Σf	Σfm
		$\Sigma f=50$	$\Sigma fm=586$

$$\bar{X} = \frac{\Sigma fm}{\Sigma f}$$

$$\bar{X} = \frac{586}{50}$$

$$\bar{X} = 10.72$$

Therefore, the mean marks acquired by the students are 10.72