Statistics Ex 7.2 Q5

Answer :

Let the assume mean be $A = 25$.

marks (x_i):	frequency (f_i):	$d_i = x_i - A$ $= x_i - 25$	$f_i d_i$
15	5	−10	−50
20	8	−5	−40
22	11	−3	−33
24	20	−1	−20
25	23	0	0
30	18	5	90
33	13	8	104
38	3	13	39
45	1	20	20
	$\sum f_i = 102$		$\sum f_i d_i = 110$

We know that mean, $\overline{X} = A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i$

Now, we have $N = \sum f_i = 102$, $\sum f_i d_i = 110$ and $A = 25$.

Putting the values in the above formula, we get

$$\overline{X} = A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i$$
$$= 25 + \frac{1}{102} \times (110)$$
$$= 25 + \frac{110}{102}$$
$$= 25 + 1.078$$
$$= 26.078$$
$$\approx 26.08 (\text{approximate})$$

Hence, the average number of marks is 26.08.

Statistics Ex 7.2 Q6

Answer :

Let the assume mean be $A = 4$.

No. of students absent (x_i):	No. of days (f_i):	$d_i = x_i - A$ $= x_i - 4$	$f_i d_i$
0	1	−4	−4
1	4	−3	−12
2	10	−2	−20
3	50	−1	−50
4	34	0	0
5	15	1	15
6	4	2	8
7	2	3	6
	$\sum f_i = 120$		$\sum f_i d_i = -57$

We know that mean, $\overline{X} = A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i$

Now, we have $N = \sum f_i = 120$, $\sum f_i d_i = -57$ and $A = 4$.

Putting the values in the above formula,

$$\begin{aligned}\overline{X} &= A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i \\ &= 4 + \frac{1}{120} \times (-57) \\ &= 4 - \frac{57}{120} \\ &= 4 - 0.475 \\ &= 3.525 \\ &\approx 3.53 (\text{approximate})\end{aligned}$$

Hence, the mean number of students absent per day is approximately 3.53.

********** END **********