Statistics Ex 7.2 Q9

Answer :

Let the assumed mean be $A = 25$ and $h = 5$.

marks (x_i):	no. of students (f_i):	$d_i = x_i - A = x_i - 25$	$u_i = \frac{1}{h}(d_i)$	$f_i u_i$
5	15	−20	−4	−60
10	50	−15	−3	−150
15	80	−10	−2	−160
20	76	−5	−1	−76
25	72	0	0	0
30	45	5	1	45
35	39	10	2	78
30	9	15	3	27
45	8	20	4	32
50	6	25	5	30
	$\sum f_i = 400$			$\sum f_i u_i = -234$

We know that mean, $\overline{X} = A + h\left(\frac{1}{N}\sum_{i=1}^{n} f_i u_i\right)$

Now, we have $N = \sum f_i = 400, \sum f_i u_i = -234,\ h = 5$ and $A = 25$.

Putting the values in the above formula, we get

$$\overline{X} = A + h\left(\frac{1}{N}\sum_{i=1}^{n} f_i u_i\right)$$

$$= 25 + 5\left(\frac{1}{400} \times (-234)\right)$$

$$= 25 - \frac{234}{80}$$

$$= 25 - 2.925$$

$$= 22.075$$

Hence, the mean marks is 22.075.

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