Statistics Ex 7.3 Q9

Answer :

Let the assumed mean be $A = 25$ and $h = 10$.

Class interval :	Mid value (x_i) :	frequency: (f_i)	$d_i = x_i - A$ $= x_i - 25$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{10}(d_i)$	$f_i u_i$
0 – 10	5	9	−20	−2	−18
10 – 20	15	12	−10	−1	−12
20 – 30	25	15	0	0	0
30 – 40	35	10	10	1	10
40 – 50	45	14	20	2	28
		$\sum f_i = 60$			$\sum f_i u_i = 8$

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

Now, we have $N = \sum f_i = 60$, $\sum f_i u_i = 8$, $h = 10$ and $A = 25$.

Putting the values in the above formula, we have

$$\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$$

$$= 25 + 10\left(\frac{1}{60} \times (8)\right)$$

$$= 25 + \frac{80}{60}$$

$$= 25 + 1.333$$

$$= 26.333$$

Hence, the mean is 26.333.

Statistics Ex 7.3 Q10

Answer :

Let the assumed mean be $A = 20$ and $h = 8$.

Class interval :	Mid value (x_i) :	frequency: (f_i)	$d_i = x_i - A$ $= x_i - 20$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{8}(d_i)$	$f_i u_i$
0 – 8	4	5	−16	−2	−10
8 – 16	12	9	−8	−1	−9
16 – 24	20	10	0	0	0
24 – 32	28	8	8	1	8
32 – 40	36	8	16	2	16
		$\sum f_i = 40$			$\sum f_i u_i = 5$

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

Now, we have $N = \sum f_i = 40$, $\sum f_i u_i = 5$, $h = 8$ and $A = 20$.

Putting the values in the above formula, we have

$$\overline{X} = A + h\left(\frac{1}{N}\sum f_i u_i\right)$$

$$= 20 + 8\left(\frac{1}{40} \times (5)\right)$$

$$= 20 + \frac{40}{40}$$

$$= 20 + 1$$

$$= 21$$

Hence, the mean is 21.

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