Statistics Ex 7.3 Q7

Answer:

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

Class interval :	Mid value (x_i) :	frequency: (f_i)	$d_i = x_i - A$ $= x_i - 20$	$u_i = \dfrac{1}{h}(d_i)$ $= \dfrac{1}{8}(d_i)$	$f_i u_i$
$0-8$	4	6	-16	-2	-12
$8-16$	12	7	-8	-1	-7
$16-24$	20	10	0	0	0
$24-32$	28	8	8	1	8
$32-40$	36	9	16	2	18
		$\sum f_i = 40$			7

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

Now, we have $N = \sum f_i = 40$, $\sum f_i u_i = 7$, $h = 8$ and $A = 20$.

Putting the values in the above formula, we get

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

$$= 20 + 8\left(\frac{1}{40} \times (7)\right)$$

$$= 20 + \frac{56}{40}$$

$$= 20 + 1.4$$

$$= 21.4$$

Hence, the mean is 21.4.

Statistics Ex 7.3 Q8

Answer :

Let the assumed mean be $A = 15$ and $h = 6$.

Class interval :	Mid value (x_i) :	frequency: (f_i)	$d_i = x_i - A$ $= x_i - 15$	$u_i = \dfrac{1}{h}(d_i)$ $= \dfrac{1}{6}(d_i)$	$f_i u_i$
$0-6$	3	7	-12	-2	-14
$6-12$	9	5	-6	-1	-5
$12-18$	15	10	0	0	0
$18-24$	21	12	6	1	12
$24-30$	27	6	12	2	12
		$\sum f_i = 40$			$\sum f_i u_i = 5$

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

Now, we have $N = \sum f_i = 40$, $\sum f_i u_i = 5$, $h = 6$ and $A = 15$.

Putting the values in the above formula, we get

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

$$= 15 + 6\left(\frac{1}{40} \times (5)\right)$$

$$= 15 + \frac{30}{40}$$

$$= 15 + 0.75$$

$$= 15.75$$

Hence, the mean is 15.75.

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