

Statistics Ex 7.3 Q7

Answer:

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

Classinterval:	$Midvalue(x_i)$:	frequency: (f_i)	$d_i = x_i - A$ $= x_i - 20$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{h}(d_i)$	$f_i u_i$
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, $\overline{X} = A + h \left(\frac{1}{N} \sum f_i u_i \right)$

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.

Classinterval:	$Midvalue(x_i)$:	${\it frequency:}(f_i)$	$d_i = x_i - A$ $= x_i - 15$	$u_i = \frac{1}{h}(d_i)$	$f_i u_i$
0-6	3	7	-12	$=\frac{1}{6}(d_i)$ -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, $\overline{X} = A + h \left(\frac{1}{N} \sum f_i u_i \right)$

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.

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