



Statistics Ex 7.3 Q3

Answer :

Let the assumed mean be $A = 120$ and $h = 20$.

Daily wages (in Rs.)	Mid value (x_i):	No. of workers (f_i):	$d_i = x_i - A$ $= x_i - 150$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{20}(d_i)$	$f_i u_i$
100-120	110	12	-40	-2	-24
120-140	130	14	-20	-1	-14
140-160	150	8	0	0	0
160-180	170	6	20	1	6
180-200	190	10	40	2	20
		$\sum f_i = 50$			$\sum f_i u_i = -12$

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

Now, we have $N = \sum f_i = 50$, $\sum f_i u_i = -12$, $h = 20$ and $A = 150$.

Putting the values in the above formula, we have

$$\begin{aligned}
 \bar{X} &= A + h \left(\frac{1}{N} \sum f_i u_i \right) \\
 &= 150 + 20 \left(\frac{1}{50} \times (-12) \right) \\
 &= 150 - \frac{240}{50} \\
 &= 150 - 4.8 \\
 &= 145.2
 \end{aligned}$$

Hence, the mean daily wage of the workers is Rs 145.20.

Statistics Ex 7.3 Q4

Answer :

Let the assumed mean be $A = 75.5$ and $h = 3$.

No. of Heart Beats per Min:	Mid Value x_i	No. of Women f_i :	$d_i = x_i - A$	$u_i = \frac{1}{h} \times d_i$	$f_i u_i$
65-68	66.5	2	-9	-3	-6
68-71	69.5	4	-6	-2	-8
71-74	72.5	3	-3	-1	-3
74-77	75.5 = A	8	0	0	0
77-80	78.5	7	3	1	7
80-83	81.5	4	6	2	8
83-86	84.5	2	9	3	6
		$\sum f_i = 30$			$\sum f_i u_i = 4$

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

Now, we have $N = \sum f_i = 30$, $\sum f_i u_i = 4$, $h = 3$ and $A = 75.5$.

Putting the values in the above formula, we have

$$\begin{aligned}\bar{X} &= A + h \left(\frac{1}{N} \sum f_i u_i \right) \\ &= 75.5 + 3 \left(\frac{1}{30} \times (4) \right) \\ &= 75.5 + \frac{12}{30} \\ &= 75.5 + 0.4 \\ &= 75.9\end{aligned}$$

Hence, the mean heart beats per minute for women is 75.9.

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