



Statistics Ex 7.3 Q11

**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	6	-8	-1	-6
16-24	20	4	0	0	0
24-32	28	3	8	1	3
32-40	36	2	16	2	4
		$\sum f_i = 20$			$\sum f_i u_i = -9$

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

Now, we have  $N = \sum f_i = 20$ ,  $\sum f_i u_i = -9$ ,  $h = 8$  and  $A = 20$ .

Putting the values in the above formula, we get

$$\begin{aligned}
 \bar{X} &= A + h \left( \frac{1}{N} \sum f_i u_i \right) \\
 &= 20 + 8 \left( \frac{1}{20} \times (-9) \right) \\
 &= 20 - \frac{72}{20} \\
 &= 20 - 3.6 \\
 &= 16.4
 \end{aligned}$$

Hence, the mean is 16.4.

Statistics Ex 7.3 Q12

**Answer :**

Let the assumed mean be  $A = 60$  and  $h = 20$ .

Class interval:	Mid value ( $x_i$ ):	frequency ( $f_i$ )	$d_i = x_i - A$ $= x_i - 60$	$u_i = \frac{1}{h}(d_i)$ $= \frac{1}{20}(d_i)$	$f_i u_i$
10-30	20	5	-40	-2	-10
30-50	40	8	-20	-1	-8
50-70	60	12	0	0	0
70-90	80	20	20	1	20
90-110	100	3	40	2	6
110-130	120	2	60	3	6
		$\sum f_i = 50$			$\sum f_i u_i = 14$

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

Now, we have  $N = \sum f_i = 50$ ,  $\sum f_i u_i = 14$ ,  $h = 20$  and  $A = 60$ .

Putting the values in the above formula, we have

$$\begin{aligned}\bar{X} &= A + h \left( \frac{1}{N} \sum f_i u_i \right) \\ &= 60 + 20 \left( \frac{1}{50} \times (14) \right) \\ &= 60 + \frac{280}{50} \\ &= 60 + 5.6 \\ &= 65.6\end{aligned}$$

Hence, the mean is 65.6.

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