

## Statistics Ex 7.3 Q9

Answer:

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

| Classinterval: | $Midvalue(x_i)$ : | 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                          | 10 ( 1)<br>-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               |
|                |                   | $\sum f_i = 60$    |                              |  | $\sum f_i u_i =$ |

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

Now, we have  $N=\sum f_i=60,\;\sum f_iu_i=8,\;\;h=10$  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: | $Midvalue(x_i)$ : | $\text{frequency:}(f_i)$ | $d_i = x_i - A$ $= x_i - 20$ | $u_i = \frac{1}{h}(d_i)$ $= \frac{1}{8}(d_i)$ | $f_i u_i$        |
|-----------------|-------------------|--------------------------|------------------------------|---|------------------|
| 0-8             | 4                 | 5                        | -16                          | -8 <sup>(u<sub>i</sub>)</sup>                 | -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               |
|                 |                   | $\sum f_i = 40$          |                              |   | $\sum f_i u_i =$ |

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

$$\overline{X} = A + h \left( \frac{1}{N} \sum_{i} f_{i} u_{i} \right)$$

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

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

$$= 20 + 1$$

$$= 21$$

Hence, the mean is 21.

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