Statistics Ex 7.1 Q13

Answer :

Given:

x_i	5	10	15	20	25
f_i	7	k	8	4	5

Mean $=14$

First of all prepare the frequency table in such a way that its first column consist of the values of the variate (x_i) and the second column the corresponding frequencies (f_i).

Thereafter multiply the frequency of each row with corresponding values of variable to obtain third column containing $(f_i x_i)$.

Then, sum of all entries in the column second and denoted by $\sum f_i$ and in the third column to obtain $\sum f_i x_i$.

x_i	f_i	$f_i x_i$
5	7	35
10	k	$10k$
15	8	120
20	4	80
25	5	125
	$\sum f_i = 24 + k$	$\sum f_i x_i = 360 + 10k$

We know that mean, $\overline{X} = \dfrac{\sum f_i x_i}{\sum f_i}$

$$14 = \frac{360 + 10k}{24 + k}$$

By using cross multiplication method,

$$336 + 14k = 360 + 10k$$

$$14k - 10k = 360 - 336$$

$$4k = 24$$

$$k = 6$$

Hence, $k = 6$

Statistics Ex 7.1 Q14

Answer :

Given:

x_i	5	15	25	35	45
f_i	3	k	3	6	2

Mean = 25

First of all prepare the frequency table in such a way that its first column consist of the values of the variate (x_i) and the second column the corresponding frequencies (f_i).

Thereafter multiply the frequency of each row with corresponding values of variable to obtain third column containing $(f_i x_i)$.

Then, sum of all entries in the column second and denoted by $\sum f_i$ and in the third column to obtain $\sum f_i x_i$.

x_i	f_i	$f_i x_i$
5	3	15
15	k	15k
25	3	75
35	6	210
45	2	90
	$\sum f_i = 14 + k$	$\sum f_i x_i = 390 + 15k$

We know that mean, $\overline{X} = \dfrac{\sum f_i x_i}{\sum f_i}$

$$25 = \frac{390 + 15k}{14 + k}$$

By using cross multiplication method,

$$350 + 25k = 390 + 15k$$
$$25k - 15k = 390 - 350$$
$$10k = 40$$
$$k = 4$$

Hence, $k = 4$

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