Statistics Ex 7.1 Q15

Answer :

Given:

x_i	10	15	p	25	30
f_i	5	10	7	8	2

Mean $=18.75$

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	$f_i x_i$
10	5	50
15	10	150
p	7	$7p$
25	8	200
30	2	60
	$\sum f_i = 32$	$\sum f_i x_i = 460 + 7p$

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

$$18.75 = \frac{460 + 7p}{32}$$

By using cross multiplication method,

$$460 + 7p = 600$$

$$7p = 600 - 460$$

$$p = \frac{140}{7}$$

$$= 20$$

Hence, $p = 20$

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