Statistics Ex 7.1 Q6

Answer :

Given:

x_i	5	8	10	12	p	20	25
f_i	2	5	8	22	7	4	2

Mean $=12.58$

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	2	10
8	5	40
10	8	80
12	22	264
p	7	$7p$
20	4	80
25	2	50
	$\sum f_i = 50$	$\sum f_i x_i = 524 + 7p$

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

$$12.58 = \frac{524 + 7p}{50}$$

By using cross multiplication method

$$524 + 7p = 12.58 \times 50$$

$$7p = 629 - 524$$

$$= \frac{105}{7}$$

$$= 15$$

Hence, $p = \boxed{15}$

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