Statistics Ex 7.1 Q7

Answer :

Given:

x_i	3	5	7	9	11	13
f_i	6	8	15	p	8	4

Mean $=7.68$

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	$f_i x_i$
3	6	18
5	8	40
7	15	105
9	p	$9p$
11	8	88
13	4	52
	$\sum f_i = 41+p$	$\sum f_i x_i = 303+9p$

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

$$7.68 = \frac{303+9p}{41+p}$$

By using cross multiplication method,

$$303 + 9p = 314.88 + 7.68p$$

$$9p - 7.68p = 314.88 - 303$$

$$1.32p = 11.88$$

$$p = \frac{11.88}{1.32}$$

$$= 9$$

Hence, $p = \boxed{9}$

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