Statistics Ex 7.2 Q3

Answer :

Let the assume mean be $A = 4$.

no. of branches (x_i):	no. of plants (f_i):	$d_i = x_i - A$ $= x_i - 4$	$f_i d_i$
2	49	-2	-98
3	43	-1	-43
4	57	0	0
5	38	1	38
6	13	2	26
	$\sum f_i = 200$		$\sum f_i d_i = -77$

We know that mean, $\overline{X} = A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i$

Now, we have $N = \sum f_i = 200$, $\sum f_i d_i = -77$ and $A = 4$

Putting the values in the above formula, we get

$$\begin{aligned}\overline{X} &= A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i \\ &= 4 + \frac{1}{200}\times(-77) \\ &= 4 - 0.385 \\ &= 3.615 \\ &\approx 3.62(\text{approximate})\end{aligned}$$

Hence, the mean number of branches per plant is approximately 3.62.

Statistics Ex 7.2 Q4

Answer :

Let the assume mean be $A = 3$.

no. of children (x_i):	no. of families (f_i):	$d_i = x_i - A$ $= x_i - 3$	$f_i d_i$
0	10	-3	-30
1	21	-2	-42
2	55	-1	-55
3	42	0	0
4	15	1	15
5	7	2	14
	$\sum f_i = 150$		$\sum f_i d_i = -98$

We know that mean, $\overline{X} = A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i$

Now, we have $N = \sum f_i = 150$, $\sum f_i d_i = -98$ and $A = 3$

Putting the values above in formula, we get

$$
\begin{aligned}
\overline{X} &= A + \frac{1}{N}\sum_{i=1}^{n} f_i d_i \\
&= 3 + \frac{1}{150} \times (-98) \\
&= 3 - 0.653 \\
&= 2.347 \\
&\approx 2.35 (\text{approximate})
\end{aligned}
$$

Hence, the average number of children per family is 2.35.

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