



### Statistics Ex 7.1 Q11

**Answer :**

Given:

no. of heads per toss : $x_i$	0	1	2	3	4	5
No. of tosses : $f_i$	38	144	342	287	164	25

First of all prepare the frequency table in such a way that its first column consist of the number of heads per tosses ( $x_i$ ) and the second column the corresponding number of tosses ( $f_i$ ).

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 denote by  $\sum f_i x_i$  and in the third column to obtain  $\sum f_i$ .

no. of heads per toss : $x_i$	No. of tosses : $f_i$	$f_i x_i$
0	38	0
1	144	144
2	342	684
3	287	861
4	164	656
5	25	125
	$\sum f_i = 1000$	$\sum f_i x_i = 2470$

$$\begin{aligned} \text{We know that mean, } \bar{X} &= \frac{\sum f_i x_i}{\sum f_i} \\ &= \frac{2470}{1000} \\ &= 2.47 \end{aligned}$$

Hence, the mean number of heads per toss is 2.47.

### Statistics Ex 7.1 Q12

**Answer :**

Given:

$x_i$	10	30	50	70	90
$f_i$	17	$f_1$	32	$f_2$	19

Mean = 50

First of all prepare the frequency table in such a way that its first column consists 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	17	170
30	$f_1$	$30 f_1$
50	32	1600
70	$f_2$	$70 f_2$
90	19	1710
	$\sum f_i = 68 + f_1 + f_2$	$\sum f_i x_i = 3480 + 30 f_1 + 70 f_2$

Now,

$$68 + f_1 + f_2 = 120$$

$$f_1 + f_2 = 120 - 68$$

$$f_1 = 52 - f_2 \dots\dots (1)$$

We know that mean,  $\bar{X} = \frac{\sum f_i x_i}{\sum f_i}$

$$50 = \frac{3480 + 30f_1 + 70f_2}{120}$$

By using cross multiplication method,

$$6000 = 3480 + 30f_1 + 70f_2$$

$$6000 - 3480 = 30f_1 + 70f_2$$

$$2520 = 30f_1 + 70f_2$$

$$252 = 3f_1 + 7f_2 \dots\dots (2)$$

Putting the value of  $f_1$  from equation (1) in (2), we get

$$252 = 3(52 - f_2) + 7f_2$$

$$= 156 - 3f_2 + 7f_2$$

$$252 - 156 = 4f_2$$

$$96 = 4f_2$$

Therefore,

$$f_2 = \frac{96}{4}$$

$$= 24$$

Putting the value of  $f_2$  in equation (1), we get

$$f_1 = 52 - 24$$

$$= 28$$

Hence,  $f_1 = 28$  and  $f_2 = 24$

\*\*\*\*\* END \*\*\*\*\*