

CHAPTER 14

Statistics

Mean of grouped data (Discrete Frequency Distribution):

Let $x_1, x_2, x_3 \dots x_n$ be 'n' observations with respective frequencies

$f_1, f_2, f_3 \dots f_n$. Then,

$$\text{Mean } (\bar{x}) = \frac{\sum_{i=1}^n f_i x_i}{\sum_{i=1}^n f_i}$$

(OR)

$$= \frac{x_1 f_1 + x_2 f_2 + x_3 f_3 + \dots + x_n f_n}{f_1 + f_2 + f_3 + \dots + f_n}$$

(OR)

$$\text{Mean } (\bar{x}) = \frac{\sum_{i=1}^n f_i x_i}{N}, \text{ where } N = f_1 + f_2 + \dots + f_n$$

Example:

Find the mean of following distribution.

x	3	7	8	11	15
F	5	10	10	7	8

Sol.

x_i	f_i	$x_i f_i$
3	5	$3 \times 5 = 15$
7	10	$7 \times 10 = 70$
8	10	$8 \times 10 = 80$
11	7	$11 \times 7 = 77$
15	8	$15 \times 8 = 120$
	$\sum f_i = N = 40$	$\sum x_i f_i = 362$

Mean $(\bar{x}) = \frac{\sum x_i f_i}{N}$

$= \frac{362}{40}$

$\therefore \bar{x} = 9.05$