

(4).

Arithmetic Mean - (4)

Calculation of Arithmetic Mean in case of Cumulative frequency Distribution.

Here are two illustrations to facilitate your understanding.

(1). Marks.	No. of Student.
Less than 10	5
Less than 20	17
Less than 30	31
Less than 40	41
Less than 50	49

Solⁿ A 'cumulative frequency distribution' should first be converted into simple frequency distribution, as under.

Marks	f	No. of Student	$M = \frac{4+12}{2}$	fM
0-10	5	5	5	25
10-20	$17-5=12$	15	15	180
20-30	$31-17=14$	25	25	350
30-40	$41-31=10$	35	35	350
40-50	$49-41=8$	45	45	360
	$\Sigma f = 49$			$\Sigma fM = 1265$

$$\bar{x} = \frac{\sum fm}{\sum f} = \frac{1265}{49} = 25.82$$

Illustration. 2.

<u>Marks</u>	<u>No. of Student</u>
More than 0	30
More than 10	28
More than 20	24
More than 30	18
More than 40	10

~~For~~ Arithmetic mean of this converted

Continuous series is estimated below.

<u>Marks</u>	<u>No. of Stud.</u>	<u>M</u>	<u>fm</u>
0-10	2	5	10
10-20	4	15	60
20-30	6	25	150
30-40	8	35	280
40-5	10	45	450
	<u>30</u>		<u>1050</u>

$$\bar{x} = \frac{\sum fm}{\sum f} \text{ or } \bar{x} = \frac{\sum fm}{N}$$

$$\bar{x} = \frac{1050}{30} = 35$$

To be Continued
Thank you.