

→ Methods of Calculating Simple Arithmetic Mean.

We know, there are three types of statistical series:

- (1) Individual Series,
- (2) Discrete Series,
- (3) Continuous Series or Frequency Distribution.

Arithmetic mean may be calculated with respect to these series using different method as discussed below:

- (1) Direct Method,
- (2) Short-cut Method.

(I) Direct Method

following steps are involved in this method.

(i) Add up value of all the items of a series (Σx),

(ii) Find out total number of items in the series (N); and

(iii) Divide the total of value of all the items (Σx) with the number

of items (N), thus,

$$\bar{X} = \frac{\Sigma x}{N} \text{ or } \bar{X} = \frac{\text{Total value of the items}}{\text{No. of items}}$$

Ex-12. Pocket allowance of 10 students is ₹ 15, 20, 30, 22, 25, 18, 40, 50, 55 and 65. Find out the average pocket allowance.

(x)

Soln

15

20

30

22

25

18

40

50

55

65

$\Sigma x = 340$

$$\bar{X} = \frac{\Sigma x}{N} = \frac{340}{10} = 34$$

Average pocket allowance of the 10 students - 34

Short-cut method

formula.

$$\bar{x} = A + \frac{Ed}{N}$$

Here $\bar{x}$: Arithmetic Mean.

A: Assumed average.

Ed: Net sum of the deviations of the different value from the assumed average.

N: Number of items in the series.

So/h

No. of students	packet Allowance (x)	d = (x - A) A = 40.
1	15	15 - 40 = -25
2	20	20 - 40 = -20
3	30	30 - 40 = -10
4	22	22 - 40 = -18
5	25	25 - 40 = -15
6	18	18 - 40 = -22
7	40 (A)	40 - 40 = 0
8	50	50 - 40 = 10
9	55	55 - 40 = 15
10	65	65 - 40 = 25

$$Ed = \begin{array}{r} -110 \\ +50 \\ \hline -60 \end{array}$$

$$\bar{x} = A + \frac{Ed}{N} = \bar{x} = 40 + \frac{-60}{10}$$

$$= 40 - 6 = 34$$

(thank you)