



ECONOMICS

BOOKS - GOYAL BROTHERS

PRAKASHAN ECONOMICS (HINGLISH)

ARITHMETIC MEAN

Example Ungrouped Data

1. Given below are the marks (out of maximum of 100) of 10 students in an examination.

Calculate the simple arithmetic mean of the marks.

90,64,79,33,85,59,60,70,40,95



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2. Compute the simple and weighted mean of the monthly salary from the following data :

Class of employees	Salary (₹)	No. of employees
Class I	6000	5
Class II	5000	10
Class III	4000	20
Class IV	3000	10



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3. Calculate the simple mean and the weighted mean of the prices obtained by weighing each price by the quantity demanded.

Goods	Price (per unit)	Demand (units)
A	10	100
B	54	50
C	3	500
D	27	100
E	21	200



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4. A student obtains the following marks (out of maximum of 100) in different subjects with different weights. Calculate weighted mean.

Also calculate simple mean.

Subject	Marks	Weight
Economics	80	2
Commerce	75	2
Accountancy	95	2
English	70	1
Hindi	65	1



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Solved Examples

1. Find the arithmetic mean from the following distribution. :

Wages (in ₹)	No. of workers
0 - 100	20
100 - 200	30
200 - 300	35
300 - 400	40
400 - 500	20



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2. Calculate the average marks from the following table :

Marks :	0-20	20-40	40-60	60-80	80-100
No. of Students	8	17	27	18	10



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3. The following table given the age of 500 students in a school. Calculate the average age:

Age-group (years)	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20
No. of students	150	100	100	80	70



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4. Find the arithmetic mean by (a) assumed mean and (b) step deviation methods.

Wages (₹)	0 – 100	100 – 200	200 – 300	300 – 400	400 – 500
No. of workers	20	30	35	40	20



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5. Calculate the arithmetic mean by (a) assumed mean and (b) step deviation methods

Marks	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of students	8	17	27	18	10



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6. Calculate the arithmetic mean by (a) assumed mean and (b) step deviation methods

Age group	0 – 4	4 – 8	8 – 12	12 – 16	16 – 20
No. of students	150	100	100	80	70



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Exercise Multiple Choice Question

1. In case of good A 100 units sold at a price of Rs. 10 per unit. In case of good B only 10 units are sold at a price of Rs. 120 per unit. The weighted mean of the prices of the two goods is :

A. Rs 65

B. Rs. 20

C. Rs. 17

D. Rs. 16

Answer: B



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2. If one of the variable is missing from the data series:

A. We can calculate arithmetic mean by ignoring the missing item.

B. We can calculate arithmetic mean by assuming some value of the missing item.

C. We can assume that the value of missing item is equal to the arithmetic mean of the remaining items.

D. We cannot calculate arithmetic mean.

Answer: D



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3. The sum of squared deviations of the items from the mean :

A. is maximum

B. is minimum

C. is equal to the sum of square of variables

D. is equal to zero

Answer: B



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4. There are two goods X and Y. Both are being sold at the same price but the quantities sold are not known. In this situation :

A. We cannot calculate simple arithmetic mean of prices.

B. We cannot calculate weighted arithmetic mean of prices.

C. We can calculate both and both will be equal.

D. We calculate both and both will be unequal.

Answer: C



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5. There are two goods. Both are being sold at different prices but the quantities sold in case of both is the same. In this situation :

A. Simple arithmetic mean of prices will be higher than that of weighted arithmetic mean.

B. Simple arithmetic mean of prices will be lower than that of weighted arithmetic mean.

C. Both will be equal.

D. Any of the above.

Answer: C



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Exercise Short Answer Question 1

1. Explain two main advantages of arithmetic mean.



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2. Explain two main disadvantages of arithmetic mean.



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Exercise Long Answer Question

1. Explain two advantages and two disadvantages of arithmetic mean as a measure of central tendency.



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Exercise Numerical Exercises

1. Calculate the mean monthly rent by long method from the following :

Monthly rent (₹)	500-999	1000-1499	1500-1999	2000-2499
No. of houses	100	90	80	50



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2. Solve Q.1 by step deviation method.



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3. An opinion poll was conducted by interviewing 150 people. Calculate the mean age of the people on the basis of the following information about them. Use the short method.

Age group (years)	No. of persons
20 – 29	30
30 – 39	40
40 – 49	50
50 – 59	10
60 – 69	15
70 – 79	3
80 – 89	2
	N = 150



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4. A survey of monthly incomes of 100 families living in a village was conducted. Calculate the mean monthly income of the families on the basis of the following information about them.

Monthly income (₹)	No. of families
0 – 500	25
500 – 1000	30
1000 – 1500	20
1500 – 2000	10
2000 – 2500	7
2500 – 3000	6
3000 – 3500	2
	N = 100



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5. Calculate average cost of cultivation per quintal of wheat from the following both by long and short methods.

Average cost (₹ per quintal)	No. of farms
200 – 220	40
220 – 240	30
240 – 260	20
260 – 280	10
280 – 300	5
	N = 105



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6. Calculate (a) unweighted and (b) weighted mean price from the following :

Market	Price per unit	Quantity sold
A	10	1000
B	9	1200
C	8	1500
D	7	1600
E	7	1400



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7. Calculate the simple arithmetic mean of the pocket money of the 8 students chosen at random from a school.

Rs :50,40,20,70,50,25,35,10



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8. Sachin Tendulkar scored the following runs in the World Cup Cricket 2003. Calculate the arithmetic mean.

Match against	Score
Holland	52
Australia	36
England	52
Zimbabwe	81
Namibia	152
Pakistan	98
Kenya	5
Sri Lanka	97
New Zealand	15
Kenya	81
Australia	4



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9. Per Capita income (at 1993-94) of India during 1991-1992 to 2001-02 is given below.

Calculate simple arithmetic mean.

Year	Per capita income (₹)
1991-92	7212
1992-93	7433
1993-94	7690
1994-95	8070
1995-96	8489
1996-97	9007
1997-98	9243
1998-99	9650
1999-2000	10068
2000-2001	10306
2001-2002	10754



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10. Given yield per hectare of food grains in India during 1995-96 and 2001-2002, calculate simple arithmetic mean.

Year	Yield per hectare (kg)
1995-96	1491
1996-97	1614
1997-98	1552
1998-99	1627
1999-2000	1704
2000-2001	1648
2001-2002	1739



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11. Frequency distribution of cost of production per unit of a good is given below.

Find the average cost.

Cost per unit (₹)	Output (units)
20-30	10
30-40	30
40-50	40
50-60	20
60-70	15
70-80	5



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12. Calculate (i) the unweighted mean of prices and (ii) the mean obtained by weighting each

price by the quantity consumed.

Commodity	Consumption (kg)	Price (₹ per kg)
Wheat	20	12
Ghee	2	150
Sugar	5	16
Oil	2	80
Potatoes	10	5



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13. A student obtains the following percentage in an examination.

Subject	Marks %
English	70
Economics	75
Maths	90
Accounts	80
Business Studies	60

(i) Find out simple mean marks , if all subjectes are given equal weight.

(ii) Find out weighted mean marks, if the respective weights are 1,2,1,2,3



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14. The mean height of 20 girls in section A of a class is 155 cm, and that of 30 girls in section B is 158 cm. Find the overall mean height of 50 girls.



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15. Gross Enrolment Ratio (GER) in classes I-V for boys and girls in the 32 States and Union Territories of India during the year 2000-01 is given below. Calculate the GER and compare the result.

GER	No. of States / U.T.	
	Boys	Girls
50 - 60	0	1
60 - 70	2	4
70 - 80	4	3
80 - 90	3	4
90 - 100	3	7
100 - 110	5	9
110 - 120	8	3
120 - 130	3	0
130 - 140	3	1
140 - 150	1	0
Total	32	32



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16. Percentage of households having access to safe drinking water in 31 States/Union Territories of India during 1991 is given below. Calculate mean percentage and compare the results.

Percentage of Households	No. of States / U.Ts.	
	Rural Household	Urban Household
Below 10	1	0
Below 20	3	2
Below 30	4	2
Below 40	8	3
Below 50	12	4
Below 60	19	5
Below 70	24	8
Below 80	26	14
Below 90	27	22
Below 100	31	31



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17. Find the average mark from the following :

Marks	No. of students
Above 0	80
Above 10	77
Above 20	72
Above 30	65
Above 40	55
Above 50	43
Above 60	28
Above 70	16
Above 80	10
Above 90	8
Above 100	0



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18. Find the average cost of production (in Rs per unit) in factories in two states.

Cost (₹ per unit)	No. of factories	
	State A	State B
2 – 3	18	2
3 – 4	64	20
4 – 5	74	68
5 – 6	42	46
6 – 7	26	42
7 – 8	14	28
8 – 9	10	20
9 – 10	4	18



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19. Calculate the average daily earnings of employees.

Daily earnings (₹)	No. of employees
30-40	5
40-50	7
50-60	8
60-70	11
70-80	9
80-90	4
90-100	4
100-110	2



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20. Calculate the average number of days of absence by students from school :

No. of days absent	No. of students
Less than 5 days	30
Less than 10 days	100
Less than 15 days	200
Less than 20 days	280
Less than 25 days	340
Less than 30 days	386
Less than 35 days	410
Less than 40 days	427
Less than 45 days	440



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21. Calculate average number of marks by student in a class.

Marks	No. of students
0 – 5	4
6 – 10	5
11 – 15	10
16 – 20	3
21 – 25	3

Note: It is inclusive class case with lower limit of the first class is zero.



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