ECONOMICS

BOOKS - GOYAL BROTHERS PRAKASHAN ECONOMICS (HINGLISH)

MEASURES AND DISPERSION

Example

1. Find out range and quartile deviation from the following marks obtained by 10 students .

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

2. Find out range and semi inter-quartile range

(Q) from the following items .

9, 15 , 12 , 21 , 8 , 17 , 20

3. Find out (a) range and (b) quartile deviation

from the following :

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

4. Find semi-interquartile range from the following :

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

5. Find out quartile deviation from the following distribution .

Marks	0–25	25–50	50–75	75–100
No. of students	4	6	12	8

Solved Example

1. Calculate average deviation from the data of marks obtained by 10 students .

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

2. Find out average deviation from the following items

8 , 9 , 12 , 15 , 17 , 20 , 24

3. Find average deviation from the following :

Wage (₹)	0–100	100–200	200–300	300–400	400–500
No. of workers	20	30	35	45	20

4. Find average deviation from the following :

Marks	0–20	20–40	40–60	60–80	80–100
No. of students	12	21	31	22	14

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5. Calculate standard deviation from the data on marks obtained by 10 students :

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

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6. Calculate standard deviation from the following items .

8 , 9 , 12 , 15 , 17 , 20 , 24

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7. Find standard deviation from the following :

Wage (₹)	0–100	100–200	200–300	300–400	400–500
No. of workers	20	30	35	45	20

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8. Calculated standard deviation by shortcut method .

Marks	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of students	12	21	31	22	14

9. Solve example 3 by the assumed mean method .

10. Find the coefficient of variation from data

in Example 1 in section 10.7

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11. Find coefficient of variation from data in

example 2 in section 10.7.

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12. Calculate coefficient of variation from data in example 3 in section 10.7

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13. On the basis of data in Example of section 9.5 of Chapter 9 m calculate the value of coefficient of Quartile Deviation .

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14. On the basis of data in Example 2 of section 9.5 of Chapter 9 , calculate the value of coefficient of Quartile Deviation .

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15. On the basic of data in Example of Section 9.5 of Chapter 9 ,calculate the value of coefficient of Quartile Deviation.

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16. On the basic of data in Example 4 of section 9.5 of Chapter 9 , calculate the coefficient of Quartile Deviation .

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17. On the basic of data in Example of 5 of Section 9.5 of Chapter 9 , calculate the coefficient of Quartile Deviation .

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18. On the basis of data in Example 1 of section 10.5.5 in Chapter 10 , calculate the coefficient of Mean Deviation .

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19. On the basic of data in Example 2 in section 10.5.5 of chapter 10 , calculate coefficient of Mean Deviation .

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20. On the basic of data in Example 3 in section 10.5.5 of chapter 10 , calculate coefficient of Mean Deviation .

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21. On the basic of data in Example 4 in section 10.5.5 of chapter 10 , calculate coefficient of Mean Deviation .

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1. Quartile deviation is not affected by the extreme values because it is based on :

    A. 25% of the central value of the series

    B. 50% of the central value of the series

    C. 75% of the central value of the series

    D. 80% of the central value of the series

Answer: B

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2. Average deviation can be calculated from

A. Mean

B. Median

C. Both mean and median

D. Neither mean nor median

Answer: C

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3. Standard deviation is calculated from

A. Mean

B. Median

C. Both mean and median

D. Neither mean nor median

Answer: A

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4. If the lower limit of the class of the lowest value is zero , the value of coefficient of range is :

A. Zero

B. 0.50

C. 0.75

D. 1.00

Answer: D

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5. If $Q_1 = 10$ and $Q_3 = 30$, the value of the Coefficient of Quartile Deviation is :

A. 0.25

B. 0.50

C. 0.33

D. 0.75

Answer: B

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6. In case of perfect inequality , the value of Gini Coefficient will be :

A. Zero

B. Infinity

C. 1

D. -1

Answer: D

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1. What is the main disadvantage of range ?

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2. Name the steps in drawing Lorenz Curve .

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3. Explain the method of calculating the coefficient of range.

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Short Answer Questions Ii

1. Explain the need for the measures of relative dispersion .

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2. Explain the need for the measures of relative dispersion .

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3. Explain the measure of 'Gini Coefficient .'

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Numerical Questions

1. Find the range and the coefficient of range of the following series :

40 , 38 , 52 , 34 , 62 , 54 , 42 , 65

2. Exchange rate of U.S. dollar vis-a -vis Indian rupee (i.e. 1 U.S. dollar = so many Rs) from April to Dec . 2002 is given below . Find the range

and the coefficient of range.

Month	Exchange rate (₹)
April	48.918
May	48.997
June	48.967
July	48.764
August	48.585
Sept.	48.440
Oct.	48.371
Nov.	48.255
Dec.	48.141

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3. Given below is frequency distribution of

state- wise literacy rate in Indian during 2001 .

Find the range , coefficient of range and

quartile deviation .

Literacy rate (in per cent)	No. of States/UTs
47 – 58	4
58 – 69	11
69 – 80	8
80 – 91	9
Total	32

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4. Find the semi-interquartile range , coefficient of range and the coefficient of

quartile deviation of the following series :

Age (years)	No. of persons
18	5
19	6
20	7
21	8
22	9
23	8
24	7
25	5

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5. Calculate the coefficient of range and quartile deviation and its coefficient from the

following :

Marks	No. of students
0	2
1	3
2	4
3	6
4	10
5	12
6	10
7	6
8	1
9	2

6. Find the semi-interquartile range and coefficient of quartile deviation of the frequency distribution of literacy rates in

States/UT in India during 2001.

Literacy rates (%)	No. of States/UT
47 – 51	1
51 – 55	2
55 – 59	1
59 – 63	3
63 – 67	4
67 – 71	8
71 – 75	2
75 – 79	2
79 – 83	6
83 – 87	0
87 – 91	3

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7. Calculate the average deviation from the arithmetic mean and coefficient of mean

deviation : 20 , 22 , 27 , 30 , 31 , 32 , 35 , 40 , 45 ,

48

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8. The following are the rent of 12 houses .

Calculate mean deviation .

500 , 525 , 470 , 535 , 475 , 460 , 570 , 620 , 425 ,

590 , 490 .

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9. Calculate mean deviation and coefficient of mean deviation of the differences of the age between husband and wife in a particular community .

Differences (in years)	Frequency
0 – 5	440
5 – 10	700
10 – 15	500
15 – 20	280
20 – 25	100
25 – 30	50
30 – 35	15
35 – 40	5

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10. Calculate average deviation and coefficient of average deviation.

Size of item	Frequency
3 – 4	3
4 – 5	7
5 – 6	22
6 – 7	60
7 – 8	85
8 – 9	32
9 – 10	8

11. Given the height (in cm) of 10 persons , calculate standard deviation and coefficient of variation :

170 , 165 , 150 , 154 , 163 , 169 , 155 , 153 , 164 ,

168

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12. Given the marks of ten students , calculate

standard deviation and coefficient of variation

:

70 , 80 , 90 , 85 , 65 , 55 , 75 , 84 , 97 , 59

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13. Find out standard deviation and coefficient of variation .

Variable	Frequency
0 – 5	2
5 – 10	5
10 – 15	7
15 – 20	13
20 – 25	2
25 – 30	16
30 – 35	8
35 – 40	3

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14. Calculate the standard deviation and coefficient of variation .

Marks	No. of students
0 – 10	5
10 – 20	10
20 – 30	20
30 – 40	40
40 – 50	30
50 – 60	20
60 – 70	10
70 – 80	4

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15. Calculate the standard deviation and coefficient of variation of age of members of a society .

Age	No. of members
20 – 30	3
30 – 40	61
40 – 50	132
50 – 60	153
60 – 70	140
70 – 80	51
80 – 90	2

16. Calculate the standard deviation and coefficient of variation of pocket money received by students .

Pocket money (₹)	No. of students
Below 5	6
Below 10	16
Below 15	28
Below 20	38
Below 25	46

17. The mean and standard deviation of two series X and Y are :

	Series X	Series Y
Mean	50	80
S. D.	10	20

Which series shows lower variation ?

18. The mean and standard deviation of marks obtained by sections A and B are :

	Series A	Series B
Mean	20	21
$S.D.$	6	9

Which series shows lower variation ?

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