



Name of the Bundle	Advanced Bundle V1	Subject	Aptitude
Topic	Elementary Statistics	Last updated on	10 October 2024

CONCEPT 1 – ARITHMETIC MEAN / AVERAGE

1) Consider the data set containing the values 3, 4, 5, 5, 8, 9, 9, 9, 13, 15. Find the mean of the data.

- a) 9
- b) 10
- c) 8
- d) 11

ANS: c) 8

Explanation:

- Mean of data = $\frac{\text{Sum of observations}}{\text{Total no. of observations}}$
 $\frac{80}{10}$
- Mean = 8.

Alternative: Assume 8 as Mean

Data	3	4	5	5	8	9	9	9	13	15
Deviation from 8	-5	-4	-3	-3	0	+1	+1	+1	+5	+7

- Overall deviation = 0 i.e., our assumed Mean is correct.
- Mean = 8.



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2) What is the mean of the following distribution?

54, 23, 66, 44, 79, 21, 54, 67, 29, 59

- a) 51.4
- b) 19.3
- c) 48.7
- d) 49.6

ANS: d) 49.6

Explanation:

- Assume 50 as Mean.

Data	21	23	29	44	54	54	59	66	67	79
Deviation from 50	-29	-27	-21	-6	+4	+4	+9	+16	+17	+29

- Overall deviation = $-4/10 = -0.4$.
- Mean = $50 - 0.4 = 49.6$.

3) If the mean of $x+1$, $x+12$, $2x+3$ and $3x+5$ is 21, then the value of x is?

- a) 12
- b) 10
- c) 8
- d) 9

ANS: d) 9

Explanation:

- $(x+1)+(x+12)+(2x+3)+(3x+5) = 21*4$
- $7x = 21*3$
- $x = 9$.

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4) If the mean of the following data is 9, then find the value of K.

11, (K-2), 7, (K-1), 11, 16, 12, 15, (K-1), 13

- a) 4
- b) 5
- c) 3
- d) 2

ANS: c) 3

Explanation:

- $11+(K-2)+7+(K-1)+11+16+12+15+(K-1)+13 = 9*10$
- $3K = 9.$
- $K = 3.$



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CONCEPT 2 – MEAN DEVIATION

5) The mean deviation of the data 3, 10, 10, 4, 7, 10, 5 is_____.

- a) 49/7
- b) 19/7
- c) 50/7
- d) 18/7

ANS: d) 18/7

Explanation:

- Mean deviation is the average deviation from the mean value of the given data set.
- Assume 7 as Mean.

Data	3	4	5	7	10	10	10
Deviation from 7	-4	-3	-2	0	+3	+3	+3

- Overall deviation = 0 i.e., our assumed Mean is correct.
- Mean = 7.
- Mean deviation = $(4+3+2+0+3+3+3) / 7 = 18/7$.



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CONCEPT 3 – MEDIAN

6) The median of the data -3, 4, 0, 4, -2, -5, 1, 7, 10, 5 is_____.

- a) 2
- b) 2.5
- c) 2.75
- d) 3

ANS: b) 2.5

Explanation:

- The number of observations is even, here $n = 10$.
- Median = Average of middle two terms. (Datas should be arranged in ascending order) -5,-3,-2,0,1,4,4,5,7,10.
- Median = $(1 + 4)/2 = 2.5$.

7) What is the median of the following distribution?

67, 31, 53, 22, 66, 8, 43, 54, 77, 13, 43, 97, 36, 12, 90, 53

- a) 53
- b) 56.5
- c) 48
- d) 54.5

ANS: c) 48

Explanation:

- The number of observations is even, here $n = 16$.
- Median = Average of middle two terms. (Datas should be arranged in ascending order) 8,12,13,22,31,36,43,43,53,53,54,66,67,77,90,97.
- Median = $(43 + 53)/2 = 48$.



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8) The median of the following numbers arranged in ascending order is 2.5, if so find x. 0, 0, 1, 1, 2, 2, X, 3, 3, 4, 5, 7

- a) 2
- b) 1
- c) 3
- d) 0

ANS: c) 3

Explanation:

- The number of observations is even, here $n = 12$.
- Median = Average of middle two terms. (Datas should be arranged in ascending order) 0, 0, 1, 1, 2, 2, X, 3, 3, 4, 5, 7.
- Median = $(2 + X)/2 = 2.5$.
- $X = 3$.



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9) If the median of the following data is 11, then find the value of k.

3, 21, 10, 7, 6, 9, (k+6), 15, 20,16.

- a) 4
- b) 7
- c) 6
- d) 5

ANS: c) 6

Explanation:

- The number of observations is even, here $n = 10$.
- Median = Average of middle two terms. (Datas should be arranged in ascending order)
- We have to place k+6 such that the median is 11.
- 3,6,7,9,10,k+6,15,16,20,21.
- Median = $(k+6+ 10)/2 = 11$.
- $k = 6$.



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10) The numbers 25, 34, 46, 48, $2x+1$, $4x+3$, 105, 110, 114, 122 are written in ascending order and their median is 77. The value of x is?

- a) 25
- b) 24
- c) 28
- d) 22

ANS: a) 25

Explanation:

- The number of observations is even, here $n = 10$.
- Median = Average of middle two terms. 25, 34, 46, 48, $2x+1$, $4x+3$, 105, 110, 114, 122.
- Median = $(2x+1+4x+3)/2 = 77$.
- $(6x+4) = 77*2$
- $x = 25$.



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11) The median of the set of 11 distinct observations is 17.5. If each of the largest 5 observations of the set is increased by 3, then the median of the new set is _____.

- three times the original.
- decreased by 3.
- increased by 3.
- Remains the same as of the original set.

ANS: d) Remains the same as of the original set.

Explanation:

- The number of observations is odd, here $n = 11$.
- Median = Middle term = 6th term.
- While increasing the largest 5 observations of the set by 3, the median which is the 6th term remains the same.



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CONCEPT 4 – MODE

12) What is the mode of the following list of numbers 2, 4, 5, 6, 5, 4, 3, 5, 3, 1 and 7?

- a) 3
- b) 4
- c) 5
- d) 2

ANS: c) 5

Explanation:

- The mode can be defined as the most frequent value in the given set of data.
- Here, 5 repeats 3 times.
- Mode = 5.

13) If the mode of the following data is 11, then find the value of k.

11, 8, 9, (2k-1), 11, 12, 12, 18, 14, 16

- a) 5
- b) 6
- c) 7
- d) 4

ANS: b) 6

Explanation:

- Here, 12 & 11 repeats 2 times.
- $2k-1 = 11$, since 11 is the mode it should repeat more than 2 times.
- $k = 6$.



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14) The numbers 8, 9, 11, 15, 17, 21 and N are arranged in ascending order. The mean of these numbers is equal to the median of the numbers. The value of N is_____.

- a) 24
- b) 26
- c) 25
- d) 22

ANS: a) 24

Explanation:

- Given numbers are arranged in an ascending order, They said Mean = Median.
- Median = middle term (n-odd) = 15 = Mean.

Data	8	9	11	15	17	21	N
Deviation from 15	-7	-6	-4	0	+2	+6	+9

- $N = 15 + 9 = 24$.



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15) What is the mean of the median and the mode of the data?

19, 20, 14, 15, 19, 16, 17, 15, 14, 13, 18, 19, 17, 13

- a) 17
- b) 18
- c) 17.75
- d) 17.25

ANS: c) 17.75

Explanation:

- The number of observations is even, here $n = 14$.
- Median = Average of middle two terms. (Datas should be arranged in ascending order) 13,13,14,14,15,15,16,17,17,18,19,19,19,20.
- Median = $(16+17)/2 = 16.5$.
- Mode = 19.
- Mean = $(\text{Median}+\text{Mode})/2 = 17.75$

16) The mean of a set of 120 observations is 80. 10 is subtracted from each observation and each of the corresponding results is divided by 7. What is the mean of the new set?

- a) 7
- b) 10
- c) 5
- d) 8

ANS: b) 10

Explanation:

- If each observation is added/subtracted/multiplied/divided by a constant.
- Then, New Mean = Old Mean (+ or - or * or /) constant.
- New mean 1 = $80-10 = 70$.
- New Mean 2 = $70/7 = 10$.



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CONCEPT 5 – EMPIRICAL RELATION

17) For a given data Mean and Mode are 42 and 60 respectively, then find the median of the data.

- a) 50
- b) 44
- c) 48
- d) 46

ANS: c) 48

Explanation:

- $3 \text{ Median} = 2 \text{ Mean} + \text{Mode}.$
- $3 \text{ Median} = 2 \times 42 + 60 = 144.$
- $\text{Median} = 48.$

18) If the ratio of the mode and median of a certain data is 9:8, then the ratio of its mean and median is ____.

- a) 15:17
- b) 13:15
- c) 15:16
- d) 11:15

ANS: c) 15:16

Explanation:

- $\text{Median} = 8x ; \text{Mode} = 9x.$
- $2 \text{ Mean} = 3 \text{ Median} - \text{Mode}.$
- $2 \text{ Mean} = 24x - 9x ; \text{Mean} = 7.5x$
- $\text{Mean} : \text{Median} = 7.5 : 8 = 15 : 16.$



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19) If the ratio of the mean and median of a certain data is 4:5, then the ratio of its mode and mean is_____.

- a) 7:5
- b) 6:5
- c) 8:5
- d) 7:4

ANS: d) 7:4

Explanation:

- Mean = $4x$; Median = $5x$.
- Mode = $3 \text{ Median} - 2 \text{ Mean}$.
- Mode = $15x - 8x$; Mode = $7x$
- Mode : Mean = $7 : 4$.

20) If the difference of the mode and median of a data is 38, then the difference of the median and mean is_____.

- a) 19
- b) 18
- c) 24
- d) 22

ANS: a) 19

Explanation:

- Median ~ Mode = 38.
- $2 \text{ Mean} = 3 \text{ Median} - \text{Mode} = 2 \text{ Median} + (\text{Median} - \text{Mode})$.
- $2(\text{Median} \sim \text{Mode}) = 38$.
- Median ~ Mode = 19.



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CONCEPT 6 – RANGE

21) In a week, the prices of a bag tea were Rs 350, Rs 280, Rs 340, Rs 270, Rs 360, Rs 310 and Rs 300. The range is_____.

- a) 100
- b) 80
- c) 70
- d) 90

ANS: d) 90

Explanation:

- Range is the difference between the largest number and smallest number of the given data.
- Range = 360 - 270.
- Range = 90.

22) Find the range of the data 2, 1, 2, 3, 5, 4, 7, 3, 5, 2, 4.

- a) 5
- b) 3
- c) 6
- d) 4

ANS: c) 6

Explanation:

- Range is the difference between the largest number and smallest number of the given data.
- Range = 7 - 1.
- Range = 6.



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23) Find the range of the data from 1 to 100.

- a) 99
- b) 50
- c) 90
- d) 55

ANS: a) 99

Explanation:

- Range is the difference between the largest number and smallest number of the given data.
- Range = $100 - 1$.
- Range = 99.

24) Following are the marks of students in Mathematics: 50, 53, 50, 51, 48, 93, 90, 92, 91, 90. Find the range of the marks.

- a) 53
- b) 45
- c) 48
- d) 30

ANS: b) 45

Explanation:

- Range is the difference between the largest number and smallest number of the given data.
- Range = $93 - 48$.
- Range = 45.



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CONCEPT 7 – RELATION BETWEEN VARIANCE AND STANDARD DEVIATION

25) If the variance of 5 values is 0.81, then its standard deviation_____.

- a) 0.09
- b) 2.7
- c) 0.27
- d) 0.9

ANS: d) 0.9

Explanation:

- Standard deviation is the square root of the variance.
- Standard deviation = $\sqrt{0.81} = 0.9$

25) If the variance of the set of data is 121, then its standard deviation_____.

- a) 10
- b) 27
- c) 11
- d) 60.5

ANS: c) 11

Explanation:

- Standard deviation is the square root of the variance.
- Standard deviation = $\sqrt{121} = 11$



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26) If the standard deviation of a population is 7, then its variation is _____.

- a) 14
- b) 21
- c) 28
- d) 49

ANS: d) 49

Explanation:

- Standard deviation is the square root of the variance.
- Standard deviation = $7 \times 7 = 49$

27) If the standard deviation of a population is 6.5, then its variation is _____.

- a) 40.25
- b) 42.25
- c) 18.25
- d) 13

ANS: b) 42.25

Explanation:

- Standard deviation is the square root of the variance.
- Standard deviation = $6.5 \times 6.5 = 42.25$