



MATHS

BOOKS - HIMALAYA MATHS (KANNADA ENGLISH)

STATISTICS MEASURE OF DIPERSION

Question Bank

1. The mean deviation of the data 2, 9, 9, 3, 6, 9, 4 from the mean is :

A. 2.23

B. 2.57

C. 3.23

D. 3.57

Answer: B



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2. Variance of the data 2, 4, 5, 6, 8, 17 is 23.33.

Then variance of 4, 8, 10, 12, 16, 34 is :

A. 23.23

B. 25.33

C. 46.66

D. 48.66

Answer: C



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3. A set of n values x_1, x_2, \dots, x_n has standard deviation σ . The standard deviation

of n values : $x_1 + k, x_2 + k, \dots, x_n + k$

will be :

A. σ

B. $\sigma + k$

C. $\sigma - k$

D. $k\sigma$

Answer: A



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4. The mean deviation of the data 3, 10, 10, 4, 7, 10, 5 from the mean is :

A. 2

B. 2.75

C. 3

D. 3.75

Answer: B



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5. Mean deviation for n observations

x_1, x_2, \dots, x_n from their mean \bar{x} is given by

:

A. $\sum_{i=1}^n (x_i - x)$

B. $\frac{1}{n} \sum_{i=1}^n |x_i - x|$

C. $\sum_{i=1}^n (x_i - \bar{x})$

D. $\frac{1}{n} \sum_{i=1}^n (x_i - x)$

Answer: B



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6. When tested, the lives (in hours) of 5 bulbs were noted as follows : 1357, 1090, 1666, 1494, 1623. The mean deviations (in hours) from their mean is :

A. 178

B. 179

C. 220

D. 356

Answer: A



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7. Following are the marks obtained by 9 students in a Mathematics test : 50, 69, 20, 33, 53, 39, 40, 65, 59. The mean deviation from the median is :

A. 9

B. 10.5

C. 12.67

D. 14.76

Answer: C



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8. The standard deviation of the data 6, 5, 9, 13, 12, 8, 10 is :

A. $\sqrt{\frac{52}{7}}$

B. $52/7$

C. $\sqrt{6}$

D. 6

Answer: A



9. Let x_1, x_2, \dots, x_n be n observations and x be their arithmetic mean. The formula for the standard deviation is given by :

A. $\sum (x_i - x)^2$

B. $\frac{\sum (x_i - x)^2}{n}$

C. $\sqrt{\frac{\sum (x_i - x)^2}{n}}$

D. $\sqrt{\frac{\sum x_i^2}{n} + x^{-2}}$

Answer: C



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10. The mean of 100 observations is 50 and their standard deviation is 5. The sum of all squares of all the observations is :

- A. 50000
- B. 250000
- C. 252500
- D. 255000

Answer: C



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11. Let a, b, c, d, e be the observations with mean m and standard deviation s . The standard deviation of the observations $a + k, b + k, c + k, d + k, e + k$ is :

A. s

B. ks

C. $s+k$

D. s/k

Answer: A



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12. Let x_1, x_2, \dots, x_n be n observations. Let $w_i = lx_i + k$ for $i = 1, 2, \dots, n$, where l and k are constants. If the mean of x_i 's is 48 and their standard deviation is 12, the mean of w_i 's is 55 and standard deviation of w_i 's is 15, the values of l and k should be

A. $l = 1.25, k = -5$

B. $l = -1.25, k = 5$

C. $l = 2.5, k = -5$

D. $l = 2.5, k = 5$

Answer: A



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13. Let x_1, x_2, x_3, x_4, x_5 be the observations with mean m and standard deviation s . The standard deviation of the observations $kx_1, kx_2, kx_3, kx_4, kx_5$ is :

A. $k + s$

B. s/k

C. ks

D. s

Answer: C



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14. Standard deviations for first 10 natural numbers is :

A. 5.5

B. 3.87

C. 2.97

D. 2.87

Answer: D



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15. Consider the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. If 1 is added to each number, the variance of the numbers so obtained is :

A. 6.5

B. 2.87

C. 3.87

D. 8.25

Answer: D



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16. The following information relates to a sample of size 60 :

$\sum x^2 = 18000$, $\sum x = 960$. The variance is :

A. 6.63

B. 16

C. 22

D. 44

Answer: D



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17. Coefficients of variation of two distributions are 50 and 60, and their

arithmetic means are 30 and 25 respectively.

Difference of their standard deviations is :

A. 0

B. 1

C. 1.5

D. 2.5

Answer: A



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18. The standard deviation of some temperature data in $^{\circ}\text{C}$ is 5. If the data were converted into $^{\circ}\text{F}$, the variance would be

A. 81

B. 57

C. 36

D. 25

Answer: A



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19. In an experiment with 15 observations on x , the following results were available $\sum x^2 = 2830$, $\sum x = 170$ One observation that was 20 was found to be wrong and was replaced by the correct value 30. Then the corrected variance is :

A. 8.33

B. 78

C. 188.66

D. 177.33

Answer: B



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20. In a series of $2n$ observations, half of them equal to a and remaining equal to b . If the standard deviation of the observations is 2 , then $|a|$ equals :

A. $\frac{\sqrt{2}}{n}$

B. $\sqrt{2}$

C. 2

D. $1/n$

Answer: C



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21. Suppose a population A has 100 observations 101, 102, ..., 200 and another population B has 100 observations 151, 152, ..., 250. If V_A and V_B represent the variances of

the two populations, respectively, then V_A / V_B

is :

A. 1

B. 44295

C. 44443

D. 44257

Answer: A



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22. If the mean deviation of the numbers : $1, 1 + d, 1 + 2d, \dots, 1 + 100d$ from their mean is 255, then d is equal to :

A. 10

B. 20

C. 10.1

D. 20.2

Answer: C



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23. For two data sets, each of size 5, the variances are given to be 4 and 5 and the corresponding means are given to be 2 and 4, respectively. The variance of the combined data set is :

A. 6

B. 4.4240

C. 4.4232

D. 4.4238

Answer: D



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24. The sum of the squares of deviations for 10 observations taken from their mean 50 is 250.

The coefficient of variation is

A. 0.1

B. 0.4

C. 0.5

D. none of these

Answer: A



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25. The measure of dispersion is

- A. mean deviation
- B. S.D
- C. quartile deviation
- D. all of those

Answer: D



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26. The S.D. of 5 scores 1, 2, 3, 4, 5 is :

A. $\sqrt{2}$

B. $\sqrt{3}$

C. 44318

D. 44319

Answer: A



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27. The variance of the first n natural numbers is :

A. $\frac{n^2 + 1}{12}$

B. $\frac{n^2 - 1}{12}$

C. $\frac{(n+1)(2n+1)}{6}$

D. none of these

Answer: B



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28. A batsman scores runs in 10 innings as 38, 70, 48, 34, 42, 55, 63, 46, 54 and 44. The mean deviation about mean is

A. 8.8

B. 6.4

C. 10.6

D. 7.6

Answer: A



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