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## MATHS

# BOOKS - CENGAGE MATHS (ENGLISH) 

## STATISTICS

## Illustration

1. If a variate $x$ is expressed as a linear function of two
variates $u$ and $v$ in the form $x=a u+b v$, then mean $\bar{x}$ of $x$ is
A. a) $a \bar{U}-b \bar{V}$
B. b) $\bar{U}+\bar{V}$
C. c) $b \bar{U}+a \bar{V}$
D. d) None of these

## Answer: D

## D Watch Video Solution

2. If the mean of the numbers
$27+x, 31+x, 89+x, 107+x, 156+x$ is 82 , then the mean of $130+x, 126+x, 68+x, 50+x, 1+x$ is
A. 75
B. 157
C. 82
D. 80

## Answer: A

## - Watch Video Solution

3. If the arithmetic mean of the numbers $x_{1}, x_{2}, x_{3}, \ldots, x_{n}$
is $\bar{x}$, then the arithmetic mean of the numbers $a x_{1}+b, a x_{2}+b, a x_{3}+b, \ldots, a x_{n}+b$, where a, b are two constants, would be
A. $\bar{x}$
B. $n a \bar{x}+n b$
C. $a \bar{x}$
D. $a \bar{x}+b$

## Answer: D

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4. The weighted means of of first $n$ natural numbers whose weights are equal to the squares of corresponding numbers is
A. $\frac{n+1}{2}$
B. $\frac{3 n(n+1)}{2(2 n+1)}$
C. $\frac{(n+1)(2 n+1)}{6}$
D. $\frac{n(n+1)}{2}$

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5. A student obtain $75 \%, 80 \%$ and $85 \%$ in three subjects if the marks of another subject are added. Then the average cannot be less than
A. 0.6
B. 0.65
C. 0.8
D. 0.9

Answer: A
6. If $\overline{x_{1}}$ and $\overline{x_{2}}$ are the means of two distributions such that $\overline{x_{1}}<\overline{x_{2}}$ and $\bar{x}$ is the mean of the combined distriubtion, then
A. $\bar{x}<\overline{x_{1}}$
B. $\bar{x}>\overline{x_{2}}$
C. $\bar{x}=\frac{\overline{x_{1}}+\overline{x_{2}}}{2}$
D. $\overline{x_{1}}<\bar{x}<\overline{x_{2}}$

Answer: D

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7. Mean of 100 items is 49 . It was discovered that three items which should have been $60,70,80$ were wrongly read as $40,20,50$ respectively. The correct mean is. (a) 48
(b) $82 \frac{1}{2}$ (c) 50 (d) 80
A. 48
B. 82.5
C. 50
D. 80

Answer: C
8. The mean weight per student in a group of 7 students is 55 kg . The individual weights of 6 of them (in kg ) are 52 ,

54, 53,56 and 54 . Find the weight of the seventh student.
A. 55 kg
B. 60 kg
C. 57 kg
D. 50 kg

Answer: C

- Watch Video Solution

9. If a variable takes the discrete values $\alpha+4$,
$\alpha-\frac{7}{2}, \alpha-\frac{5}{2}, \alpha-2, \alpha-3, \alpha+\frac{1}{2}, \alpha-\frac{1}{2}, \alpha+5(\alpha>0)$
, then the median is
A. $\alpha-\frac{5}{4}$
B. $\alpha-\frac{1}{2}$
C. $\alpha-2$
D. $\alpha+\frac{5}{4}$

Answer: A

- Watch Video Solution

10. The median of a set of nine distinct observations is
20.5. If each of the last four observations of the set is increased by 2 , then the median of the new set is
A. Is increased by 2
B. In decreased by 2
C. Is two times the original median
D. Remains the same as that of the original set

## Answer: D

- Watch Video Solution

11. If in a moderately asymmetrical distribution the mode and the mean of the data are $6 \lambda$ and $9 \lambda$, respectively, then the median is
A. $8 \lambda$
B. $7 \lambda$
C. $6 \lambda$
D. $5 \lambda$

Answer: A

- Watch Video Solution

12. The mean deviation about the mean of the following distribution is

| Size | 20 | 21 | 22 | 23 | 24 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Frequency | 6 | 4 | 5 | 1 | 4 |

A. 1
B. 1.25
C. 1.5
D. 1.75

Answer: B

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13. The mean deviation about the median of the following
distribution is
Marks obtained
$\begin{array}{lllll}10 & 11 & 12 & 14 & 15\end{array}$
Number of students 2
2 $\begin{array}{lll}3 & 8 & 3\end{array}$
4

## - Watch Video Solution

14. about to only mathematics
A. $\frac{n^{2}-1}{12}$
B. $\frac{n^{2}-1}{6}$
C. $\frac{n^{2}+1}{6}$
D. $\frac{n^{2}+1}{12}$
15. The mean of five observations is 4 and their variance is 5.2. If three of these observations are 1,2 and 6 , then the other two are
A. 2 and 9
B. 3 and 8
C. 4 and 7
D. 5 and 6

Answer: C
16. The standard deviation of data $6,5,9,13,12,8$ and 10 is
A. $\sqrt{\frac{52}{7}}$
B. $\frac{52}{7}$
C. $\sqrt{6}$
D. 6

Answer: A

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17. Consider the frequency distribution, where $A$ is a positive interger : variance is 160 .

$$
\begin{array}{lllllll}
\mathrm{x} & A & 2 A & 3 A & 4 A & 5 A & 6 A \\
\mathrm{f} & 2 & 1 & 1 & 1 & 1 & 1
\end{array} .
$$

18. Find The standard deviation of the following frequency distribution is
$\begin{array}{lllll}X & 2 & 3 & 4 & 5\end{array}$
$6 \quad 7$
$\begin{array}{lllllll}f & 4 & 9 & 16 & 14 & 11 & 6\end{array}$
A. 1.38
B. 1.42
C. 1.45
D. 1.60

Answer: A
19. Let $\mathrm{a}, \mathrm{b}, \mathrm{c}, \mathrm{d}, \mathrm{e}$, be the observations with m and standard deviation s. The standard deviation of the observations $\mathrm{a}+\mathrm{k}, \mathrm{b}+\mathrm{k}, \mathrm{c}+\mathrm{k}, \mathrm{d}+\mathrm{k}, \mathrm{e}+\mathrm{k}$ is (a) $s$ (b) $k s$ (c) $s+k$
(d) $\frac{s}{k}$
A. s
B. ks
C. $s+k$
D. $\frac{s}{k}$

## Answer: A

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1. In a class of 100 students, there are 70 boys whose average marks in a subject is 75 . If the average marks of the complete class is 72 , then what is the average of the girls ?
A. 73
B. 65
C. 68
D. 74

Answer: B

- Watch Video Solution

2. The median of a set of nine distinct observations is 20.5 .

If each of the last four observations of the set is increased by 2 , then the median of the new set is
A. Is increased by 2
B. In decreased by 2
C. Is two times the original median
D. Remains the same as that of the original set

## Answer: D

3. If in a frequency distribution, the mean and median are

21 and 22 respectively, then its mode is approximately.
A. 22.0
B. 20.5
C. 25.5
D. 24.0

## Answer: D

## - Watch Video Solution

4. The average marks of boys in a class is 52 and that of girls is 42 . The average marks of boys and girls combined
is 50 . The percentage of boys in the class is
A. 40
B. 20
C. 80
D. 60

Answer: C

- Watch Video Solution

5. Compute the median from the following table

| Marks obtalned | No. of students |
| :---: | :---: |
| 010 | 2 |
| 1020 | 18 |
| 2030 | 30 |
| 3040 | 45 |
| 4050 | 35 |
| 5060 | 20 |
| $60-70$ | 6 |
| $70-80$ | 3 |

A. 36.55
B. 35.55
C. 40.05
D. None of these

Answer: A

1. In an experiment with 15 observations of $x$ the following results were available $\sum x^{2}=2830, \sum x=170$ one observation that was 20 was found to be wrong and it was replaced by its correct value of 30 . Then the corrected variance is
A. 78.00
B. 188.66
C. 177.33
D. 8.33

## Answer: A

2. In a series of $2 n$ observations, half of them equal $a$ end remaining half equal $-a$. If the S.D. of the observations is

2 , then $|a|$ equals
A. $\frac{1}{n}$
B. $\sqrt{2}$
C. 2
D. $\frac{\sqrt{2}}{n}$

Answer: C
3. Suppose $a$ population $A$ has 100 observations $101,102, \ldots \ldots \ldots \ldots . ., 200$ and another population $B$ has 100 observations $151,152, \ldots \ldots .250$. If $V_{A}$ and $V_{B}$ represent the variances of the two populations respectively, then $\frac{V_{A}}{V_{B}}$ is
A. 1
B. $9 / 4$
C. $4 / 9$
D. $2 / 3$

Answer: A
4. The mean of the numbers $a, b, 8,5,10$ is 6 and the variance is 6.80 . Then which one of the following gives possible values of $a$ and $b$ ?
A. $a=0, b=7$
B. $a=5, b=2$
C. $a=1, b=6$
D. $a=3, b=4$

## Answer: D

## D Watch Video Solution

5. 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 $k x_{1}, k x_{2}, k x_{3}, k x_{4}, k x_{5}$ is
A. $k+s$
B. $\frac{s}{k}$
C. ks
D. s

Answer: C

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6. Let $1 x_{1}, x_{2} \ldots x_{n}$ be n obervations .Let $w_{i}=l x_{i}+k$ for $i=1,2 \ldots n$, where I and k are constants. If the mean of $x_{i}$ is 48 and their standard
deviation is 12 the mean of $w_{i}$ 's is 55 and standard deviation of $w_{i}$ is 15 then the value of I and k should be

$$
\begin{aligned}
& \text { A. } l=2.5, k=5 \\
& \text { B. } l=-1.25, k=5 \\
& \text { C. } l=2.5, k=-5 \\
& \text { D. } l=1.25, k=-5
\end{aligned}
$$

## Answer: D

## - Watch Video Solution

## Exercises

1. 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
A. 0
B. 1
C. 1.5
D. 2.5

Answer: A
2. The mean of a set of numbers is $\bar{X}$. If each number is divided by 3, then the new mean is
A. $\bar{X}$
B. $\bar{X}+3$
C. $3 \bar{X}$
D. $\frac{\bar{X}}{3}$

## Answer: D

## D Watch Video Solution

3. The A.M. of the series $1,2,4,8,16, \ldots ., 2^{n}$ is -
A. $\frac{2^{n}-1}{n}$
B. $\frac{2^{n+1}-1}{n+1}$
C. $\frac{2^{n}+1}{n}$
D. $\frac{2^{n}-1}{n+1}$

## Answer: B

## - Watch Video Solution

4. The mean of n items is $\bar{X}$. If the first item is increased by 1 , second by 2 and so on, then the new mean is
A. $\bar{X}+n$
B. $\bar{X}+\frac{n}{2}$
c. $\bar{X}+\frac{n+1}{2}$
D. None of these

Answer: C

## - Watch Video Solution

5. For a slightly asymmetric distribution, mean and medain are 5 and 6 , respectively. What is its mode ?
A. 8
B. 11
C. 6
D. None of these

Answer: A

## D Watch Video Solution

6. For a normal distribution if the mean is $M$, mode is $M_{0}$ and median is $M_{d}$, then
A. $M>M_{d}>M_{0}$
B. $M<M_{d}<M_{0}$
C. $M=M_{d} M_{0}$
D. $M=M_{d}=M_{0}$

Answer: D
7. The following data give the distribution of heights of students:

| Height 160 150 152 161 | 156 | 154 | 155 |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| (in cm $)$ | 12 | 8 | 4 | 4 | 3 | 3 | 7 |

The median of the distribution is
A. 154
B. 155
C. 160
D. 161

Answer: B
8. An automobile driver travels from a plain to a hill station 120 km away at an average speed of 30 km per hour. He then makes the return trip at an average speed

25 km per hour. He covers another 120 km on the plain at an average speed of 50 km per hour. His average speed (in $\mathrm{km} / \mathrm{hr}$ ) over the entire distance of 360 km will be
A. $\frac{30+25+50}{3}$
B. $\frac{\frac{a}{30}+\frac{1}{25}+\frac{1}{50}}{3}$
C. $\frac{3}{\frac{1}{30}+\frac{1}{25}+\frac{1}{50}}$
D. None of these

## Answer: C

9. The mean deviation of the data 3,10,10,4,7,10,5 from the mean is
A. 2
B. 2.57
C. 3
D. 3.75

Answer: B

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10. 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

## - Watch Video Solution

11. Following are the marks obtained by 9 student 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

## D Watch Video Solution

12. If the mean of the distribution is 2.6 , then the value of
$y$ is

| Variate x | 1 | 2 | 3 | 4 | 5 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Frequency fof x | 4 | 5 | $y$ | 1 | 2 |

A. 24
B. 13
C. 8
D. 3

Answer: C

## D Watch Video Solution

13. If the mean of the set of numbers $x_{1}, x_{2}, x_{3}, \ldots, x_{n}$ is
$\bar{x}$, then the mean of the numbers $x_{i}+2 i, 1 \leq i \leq n$ is
A. $\bar{x}+2 n$
B. $\bar{x}+n+1$
C. $\bar{x}+2$
D. $\bar{x}+n$

Answer: B

- Watch Video Solution

14. The harmonic mean of $4,8,16$ is
A. 6.4
B. 6.7
C. 6.85
D. 7.8

Answer: C
15. The average of n numbers $x_{1}, x_{2}, x_{3}, \ldots, x_{n}$ is M . If $x_{n}$ is replaced by $x^{\prime}$, then new average is
A. $M-x_{n}+x^{\prime}$
B. $\frac{n M-x_{n}+x^{\prime}}{n}$
C. $\frac{(n-1) M+x^{\prime}}{n}$
D. $\frac{M-x_{n}+x^{\prime}}{n}$

## Answer: B

16. The following data gives the distribution of height of students :

| Height <br> $($ in cm $)$ | 160 | 150 | 152 | 161 | 156 | 154 | 155 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Numbers of <br> students | 12 | 8 | 4 | 4 | 3 | 3 | 7 |

The median of the distribution is
A. 154
B. 155
C. 160
D. 161

Answer: B
17. For a slightly asymmetric distribution, mean and medain are 5 and 6 , respectively. What is its mode?
A. 5
B. 6
C. 7
D. 8

## Answer: D

## - Watch Video Solution

18. Runs scored by a batsman in 10 innings are : 38,

70,48,34,42,55,63,46,54,44

The mean deviation about median is
A. 8.6
B. 6.4
C. 10.6
D. 9.6

Answer: A

## - Watch Video Solution

19. If $\mu$ the mean of distribution $\left(y_{i}, f_{i}\right)$, then
$\sum f_{i}\left(y_{i}-\mu\right)=$
A. M.D.
B. S.D.
C. 0
D. Relative frequency

Answer: C

## - Watch Video Solution

20. The range of the following set of observations
$2,3,5,9,8,7,6,5,7,4,3$ is
A. 11
B. 7
C. 5.5
D. 6

## D Watch Video Solution

21. If each observation of a raw data whose variance is $\sigma$ is multiplied by $h$, then the variance of the new set is
A. $\sigma^{2}$
B. $h^{2} \sigma^{2}$
C. $h \sigma^{2}$
D. $h+\sigma^{2}$

Answer: B
22. The freezing point of nitrobenzene is $3^{\circ} C$. When 1.2 g of chloroform (mol. Wt. $=120$ ) is dissolved in 100 g of nitrobenzene, freezing point will be $2.3^{\circ} \mathrm{C}$. When 0.6 g of acetic acid is dissolved in 100 g of nitrobenzene, freezing point of solution is $2.64^{\circ} \mathrm{C}$. If the formula of acetic acid is $\left(\mathrm{CH}_{2} \mathrm{O}\right)_{n}$, find the value of n .
A. $\frac{n^{2}-1}{12}$
B. $\frac{n}{2}$
C. $\frac{n}{4}$
D. None of these

Answer: C
23. Variance of the data $2,4,6,8,10$ is
A. 6
B. 7
C. 8
D. None of these

Answer: C

## D Watch Video Solution

24. If the standard deviation of $0,1,2,3 \ldots 9$ is $K$, then the standard deviation of $10,11,12,13 \ldots .19$ is
A. K
B. $\mathrm{K}+10$
C. $K+\sqrt{10}$
D. 10 K

Answer: A

## - Watch Video Solution

25. For a given distribution of marks, the mean is 35.16 and its standard deviation is 19.76. The coefficient of variation is
A. $\frac{35.16}{19.76}$
B. $\frac{19.76}{35.16}$
C. $\frac{35.16}{19.76} \times 100$
D. $\frac{19.76}{35.16} \times 100$

Answer: D

## - Watch Video Solution

26. The mean and S.D of $1,2,3,4,5,6$ is
A. $\frac{7}{2}, \sqrt{\frac{35}{2}}$
B. 3,3
C. $\frac{7}{2}, \sqrt{3}$
D. $3, \frac{35}{12}$

Answer: A

## - Watch Video Solution

27. The standard deviation of 25 numbers is 40 . If each of the numbers in increased by 5, then the new standard deviation will be -
A. 40
B. 45
C. $40+\frac{21}{25}$
D. None of these

Answer: A
28. Consider any set of observations $x_{1}, x_{2}, x_{3}, \ldots, x_{101}$. It is given that $x_{1}<x_{2}<x_{3}<\ldots L x_{100}<x_{101}$, then the mean deviation of this set of observations about a point $k$ is minimum when $k$ equals
A. $x_{1}$
B. $x_{51}$
C. $\frac{x_{1}+x_{2}+\ldots+x_{101}}{101}$
D. $x_{50}$

Answer: B
29. For $(2 \mathrm{n}+1)$ observations $x_{1}, x_{2},-x_{2}, \ldots, x_{n},-x_{n}$ and 0 , where all x's are distinct, let SD and MD denote the standard deviation and median, respectively. Then which of the following is always true?
A. $S D<M D$
B. $S D>M D$
C. $S D=M D$
D. Nothing can be said in general about the relationship between SD and MD

## Answer: B

## - Watch Video Solution

30. If $\bar{x}$ is the mean of n observations $x_{1}, x_{2}, x_{3} \ldots \ldots x_{n}$, then the value of $\sum_{i=1}^{n}\left(x_{i}-\bar{x}\right)$ is (i) -1 (ii) 0 (iii) 1 (iv) $n-1$
A. $S \leq r \sqrt{\frac{n}{n-1}}$
B. $S=r \sqrt{\frac{n}{n-1}}$
C. $S \geq r \sqrt{\frac{n}{n-1}}$
D. None of these

## Answer: A

## - Watch Video Solution

31. If the standard deviation of a variable $\xi s \sigma$, then standard deviation of variable $\frac{a X+b}{c}$ is $a \sigma$ (b) $\frac{a}{c} \sigma$ (c)
$\left|\frac{a}{c}\right| \sigma(\mathrm{d}) \frac{a \sigma+b}{c}$
A. $\left(\frac{a}{c}\right) \sigma$
B. $\left|\frac{a}{c}\right| \sigma$
C. $\left(\frac{a^{2}}{c^{2}}\right) \sigma$
D. None of these

Answer: B

- Watch Video Solution

32. The standard deviation of data $6,5,9,13,12,8$ and 10 is
A. $\sqrt{\frac{52}{7}}$
B. $\frac{52}{7}$
C. $\sqrt{6}$
D. 6

## Answer: A

## - Watch Video Solution

33. If the mean of 100 observations is 50 and their standard deviations is 5 ,than the sum of all squares of all the observations is
A. 50000
B. 250000
C. 252500
D. 255000

Answer: C

## - Watch Video Solution

34. The standard deviation of first 10 natural numbers is
a) 8.25
(b) 6.5
(c) 3.87
(d) 2.87
A. 5.5
B. 3.87
C. 2.97
D. 2.87

Answer: D

## - Watch Video Solution

35. 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
36. Consider the first 10 positve integers .If we multiply each number by -1 and then add 1 to each number,the variance of the number so obtained
A. 8.25
B. 6.5
C. 3.87
D. 2.87

## Answer: A

37. If for a sample of size 60 , we have the following information $\sum \xi^{2}=18000$ and $\sum \xi=960$, then the variance is
a) 6.63
(b) 16
(c) 22
(d) 44
A. 6.63
B. 16
C. 22
D. 44

Answer: D
38. The standard deviation of some temperature data in
.${ }^{\circ} C$ is 5 .If the data were converted into.${ }^{\circ} F$ then
variance would be
A. 81
B. 57
C. 36
D. 25

Answer: A

- Watch Video Solution

39. What is the standard deviation of the following data?
Measurement $\begin{array}{lllll}0-10 & 10-20 & 20-30 & 30-40\end{array}$
Frequency
1
3
4
2
(a)

81 (b) 7.6 (c) 9 (d) 2.26
A. 81
B. 7.6
C. 9
D. 2.26

## Answer: C

1. If the mean deviation of the numbers
$1,1+d, 1+2 d, \ldots, 1+100 d$ from their mean is 25 , then
the $d$ is equal to
(1) 10.0
(2) 20.0
(3) 10.1
(4) 20.2
A. 10.0
B. 20.0
C. 10.1
D. 20.2

Answer: C
2. In a binomial distribution $B\left(n, p=\frac{1}{4}\right)$, if the probability of at least one success is greater than or equal
to $\frac{9}{10}$, then n is greater than $(1) \frac{1}{(\log )_{10}^{4}-(\log )_{10}^{3}}$
(2) $\frac{1}{(\log )_{10}^{4}+(\log )_{10}^{3}}$
(3)

$$
\overline{(\log )_{10}^{4}-(\log )_{10}^{3}}
$$

(4) $\frac{4}{(\log )_{10}^{4}-(\log )_{10}^{3}}$
A. $\frac{1}{\log _{10} 4-\log _{10} 3}$
B. $\frac{1}{\log _{10} 4+\log _{10} 3}$

9
C. $\frac{}{\log _{10} 4-\log _{10} 3}$
D. $\frac{4}{\log _{10} 4-\log _{10} 3}$

Answer: A

## - Watch Video Solution

3. 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
(1) $\frac{11}{2}$
(2) 2
(3) $\frac{13}{2}$
(4) $\frac{5}{2}$
A. $\frac{13}{2}$
B. $\frac{5}{2}$
C. $\frac{11}{2}$
D. 6

## Answer: C

## - Watch Video Solution

4. If the mean deviation about the median of the numbers
$a, 2 a, \ldots . ., 50 a$ is 50 , then $|a|$ equals :
(1) 2
(2) 3
(3) 4
(4) 5
A. 5
B. 2
C. 3
D. 4

## Answer: D

## D Watch Video Solution

5. Let $x_{1}, x_{2}, \ldots \ldots, x_{n}$ be n observations, and let $\bar{x}$ be their arithematic mean and $\sigma^{2}$ be their variance.

Statement 1: Variance of $2 x_{1}, 2 x_{2}, \ldots \ldots, 2 x_{n} i s 4 \sigma^{2}$.

Statement 2: Arithmetic mean of
$2 x_{1}, 2 x_{2}, \ldots \ldots, 2 x_{n} i s 4 x$. (1) Statement 1 is false,
statement 2 is true (2) Statement 1 is true, statement 2 is true; statement 2 is a correct explanation for statement 1
(3) Statement 1 is true, statement 2 is true; statement 2 is not a correct explanation for statement 1 (4) Statement 1 is true, statement 2 is false
A. Statement 1 is false, statement 2 is true.
B. Statement 1 is true, statement 2 is true, statement 2
is a correct explanation for statement 1.
C. Statement 1 is true, statement 2 is true, statement 2
is not a correct explanation for statement 1.
D. Statement 1 is true, statement 2 is false.

## Answer: D

## - Watch Video Solution

6. All the students of a class performed poorly in Mathematics. The teacher decided to give grace marks of 10 to each of the students. Which of the following statistical measures will not change even after the grace marks were given ? (1) median (2) mode (3) variance (4) mean
A. median
B. mode
C. variance
D. mean

## Answer: c

7. The variance of first 50 even natural numbers is
(1) $\frac{833}{4}$
(2) 833
(3) 437
(4) $\frac{437}{4}$
A. $\frac{833}{4}$
B. 833
C. 437
D. $\frac{437}{4}$

## Answer: B

8. The mean of the data set comprising of 16 observations is 16 . If one of the observation valued 16 is deleted and three new observations valued 3,4 and 5 are added to the data, then the mean of the resultant data, is :
(1) 16.8
(2) 16.0
(3) 15.8
(4) 14.0
A. 16.8
B. 16.0
C. 15.8
D. 14.0
9. If the standard deviation of the numbers $2,3, a$ and 11 is 3.5 , then which of the following is true?
(1) $3 a^{2}-26 a+55=0$
(2) $3 a^{2}-32 a+84=0$
(3) $3 a^{2}-34 a+91=0$
(4) $3 a^{2}-23 a+44=0$
A. $3 a^{2}-32 a+84=0$
B. $3 a^{2}-34 a+91=0$
C. $3 a^{2}-23 a+44=0$
D. $3 a^{2}-26 a+55=0$

Answer: A

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10. If $\sum_{i=1}^{9}\left(x_{i}-5\right)$ and $\sum(i=1)^{9}\left(x_{i}-5\right)^{2}=45$, then the standard deviation of the 9 items $x_{1}, x_{2}, \ldots, x_{9}$ is
A. 3
B. 9
C. 4
D. 2

Answer: D
(

