



MATHS

BOOKS - HT Olympiad Previous Year Paper

STATISTICS

Mathematical Reasoning

1. If the mean of 11, 15, 17, $y + 1$, 19, $y - 2$, 3 is 14, then the value of y is _____

A. 17

B. 18

C. 9

D. 11

Answer: A



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2. If the mode of the data 4, 3, 2, 5, x, 4, 5, 1, 7, 3, 2, 1 is 4 then value of x is _____

A. 4

B. 3

C. 2

D. 1

Answer: A



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3. The mean of 25 observations is 36. If the mean of the first 13 observations is 32 and

that of the last 13 observations is 39 then the
 13^{th} observation is :

A. 24

B. 36

C. 30

D. 28

Answer: B



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4. Find the mode of the given data

7, 4, 3, 5, 6, 3, 3, 2, 4, 3, 4, 3, 3, 4, 4, 3, 2, 2, 4, 3, 5,
4, 3, 4, 3, 4, 3, 1, 2, 3

A. 3

B. 4

C. 5

D. 2

Answer: A



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5. The mean of 11 number is 10 .What should be added as 12th number to make the mean 14 ?

A. 10

B. 72

C. 58

D. 90

Answer: C



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6. If the mean of 10 observations is 20 and that of another 15 observations is 16 then the mean of 25 observations is _____

A. 18

B. 18.2

C. 17.6

D. 17

Answer: C



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7. The following observations have been arranged in the ascending order . If the median of the data $2, 3, x, x + 2, 11, 17$ is 9 then the value of $3x + 1$ is _____

A. 20

B. 8

C. 25

D. 12

Answer: C



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8. If \bar{x} is the mean of x_1, x_2, \dots, x_n , then for

$a \neq 0$ then the mean of

$ax_1, ax_2, \dots, ax_n, \frac{x_1}{a}, \frac{x_2}{a}, \dots, \frac{x_n}{a}$ is _____

A. $\left(a + \frac{1}{a}\right)\bar{x}$

B. $\left(a + \frac{1}{a}\right)\frac{x}{2}$

C. $\left(a + \frac{1}{a}\right)\frac{\bar{x}}{n}$

D. $\frac{\left(a + \frac{1}{a}\right)\bar{x}}{2n}$

Answer: B



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9. If mean of the following data is 11, then find the value of P

x_i	13	5	7	19	11	13
f_i	6	8	P	11	8	4

A. 11

B. 15

C. 17

D. 13

Answer: B



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10. Mean of 11 observations is 17.5 . If one observation value 15 is deleted, then the mean of remaining observation is _____

A. 15.75

B. 16.75

C. 17.75

D. 18.75

Answer: C



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11. Find the mean of two digit natural numbers which have both digits same

A. 55

B. 45

C. 65

D. 50

Answer: A



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12. The average of n numbers $x_1, x_2, x_3, \dots, x_n$ is A . If x_1 is replaced by $(x - a)x_1$, x_2 is replaced by $(x - a)x_2, \dots$, then the new average is _____

A. $(x - a)A$

B. $\frac{(x - 1)A - nx_n}{n}$

C. $\frac{nA - (n + 1)x_n}{n}$

D. $\frac{(n + 1)A - x_n}{n}$

Answer: A



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13. The difference between the maximum and the minimum observations in the data is

A. Frequency

B. Class interval

C. Range

D. Cumulative frequency

Answer: C



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Everyday Mathematics

1. In a community, 8 students were asked about the time they spend in watching T.V. during a week. They said 6 hrs, 8 hrs, 13 hrs, 9 hrs, 10 hrs, 5 hrs, 16 hrs and 3 hrs. Find the

mean time devoted by them for watching T.V.
during a week.

A. 8 hrs 45 minutes

B. 6 hrs 10 minutes

C. 8 hrs 10 minutes

D. 6 hrs 45 minutes

Answer: A



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2. In a class test in English 10 students scored 75 marks, 12 students scored 60 marks, 8 scored 40 marks and 3 scored 30 marks, the mode for their score is

A. 57 marks

B. 56 marks

C. 15 marks

D. 54 marks

Answer: A



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3. Arnav scored 63 marks in English, 57 in Hindi, 82 in Mathematics, 55 in Social Science and x in Science. If the average he scored is 60, find the average of best four of them.

A. 63.25

B. 65.15

C. 64.25

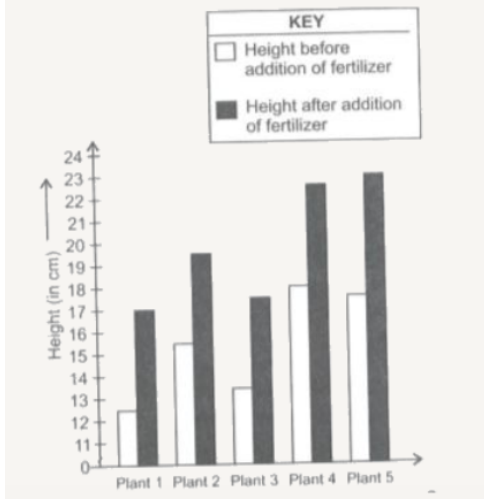
D. 60.75

Answer: C



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4. The owner of a plant nursery wanted to test the effectiveness of a new type of fertilizer. He measured the heights of 5 plants, and then gave each an equal amount of fertilizer. Two weeks later, he measured the heights of the plants again. The graph below shows the height of the plants before and after the addition of fertilizer.



What was the mean growth of the plants ?

A. 4.5 cm

B. 5 cm

C. 5.5 cm

D. 6 cm

Answer: A



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Achievers Section Hots

1. State 'T' for true and 'F' for false.

(i) If the number of observation is even then the median is mean of $\left(\frac{n}{2}\right)^{th}$ and $\left(\frac{n}{2} + 1\right)^{th}$ terms

(ii) After four vertical lines for a tally marks, if the tally marks occurs for the fifth time, then the fifth line is put vertically with previous four lines.

(iii) If the range of the data with minimum value 16, is 87, then the maximum value is 71.

(iv) Mode of the data 14, 71, 51, 91, 15, 2, 15, 51, 19, 41, 51, 15, 51, is 51

(v) Mean of first ten natural numbers is 5.5

A. (i) (ii) (iii) (iv) (v)
T F T T T

B. (i) (ii) (iii) (iv) (v)
F F T T T

C. (i) (ii) (iii) (iv) (v)
T F F T T

D. (i) (ii) (iii) (iv) (v)
T F T F T

Answer: C



2. In a cricket eleven, the average age of eleven players is 28 years. Out of these, the average ages of three groups of three players each are 25 years, 28 years and 30 years respectively. If in these groups the captain and the youngest player are not included and the captain is eleven years older than the youngest player, what is the age of the captain? (a) 33 years (b) 34 years (c) 35 years (d) 36 years

A. 42 years

B. 35 years

C. 24 years

D. 27 years

Answer: B



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3. Match the following

	Column-I		Column-II
(P)	Data which is collected for the first time by the statistical investigator or with the help of his workers is called	(1)	Secondary data
(Q)	These are the data already collected by a person or a society and these may be in published form is	(2)	Variable
(R)	When the data is compiled in the same form and order in which it is collected, it is known as	(3)	Primary Data
(S)	A quantity which can vary from one individual to another is called	(4)	Raw Data

A. P Q R S
 3 1 2 4

B. P Q R S
 3 1 4 2

C. P Q R S
 1 3 2 4

D. P Q R S
 1 3 4 2

Answer: B



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