

MATHEMATICS

CLASS 10

CHAPTER: STATISTICS

Practice Worksheet: Mean, Median, Mode & Empirical Relationships (20 MCQs with Answer Key)

Q1. Which of the following measures of central tendency is affected most by extreme values?

- (a) Mean (b) Median
(c) Mode (d) Range

Q2. The empirical relationship between the three measures of central tendency is:

- (a) $\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$ (b) $\text{Mode} = 2 \text{ Median} - 3 \text{ Mean}$
(c) $\text{Median} = 3 \text{ Mode} - 2 \text{ Mean}$ (d) $\text{Mean} = 3 \text{ Median} - 2 \text{ Mode}$

Q3. The class mark of the class interval 10 - 25 is:

- (a) 15 (b) 17.5
(c) 17 (d) 35

Q4. If the mean of observations $x, x+3, x+5, x+7$, and $x+10$ is 9, then the mean of the last three observations is:

- (a) $10 \text{ and } \frac{1}{3}$ (b) $11 \text{ and } \frac{1}{3}$
(c) 11 (d) 9.5

Q5. The algebraic sum of the deviations of a frequency distribution from its mean is always:

- (a) Greater than 0 (b) Less than 0
(c) Equal to 0 (d) A non-zero constant

Q6. While computing the mean of grouped data, we assume that the frequencies are:

- (a) Evenly distributed over all the classes
(b) Centred at the class marks of the classes
(c) Centred at the lower limits of the classes
(d) Centred at the upper limits of the classes

Q7. If the mode of a data set is 18 and the mean is 24, then its median is:

- (a) 20 (b) 22
(c) 21 (d) 24

Q8. Construction of a cumulative frequency table is useful in determining the:

- (a) Mean (b) Median
(c) Mode (d) All of the above

Q9. In the formula $\text{mean} = a + (\sum f_i d_i / \sum f_i)$, for finding the mean of grouped data, d_i are the deviations from a of:

- (a) Lower limits of the classes (b) Upper limits of the classes
(c) Mid-points of the classes (d) Frequencies of the class marks

Q10. For the following distribution:

Class:	0-5	5-10	10-15	15-20	20-25
Frequency:	10	15	12	20	9

The sum of lower limits of the median class and modal class is:

- (a) 15 (b) 25
(c) 30 (d) 35

Q11. The modal class for the following frequency distribution is:

Marks: 0-10 | 10-20 | 20-30 | 30-40 | 40-50

Students: 3 | 12 | 20 | 15 | 5

- (a) 10-20 (b) 20-30
(c) 30-40 (d) 40-50

Q12. If the median of the data: 24, 27, 28, 31, $x+2$, $x+4$, 42, 45, 49, 50 (arranged in ascending order) is 35, then x is:

- (a) 32 (b) 33
(c) 34 (d) 35

Q13. In the formula $\text{mean} = a + h(\sum f_i u_i / \sum f_i)$, for finding the mean of grouped frequency distribution, u_i is equal to:

- (a) $(x_i + a) / h$ (b) $(h - x_i) / a$
(c) $(x_i - a) / h$ (d) $(a - x_i) / h$

Q14. Consider the following frequency distribution:

Class:	0-6	6-12	12-18	18-24	24-30
Frequency:	7	5	10	12	6

The upper limit of the median class is:

- (a) 12 (b) 18
(c) 24 (d) 30

Q15. If the mean of first n natural numbers is $5n/9$, then the value of n is:

- (a) 5 (b) 9
(c) 10 (d) 11

Q16. Mode is the value of the variable which has:

- (a) Maximum frequency (b) Minimum frequency
(c) Mean frequency (d) Cumulative frequency

Q17. The median of first 10 prime numbers is:

- (a) 11 (b) 12
(c) 13 (d) 12.5

Q18. If the mean of 5 observations x , $x+2$, $x+4$, $x+6$ and $x+8$ is 11, then the value of x is:

- (a) 4 (b) 7
(c) 11 (d) 6

Q19. The cumulative frequency of a class in a frequency distribution table is the total of frequencies of:

- (a) All classes preceding that class
(b) All classes following that class
(c) That class and all classes preceding it
(d) That class and all classes following it

Q20. If the mean of a frequency distribution is 26 and its median is 26, then its mode is:

- (a) 26 (b) 52
(c) 13 (d) 0

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ANSWER KEY & SOLUTIONS GUIDE

Q.No – Ans	Q.No - Ans	Q.No - Ans	Q.No - Ans
Q1: (a) Mean	Q6: (b) Centred at the class marks of the classes	Q11: (b) 20-30	Q16: (a) Maximum frequency
Q2: (a) Mode = 3 Median - 2 Mean	Q7: (b) 22	Q12: (b) 33	Q17: (b) 12
Q3: (b) 17.5	Q8: (b) Median	Q13: (c) $(x_i - a) / h$	Q18: (b) 7
Q4: (b) 11 and $1/3$	Q9: (c) Mid-points of the classes	Q14: (b) 18	Q19: (c) That class and all classes preceding it
Q5: (c) Equal to 0	Q10: (b) 25	Q15: (b) 9	Q20: (a) 26