# Marathon 3

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NISH10

# Schedule

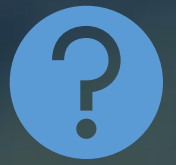
| Date (Day) | Topic |
|---|---|
| 12-06-2023 (Monday) | Time Value of Money |
| 13-06-2023 (Tuesday) | Logical Reasoning |
| 14-06-2023 (Wednesday) | Measures of Central Tendency and Dispersion |
| 15-06-2023 (Thursday) | Ratio, Proportion, Indices, Logarithms; Linear Inequalities |
| 16-06-2023 (Friday) | Equations; Statistical Description of Data |
| 17-06-2023 (Saturday) | Sequence and Series |
| 18-06-2023 (Sunday) | Sets, Relations, and Functions |
| 19-06-2023 (Monday) | Correlation and Regression |
| 20-06-2023 (Tuesday) | Index Numbers |
| 21-06-2023 (Wednesday) | Permutations and Combinations |
| 22-06-2023 (Thursday) | Probability |
| 23-06-2023 (Friday) | Theoretical Distributions |

# Highlights

Conceptual Revision

Question Based Revision

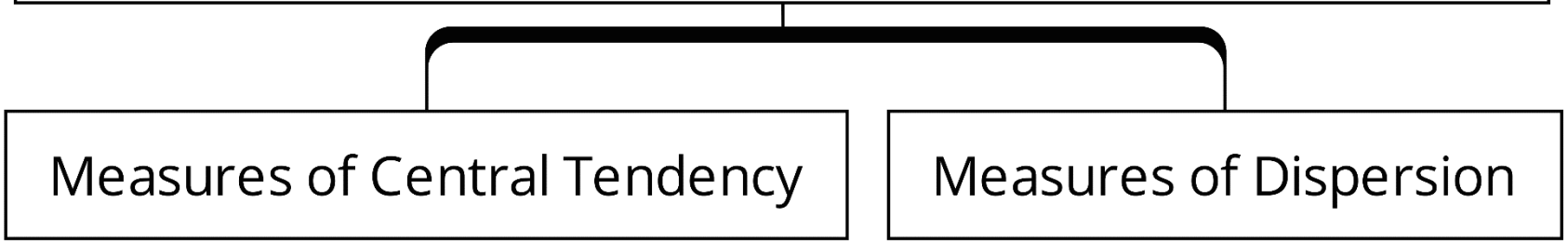
Last Day Preparation Tips

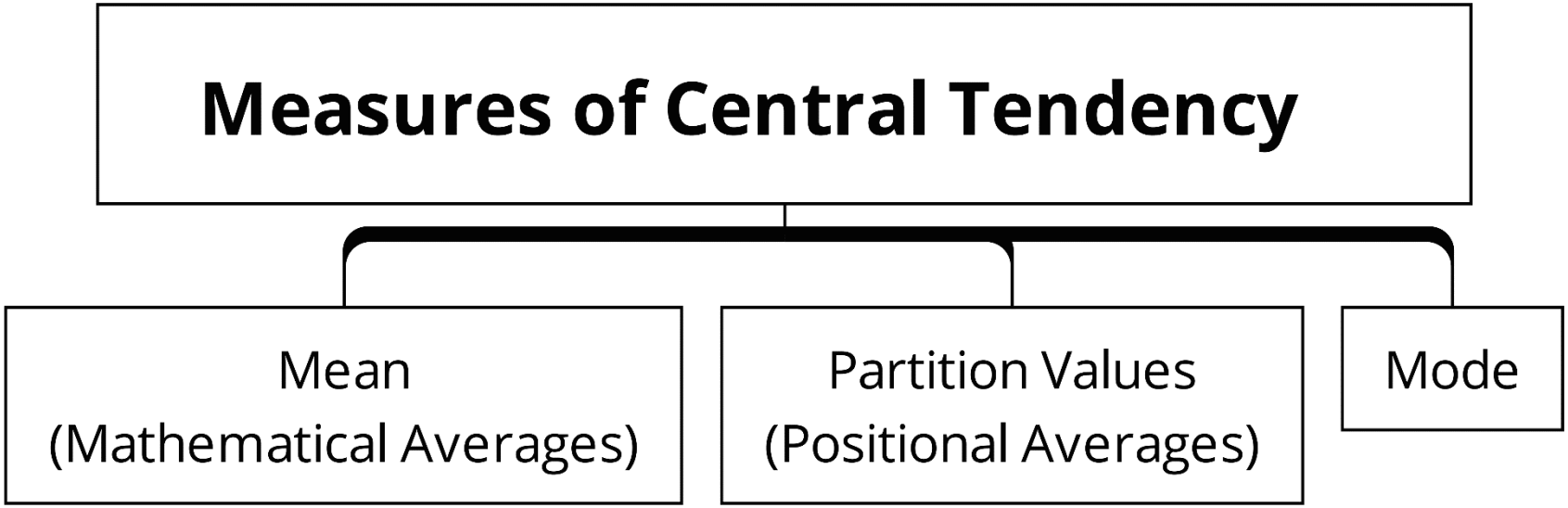


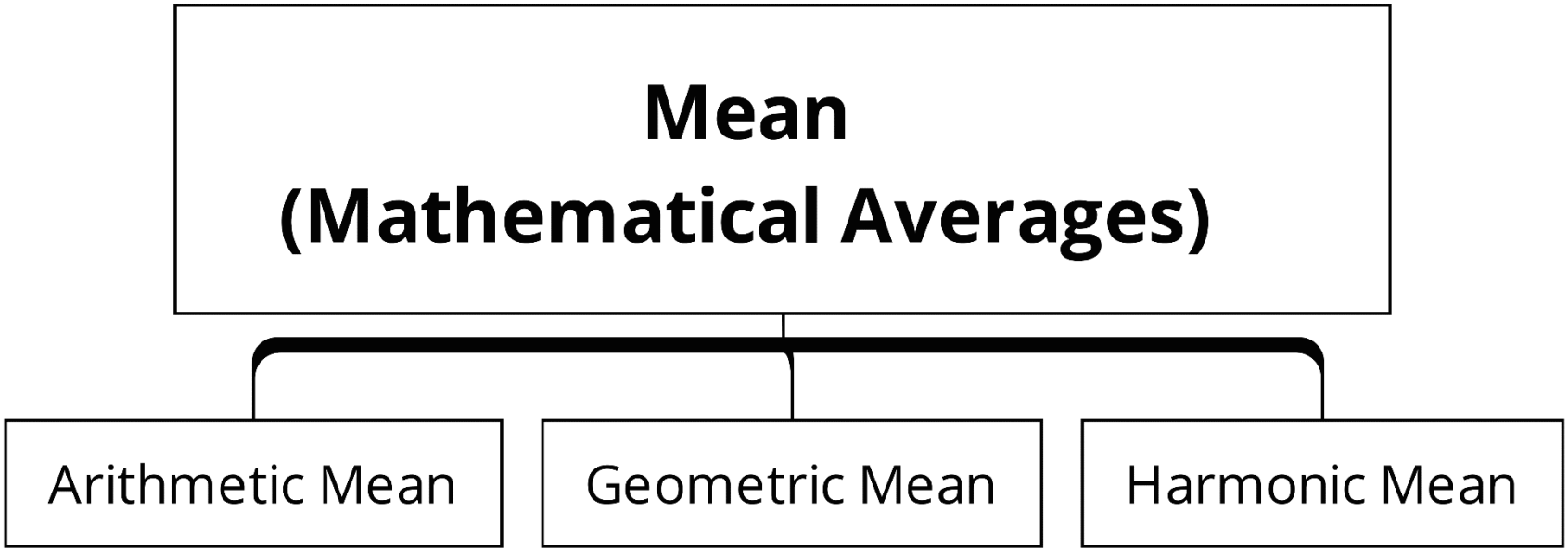
Questions to Revise on the day before ExamQuizzes

# Chapter 14 – Measures of Central Tendency and Dispersion

# Measures of Central Tendency and Dispersion




Measures of Central Tendency
Mean
(Mathematical Averages)
Partition Values
(Positional Averages)
Mode


Mean
(Mathematical Averages)
Arithmetic Mean
Geometric Mean
Harmonic Mean

# Arithmetic Mean

## Formula

### Individual Series

$$\bar{x} = \frac{\sum x}{n}$$

### Discrete Series

$$\bar{x} = \frac{\sum (fx)}{N}$$

N = Total of Frequencies

### Continuous Series

Same as Discrete. x is given by the mid point of the class intervals.

## Properties

- AM for constant values is constant
- Combined AM

$$\bar{x} = \frac{n_1\bar{x}_1 + n_2\bar{x}_2}{n_1 + n_2}$$

- Sum of Deviations from AM is always 0
- AM is affected due to change in origin as well as scale

If $x$ and $y$ are two variables related as $y = a + bx$, and $\bar{x}$ is given, then $\bar{y} = a + b\bar{x}$.

# Questions Based on Arithmetic Mean

**Question 1 – ICAI SM**

Find the mean from the following data:

| Marks | Less than 10 | Less than 20 | Less than 30 | Less than 40 | Less than 50 |
|---|---|---|---|---|---|
| No. of Students | 5 | 13 | 23 | 27 | 30 |

(a) 19 (b) 20.45 (c) 21.12 (d) 22.33

**Question 2 – ICAI SM**

If there are 3 observations 15, 20, 25, then the sum of deviation of the observations from their AM is:

(a) 0 (b) 5 (c) –5 (d) None

**Question 3 – ICAI SM**

If the relationship between two variables $u$ and $v$ are given by $2u + v + 7 = 0$ and if the AM of $u$ is 10, then the AM of $v$ is:

(a) 17 (b) –17 (c) –27 (d) 27

**Question 4 – ICAI SM**

The average salary of a group of unskilled workers is ₹10,000 and that of a group of skilled workers is ₹15,000. If the combined salary is ₹12,000, then what is the percentage of skilled workers?

(a) 40% (b) 50% (c) 60% (d) None

**Question 5 – MTP November, 2021**

At ABC ltd, the average age of employees is 36. Average age of male employees is 38 and that of females is 32. Find the ratio of female to male in the company.

(a) 1 : 3 (b) 2 : 1 (c) 1 : 2 (d) 3 : 1

**Question 6 – MTP November, 2018**

If the mean of a set of observations $x_1, x_2, x_3, ..., x_n$ is $\bar{x}$, then the mean of the observations $x_i + ki$, where $i = 1, 2, 3, \ldots, n$ is:

(a) $\bar{x} + k(n+1)$ (b) $\bar{x} + kn$ (c) $\bar{x} + \frac{k}{n}$ (d) $\bar{x} + \frac{k}{2}(n+1)$

**Question 7 – PYQ**

Two years ago, a team of four persons had an average age of 14. Now, a new member is added to the team and the average age of the team is 17. What is the age of the new member?

(a) 17 (b) 19 (c) 21 (d) 23

**Question 8 – MTP June, 2013**

The students of a class $X^{th}$ have an average weight of 50 kg. The strength of the class is 49 students. On including the weight of the Principal, the average weight shoots up by 0.8 kg. Find the weight of the Principal.

(a) 75 (b) 90 (c) 85 (d) None

**Question 9 – MTP June, 2013**

The average of $(p+q)$ consecutive numbers starting from 1 is '$r$'. If '$s$' is added to each of the numbers then the new average will be?

(a) $r+s$ (b) $r+(s/2)$ (c) $\{r+(p+q+s)\}/(p+q)$ (d) None

**Question 10 – MTP June, 2013**

The average weight of 40 people is increased by 2.4 kg when one man weight 73 kg is replaced by another man. Find the weight of the new man?

(a) 121 (b) 169 (c) 154 (d) 149

**Question 11 – MTP June, 2013**

The average salary of the whole employees in a company is ₹400 per day. The average salary of officers is ₹800 per day and that of clerks is ₹320 per day. If the number of officers is 40, then find the number of clerks in the company?

(a) 50 (b) 100 (c) 150 (d) 200

**Question 12 – MTP June, 2013**

The average of 6 numbers is 30. If the average of the first four is 25 and that of the last three is 35, the fourth number is:

(a) 25 (b) 30 (c) 35 (d) 40

**Question 13 – MTP June, 2013**

A student's marks were wrongly entered as 85 instead of 45. Due to that, the average marks for the whole class got increased by one-fourth. The no. of students in the class is:

(a) 80 (b) 160 (c) 40 (d) 20

**Question 14 – MTP June, 2013**

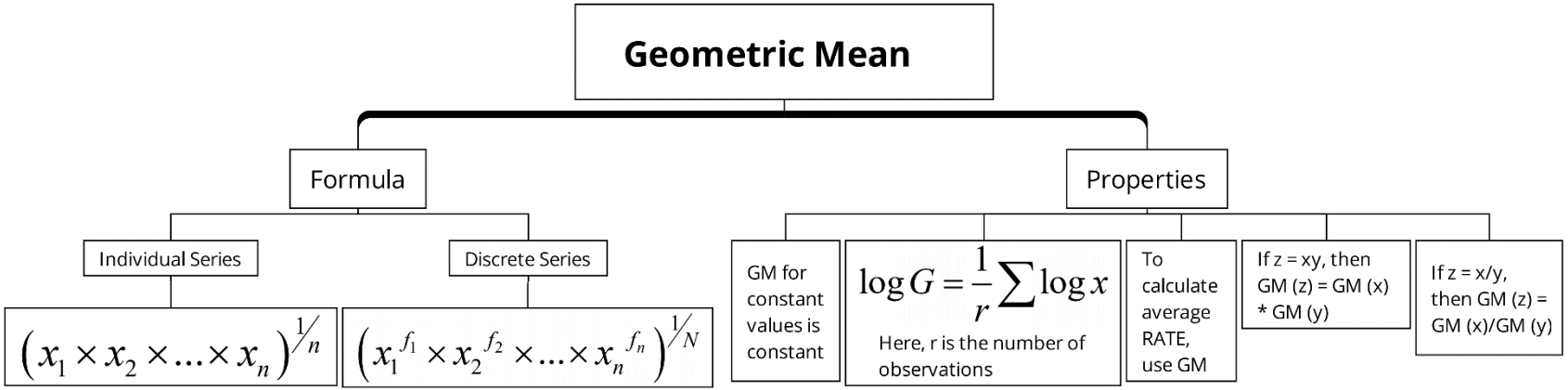
The mean of 100 observations is 50. If one of the observations which was 50 is replaced by 40, the resulting mean will be:

(a) 40 (b) 49.90 (c) 50 (d) None

**Question 15 – MTP June, 2013**

The mean annual salary of all employees in a company is ₹25,000. The mean salary of male and female employees is ₹27,000 and ₹17,000 respectively. Find the percentage of males and females employed by the company:

(a) 60% and 40%  (b) 70% and 25%  (c) 70% and 30%  (d) 80% and 20%


Geometric Mean
Formula
Individual Series
$\left(x_1 \times x_2 \times \ldots \times x_n\right)^{1/n}$
Discrete Series
$\left(x_1^{f_1} \times x_2^{f_2} \times \ldots \times x_n^{f_n}\right)^{1/N}$
Properties
GM for constant values is constant
$\log G = \frac{1}{r}\sum \log x$
Here, r is the number of observations
To calculate average RATE, use GM
If z = xy, then GM (z) = GM (x) * GM (y)
If z = x/y, then GM (z) = GM (x)/GM (y)

# Questions Based on Geometric Mean

**Question 16 – ICAI SM**

What is the GM for the numbers 8, 24 and 40?

(a) 24 (b) 12 (c) $8.\sqrt[3]{15}$ (d) 10

**Question 17 – ICAI SM**

If GM of $x$ is 10 and GM of $y$ is 15, then the GM of $xy$ is:

(a) 150 (b) log 10 × log 15 (c) log 150 (d) None

**Question 18**

If GM of $x$ is 10, and GM of $y$ is 15, then GM of $x/y$ is:

(a) 150 (b) 2/3 (c) log 2/log 3 (d) None

**Question 19 – MTP November, 2021**

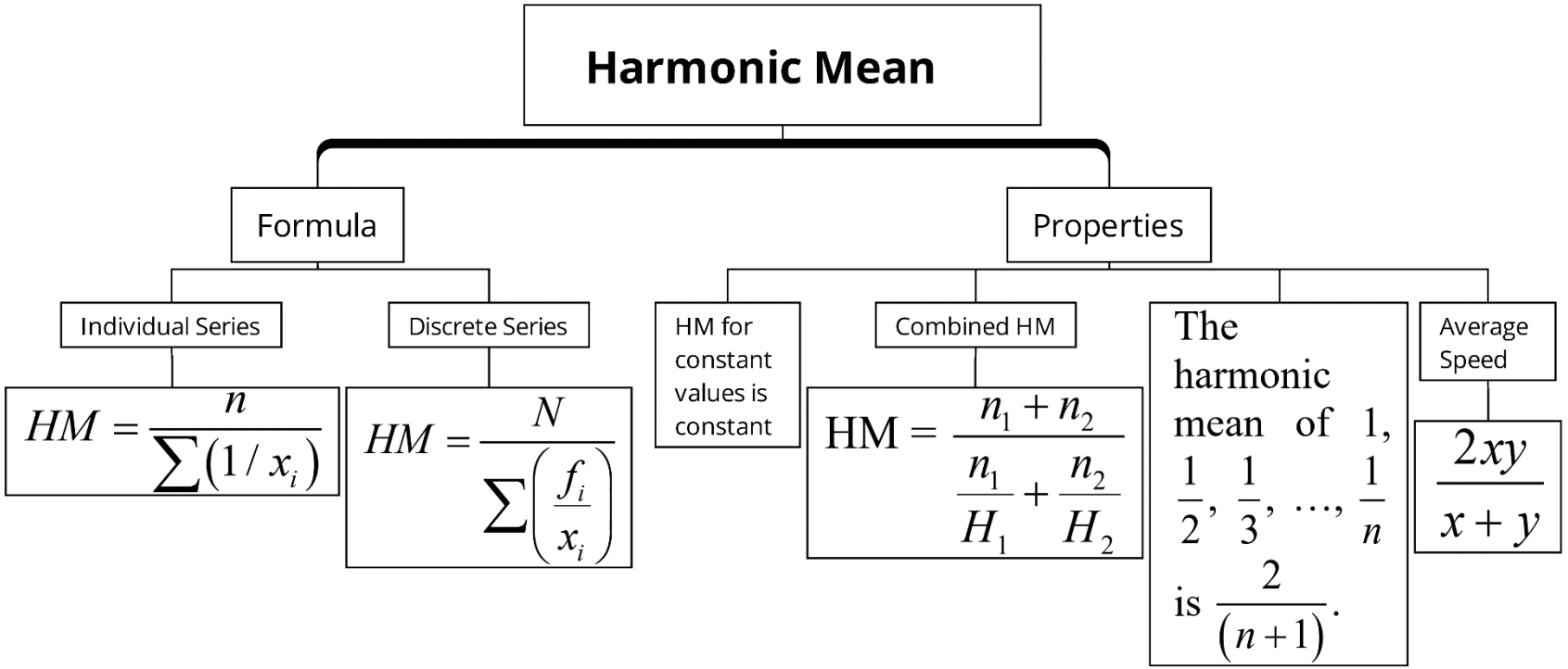
If the rates return from three different shares are 100%, 200% and 400% respectively. The average rate of return will be:

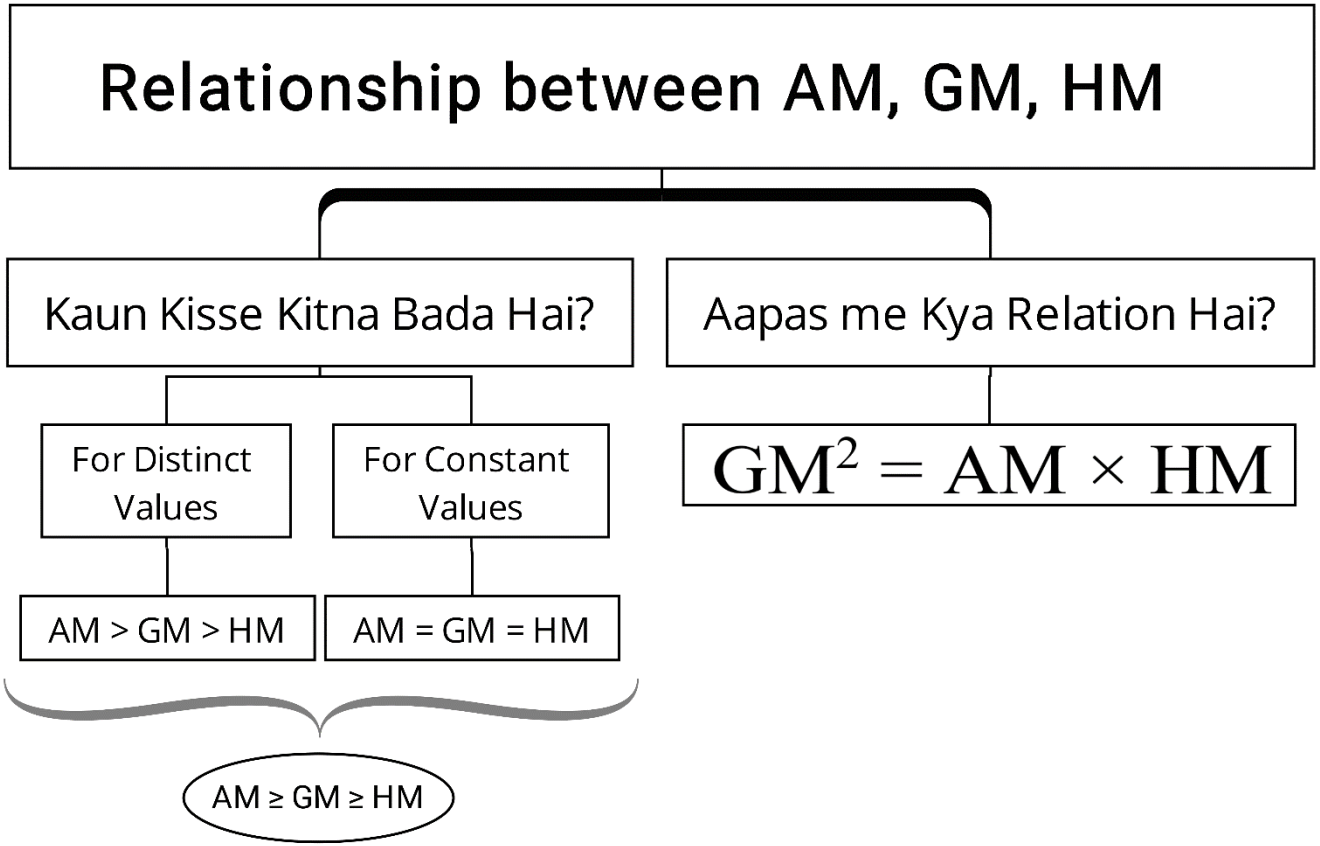
(a) 350%  (b) 233.33%  (c) 200%  (d) 300%

**Question 20 – MTP November, 2018**

The geometric mean of the series 1, $k$, $k^2$,...,$k^n$, where $k$ is a constant is:

(a) $k^{(n+1)/2}$ (b) $k^{n+0.5}$ (c) $k^{n+1}$ (d) $k^{n/2}$


Harmonic Mean
Formula
Properties
Individual Series
Discrete Series
HM for constant values is constant
Combined HM
The harmonic mean of $1, \frac{1}{2}, \frac{1}{3}, \ldots, \frac{1}{n}$ is $\frac{2}{(n+1)}$.
Average Speed
$HM = \frac{n}{\sum(1/x_i)}$
$HM = \frac{N}{\sum\left(\frac{f_i}{x_i}\right)}$
$HM = \frac{n_1 + n_2}{\frac{n_1}{H_1} + \frac{n_2}{H_2}}$
$\frac{2xy}{x+y}$


Relationship between AM, GM, HM
Kaun Kisse Kitna Bada Hai?
Aapas me Kya Relation Hai?
For Distinct Values
For Constant Values
$GM^2 = AM \times HM$
AM > GM > HM
AM = GM = HM
AM ≥ GM ≥ HM

# Questions Based on Harmonic Mean

**Question 21 – ICAI SM**

Compute the HM for the numbers 6, 8, 12, 36.

(a) 9.93 (b) 5.77 (c) 6.77 (d) None

**Question 22 – ICAI SM**

If there are two groups with 75 and 65 as harmonic means and containing 15 and 13 observations then the combined HM is given by:

(a) 65 (b) 70.36 (c) 70 (d) 71

**Question 23 – ICAI SM**

An aeroplane flies from A to B at the rate of 500 km/hour and comes back from B to A at the rate of 700 km/hour. The average speed of the aeroplane is:

(a) 600 km per hour
(b) 583.33 km per hour
(c) $10\sqrt{35}$ km per hour
(d) 620 km per hour

**Question 24 – ICAI SM**

If the AM and HM for two numbers are 5 and 3.2 respectively then the GM will be

(a) 16.00 (b) 4.10 (c) 4.05 (d) 4.00

**Question 25 – MTP June, 2013**

AM and GM are both negative values, HM is equal to:

(a) $H = \frac{G}{A^2}$ (b) $H = \frac{G^2}{A}$ (c) $H = \frac{G^2}{\sqrt{A}}$ (d) None

# Partition Values – Summary of Formulae

| Partition Value | No. of Parts | No. of Partition Values | Symbol | Rank for Individual Series | Rank for Discrete Series | Rank for Continuous Series |
|---|---|---|---|---|---|---|
| Median | 2 | 1 | $M$ | $\frac{n+1}{2}$ | $\frac{N+1}{2}$ | $\frac{N}{2}$ |
| Quartile | 4 | 3 | $Q_1$ to $Q_3$ | $Q_1 = \frac{n+1}{4}$, $Q_3 = \frac{3(n+1)}{4}$ | $Q_1 = \frac{N+1}{4}$, $Q_3 = \frac{3(N+1)}{4}$ | $Q_1 = \frac{N}{4}$, $Q_3 = \frac{3N}{4}$ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Decile | 10 | 9 | $D_1$ to $D_9$ | $D_1 = \frac{n+1}{10}$, $D_5 = \frac{5(n+1)}{10}$ and so on… | $D_1 = \frac{N+1}{10}$, $D_5 = \frac{5(N+1)}{10}$ and so on… | $D_1 = \frac{N}{10}$, $D_5 = \frac{5N}{10}$ and so on… |
| Percentile | 100 | 99 | $P_1$ to $P_{99}$ | $P_1 = \frac{n+1}{100}$, $P_5 = \frac{5(n+1)}{100}$ and so on… | $P_1 = \frac{N+1}{100}$, $P_5 = \frac{5(N+1)}{100}$ and so on… | $P_1 = \frac{N}{100}$, $P_5 = \frac{5N}{100}$ and so on… |

The formula for any partition value of a continuous series is $l + \frac{Rank - c}{f} \times i$

# Property of a Median/Quartile/Decile/Percentile

If $x$ and $y$ are two variables related by $y = a + bx$ for any two constants $a$ and $b$, then the median of $y$ is given by $y_{me} = a + bx_{me}$.

# Questions Based on Median

**Question 26**

What is the median for the following observations?

5, 8, 6, 9, 11, 4

(a) 6 (b) 7 (c) 8 (d) None

**Question 27**

Find the median of the following data:

| Variable ($x$) | 10 | 50 | 40 | 30 | 20 |
|---|---|---|---|---|---|
| Frequency $(f)$ | 50 | 20 | 30 | 10 | 40 |

(a) 20 (b) 30 (c) 40 (d) None

**Question 28 – ICAI SM**

What is the value of median for the following data?

| Marks | 5 – 14 | 15 – 24 | 25 – 34 | 35 – 44 | 45 – 54 | 55 – 64 |
|---|---|---|---|---|---|---|
| No. of Students | 10 | 18 | 32 | 26 | 14 | 10 |

(a) 28 (b) 30 (c) 32.94 (d) 33.18

**Question 29 – MTP May, 2020**

Two variables $x$ and $y$ are given by $y = 2x - 3$. If the median of $x$ is 20, what is the median of $y$?

(a) 20 (b) 40 (c) 37 (d) 35

# Questions Based on Quartiles

**Question 30 – ICAI SM**

What is the value of the first quartile for observations 15, 18, 10, 20, 23, 28, 12, 16?

(a) 17 (b) 16 (c) 12.75 (d) 12

**Question 31 – ICAI SM**

The third quartile for the following data are:

| Profits in '000 ₹ | Less than 10 | 10 – 19 | 20 – 29 | 30 – 39 | 40 – 49 | 50 – 59 |
|---|---|---|---|---|---|---|
| No. of Firms | 5 | 18 | 38 | 20 | 9 | 2 |

(a) ₹33,500 (b) ₹33,000 (c) ₹33,600 (d) ₹33,250

# Questions Based on Decile

**Question 32 – ICAI SM**

The third decile for the numbers 15, 10, 20, 25, 18, 11, 9, 12 is:

(a) 13 (b) 10.70 (c) 11 (d) 11.50

**Question 33 – ICAI SM**

Following distribution relates to the distribution of monthly wages of 100 workers. Compute $D_7$.

| Profits in '000 ₹ | Less than 500 | 500 – 699 | 700 – 899 | 900 – 1099 | 1100 – 1499 | More than 1500 |
|---|---|---|---|---|---|---|
| No. of Firms | 5 | 23 | 29 | 27 | 10 | 6 |

(a) ₹1,032.83 (b) ₹1,048.96 (c) ₹995.80 (d) None

# Questions Based on Percentile

**Question 34 – ICAI SM**

Following are the wages of the labourers: ₹82, ₹56, ₹90, ₹50, ₹120, ₹75, ₹75, ₹80, ₹130, ₹65. Find $P_{82}$.

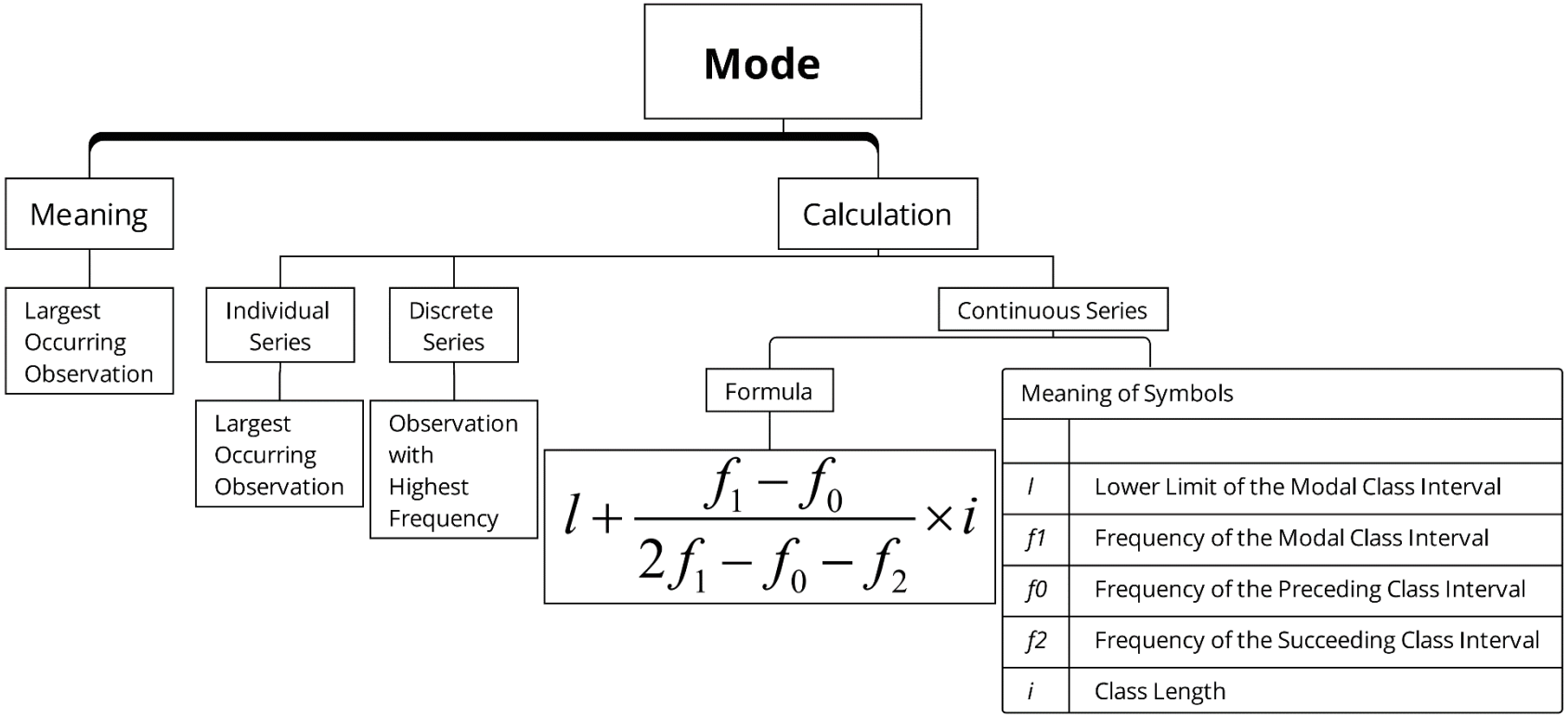
(a) 62.75 (b) 81.20 (c) 120.20 (d) None

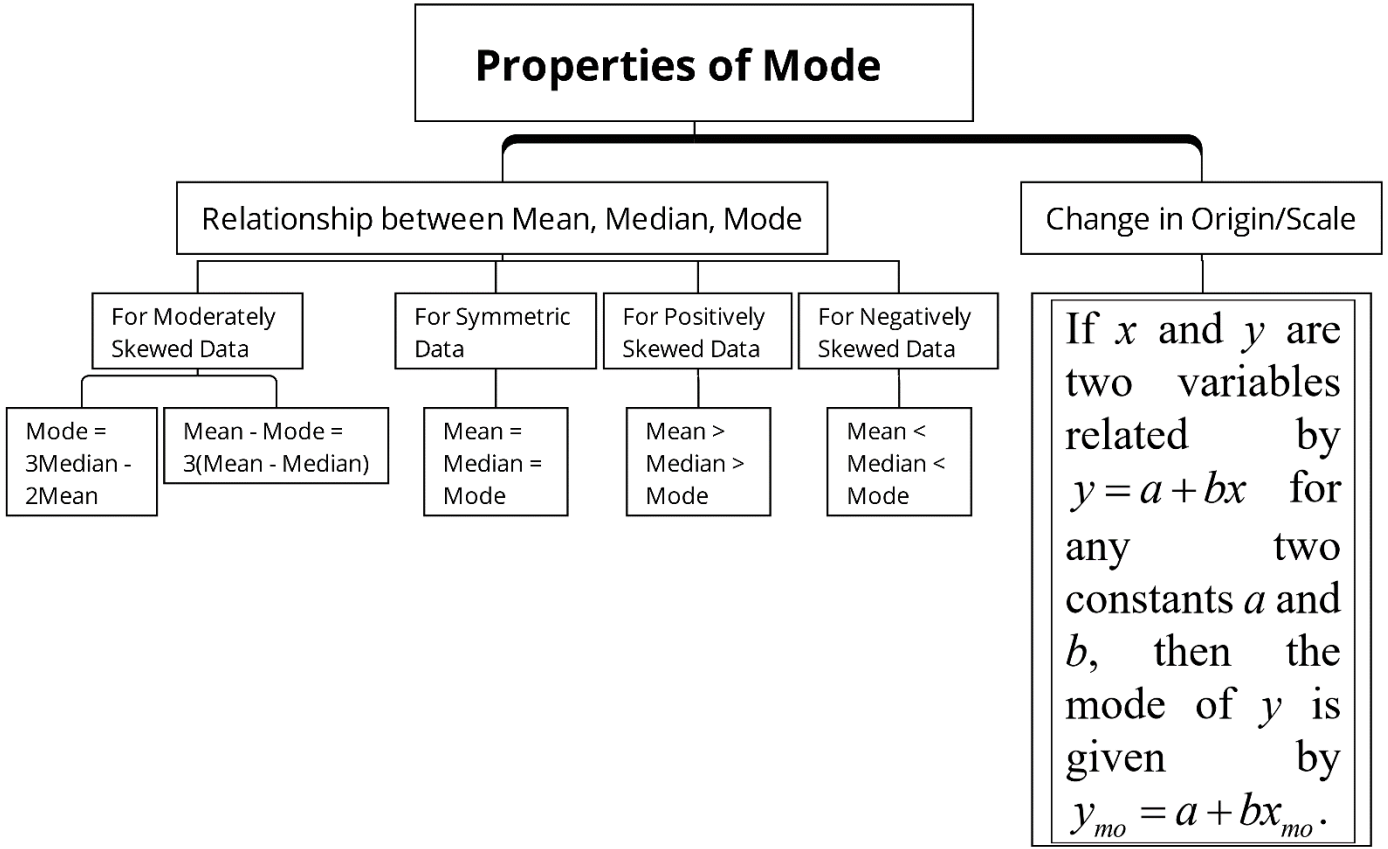
**Question 35 – ICAI SM**

The 65$^{th}$ percentile for the following data are:

| Profits in '000 ₹ | Less than 10 | 10 – 19 | 20 – 29 | 30 – 39 | 40 – 49 | 50 – 59 |
|---|---|---|---|---|---|---|
| No. of Firms | 5 | 18 | 38 | 20 | 9 | 2 |

(a) ₹29,000 (b) ₹28,680 (c) ₹29,184 (d) ₹29,250


Mode
Meaning
Calculation
Largest Occurring Observation
Individual Series
Discrete Series
Continuous Series
Largest Occurring Observation
Observation with Highest Frequency
Formula
$l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i$
Meaning of Symbols
l Lower Limit of the Modal Class Interval
f1 Frequency of the Modal Class Interval
f0 Frequency of the Preceding Class Interval
f2 Frequency of the Succeeding Class Interval
i Class Length


Properties of Mode
Relationship between Mean, Median, Mode
Change in Origin/Scale
For Moderately Skewed Data
For Symmetric Data
For Positively Skewed Data
For Negatively Skewed Data
Mode = 3Median - 2Mean
Mean - Mode = 3(Mean - Median)
Mean = Median = Mode
Mean > Median > Mode
Mean < Median < Mode
If $x$ and $y$ are two variables related by $y = a + bx$ for any two constants $a$ and $b$, then the mode of $y$ is given by $y_{mo} = a + bx_{mo}$.

# Questions Based on Mode

**Question 36 – ICAI SM**

The modal profits for the following data is:

| Profit in ₹ ’000 | Below 5 | Below 10 | Below 15 | Below 20 | Below 25 | Below 30 |
|---|---|---|---|---|---|---|
| No. of Firms | 10 | 25 | 45 | 55 | 62 | 65 |

(a) 11.50 (b) ₹11267 (c) ₹11667 (d) 11.67

**Question 37 – ICAI SM**

If $y = 2 + 1.50x$, and mode of $x$ is 15, what is the mode of $y$?

(a) ₹64.00 (b) 24.50 (c) ₹63.21 (d) ₹64.25

**Question 38 – ICAI SM**

For a moderately skewed distribution of marks in statistics for a group of 200 students, the mean mark and median mark were found to be 55.60 and 52.40. What is the modal mark?

(a) 20 (b) 13 (c) 46 (d) 23

**Question 39 – PYQ**

Given that for a distribution, the mean, median and mode are 23, 24, and 25.5. It is most likely that the distribution is _____ skewed.

(a) Positively (b) Symmetrically (c) Asymptotically (d) Negatively

**Question 40 – MTP June, 2013**

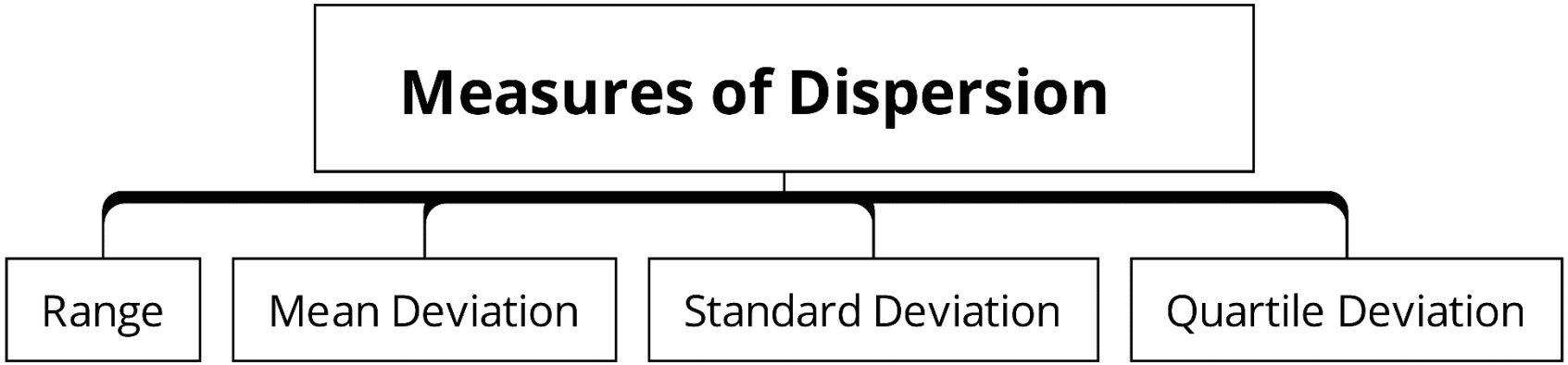
Which of the following is the correct relation between mean, median and mode?

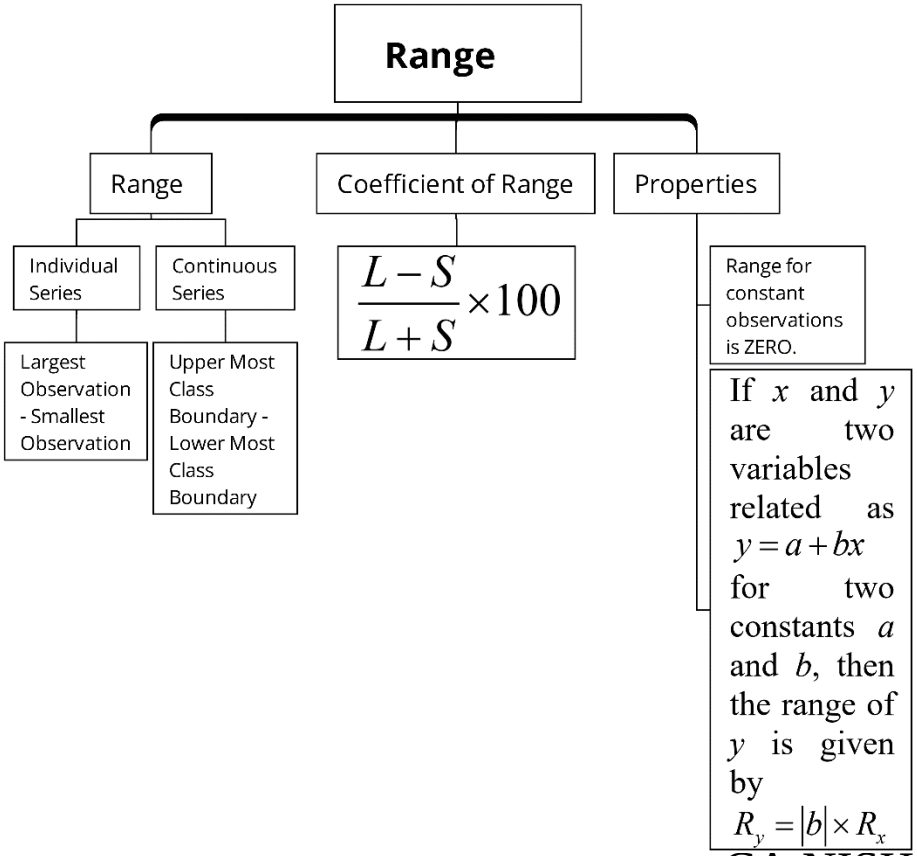
(a) Median = Mode + 2/3(Mean – Mode)
(b) 2Mean = Mode – 3Median
(c) 2Mean = Mode + 3Median
(d) Mode = 3Median + 2Mean

**Question 41 – MTP June, 2013**

If mean $(\bar{x})$ is 10, and mode $(z)$ is 7, find out the value of median $(M)$.

(a) 9 (b) 17 (c) 3 (d) 4.33


Measures of Dispersion
Range
Mean Deviation
Standard Deviation
Quartile Deviation


Range
Range
Coefficient of Range
Properties
Individual Series
Continuous Series
Largest Observation - Smallest Observation
Upper Most Class Boundary - Lower Most Class Boundary
$\frac{L-S}{L+S}\times 100$
Range for constant observations is ZERO.
If $x$ and $y$ are two variables related as $y=a+bx$ for two constants $a$ and $b$, then the range of $y$ is given by $R_y=|b|\times R_x$

# Questions Based on Range

**Question 42 – ICAI SM**

What is the coefficient of range for the following wages of 8 workers?

₹80, ₹65, ₹90, ₹60, ₹75, ₹70, ₹72, ₹85.

(a) ₹30 (b) ₹20 (c) 30 (d) 20

**Question 43 – ICAI SM**

What is the coefficient of range for the following distribution?

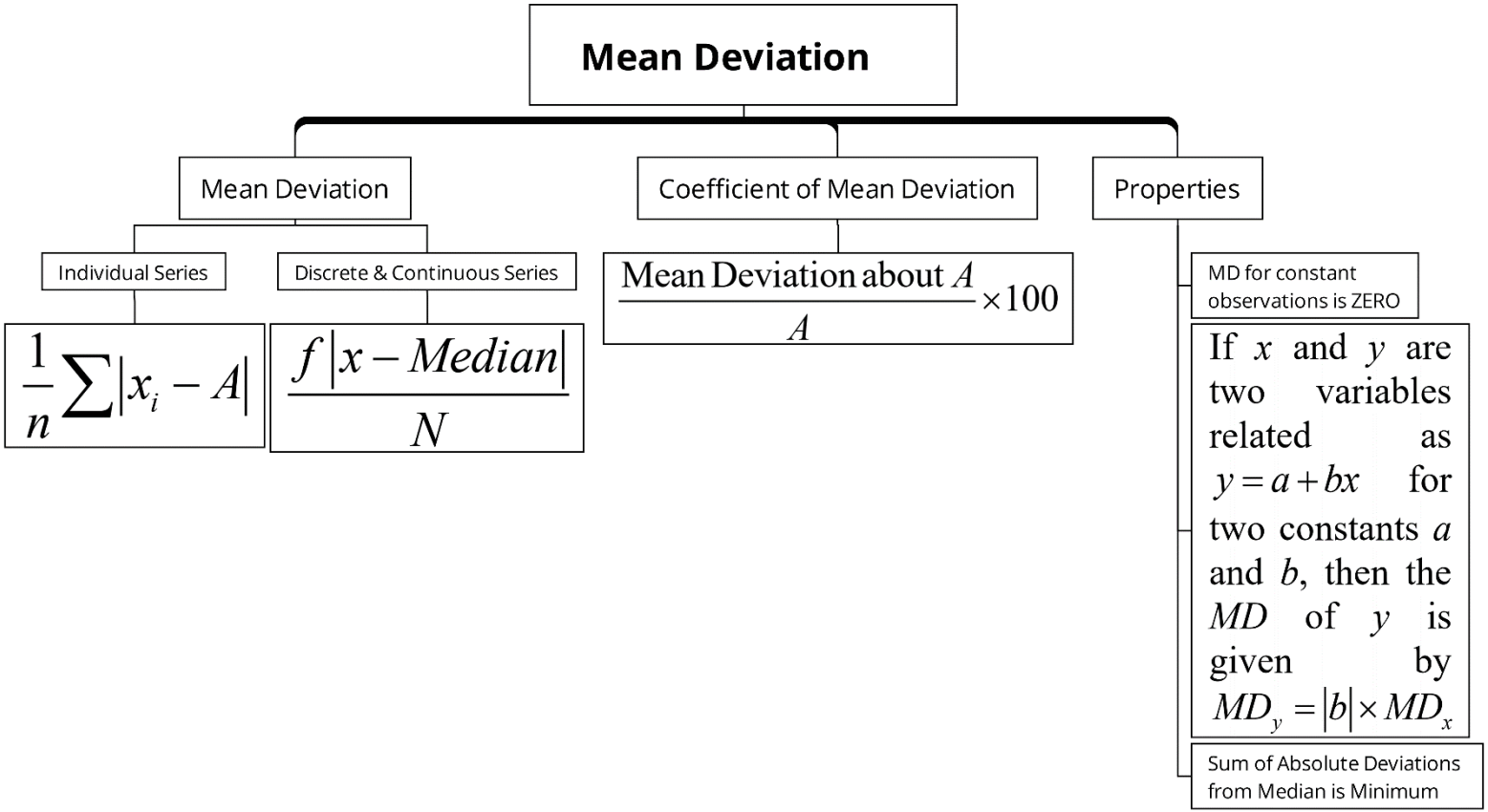
| Class Interval | 10 – 19 | 20 – 29 | 30 – 39 | 40 – 49 | 50 – 59 |
|---|---|---|---|---|---|
| Frequency | 11 | 25 | 16 | 7 | 3 |

(a) 22 (b) 50 (c) 72.46 (d) 75.82

**Question 44 – ICAI SM**

If the relationship between $x$ and $y$ is given by $2x+3y=10$, and the range of $x$ is ₹15, what would be the range of $y$?

(a) ₹20 (b) ₹5 (c) ₹15 (d) ₹10


Mean Deviation
Mean Deviation
Coefficient of Mean Deviation
Properties
Individual Series
Discrete & Continuous Series
$\frac{1}{n}\sum|x_i - A|$
$\frac{f|x - Median|}{N}$
$\frac{\text{Mean Deviation about } A}{A} \times 100$
MD for constant observations is ZERO
If $x$ and $y$ are two variables related as $y = a + bx$ for two constants $a$ and $b$, then the $MD$ of $y$ is given by $MD_y = |b| \times MD_x$
Sum of Absolute Deviations from Median is Minimum

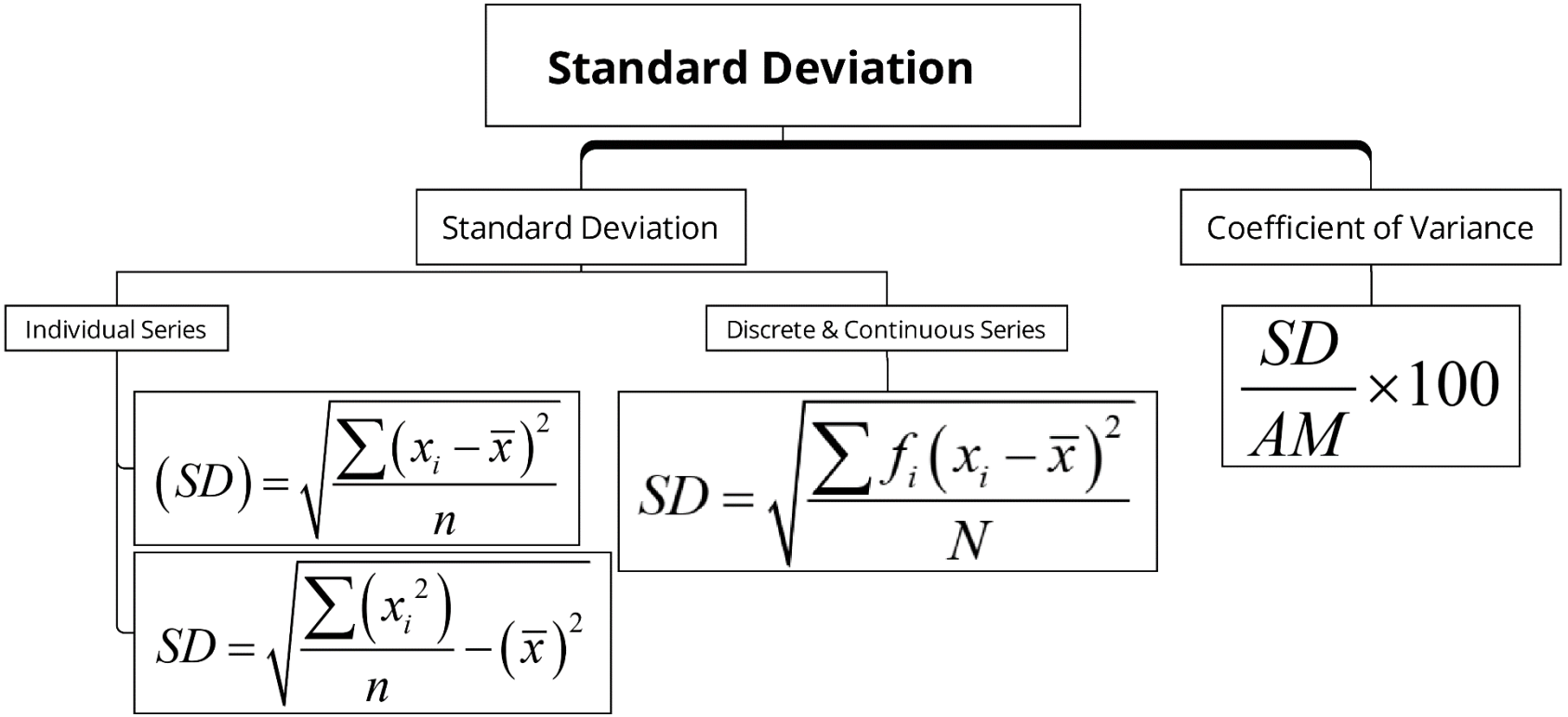
# Questions Based on Mean Deviation

**Question 45**

The mean deviation about mode for the numbers

4/11, 6/11, 8/11, 9/11, 12/11, 8/11 is:

(a) 1/6 (b) 1/11 (c) 6/11 (d) 5/11


Standard Deviation
Standard Deviation
Coefficient of Variance
Individual Series
Discrete & Continuous Series
$(SD) = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$
$SD = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{N}}$
$\frac{SD}{AM} \times 100$
$SD = \sqrt{\frac{\sum (x_i^2)}{n} - (\bar{x})^2}$

## Properties of Standard Deviation

SD for constant observations is ZERO

If $x$ and $y$ are two variables related as $y = a + bx$ for two constants $a$ and $b$, then the $SD$ of $y$ is given by $SD_y = |b| \times SD_x$

For any two numbers $a$ and $b$, standard deviation is given by $\frac{|a-b|}{2}$

For the first $n$ natural numbers, standard deviation is given by $\sqrt{\frac{n^2-1}{12}}$.

Combined Standard Deviation

$$SD = \sqrt{\frac{n_1 s_1^{\,2} + n_2 s_2^{\,2} + n_1 d_1^{\,2} + n_2 d_2^{\,2}}{n_1 + n_2}}$$

where,

$d_1 = \bar{x}_1 - \bar{x}$

$d_2 = \bar{x}_2 - \bar{x}$

$$\bar{x} = \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2}$$

# Questions Based on Standard Deviation

**Question 47 – ICAI SM**

What is the coefficient of variation of the following numbers?

53, 52, 61, 60, 64.

(a) 8.09 (b) 18.08 (c) 20.23 (d) 20.45

**Question 48 – ICAI SM**

A student computes the AM and SD for a set of 100 observations as 50 and 5 respectively. Later on, she discovers that she has made a mistake in taking one observation as 60 instead of 50. What would be the correct mean and SD if the wrong observation is replaced by the correct observation?

(a) 49.90; 6.91 (b) 49.40; 4.91 (c) 49.90; 4.90 (d) None

**Question 49 – ICAI SM**

If the SD of the first $n$ natural numbers is 2, then the value of $n$ must be:

(a) 2 (b) 7 (c) 6 (d) 5

**Question 50 – ICAI SM**

If AM and coefficient of variation of $x$ are 10 and 40 respectively, what is the variance of $15 - 2x$?

(a) 8 (b) 64 (c) 74 (d) None

**Question 51 – ICAI SM**

If the mean and standard deviation of $x$ are $a$ and $b$ respectively, then the SD of $\frac{x-a}{b}$ is:

(a) –1 (b) 1 (c) $ab$ (d) $a/b$

**Question 52 – ICAI SM**

If $x$ and $y$ are related by $2x + 3y + 4 = 0$ and $SD$ of $x$ is 6, then SD of $y$ is:

(a) 22 (b) 4 (c) $\sqrt{5}$ (d) 9

**Question 53 – ICAI SM**

If two samples of sizes 30 and 20 have means as 55 and 60 and variances as 16 and 25 respectively, then what would be the SD of the combined sample of size 50?

(a) 5.00 (b) 5.06 (c) 5.23 (d) 5.35

**Question 54 – ICAI SM**

The standard deviation is independent of change of:

(a) Scale (b) Origin (c) Both (a) and (b) (d) None

**Question 55 – ICAI SM**

The best statistical measure used for comparing two series is:

(a) Mean Deviation (b) Range (c) Coefficient of Variation (d) Standard Deviation

**Question 56 – MTP May, 2021**

If sum of squares of the values = 3390, $N$ = 30 and standard deviation = 7, find out the mean.

(a) 113 (b) 210 (c) 8 (d) None

**Question 57 – MTP May, 2021**

The standard deviation of 10, 16, 10, 16, 10, 10, 16, 16 is:

(a) 4 (b) 6 (c) 3 (d) 0

**Question 58 – MTP May, 2021**

The of mean and SD of a series is $a + b$, if we add 2 to each observation of the series then the sum of the mean and SD will be:

(a) $a + b + 2$ (b) $6 - a + b$ (c) $4 + a - b$ (d) $a + b + 4$

**Question 59 – MTP June, 2013**

There are two startups in ecommerce sector struggling to acquire the market. Following data is for Mean and Standard Deviation of billing amount of bought items per month on their website:

| Startup | No. of Customers/Month | Mean Billing Amount | SD of Billing Amount |
|---|---|---|---|
| A | 40 | ₹2,500 | ₹10 |
| B | 30 | ₹2,200 | ₹11 |

Which startup has a better consistency when it comes to sales numbers?

(a) Startup A (b) Startup B (c) Both A and B (d) Need More Information

**Question 60 – MTP June, 2013**

If the coefficient of variation and standard deviation are 60 and 12 respectively, then the arithmetic mean of the distribution is:

(a) 40 (b) 36 (c) 20 (d) 19

**Question 61 – MTP June, 2013**

If the sum of square of the value equals to 3390, number of observations are 30 and Standard deviation is 7, what is the mean value of the above observation?

(a) 14 (b) 11 (c) 8 (d) 5

**Question 62 – MTP June, 2013**

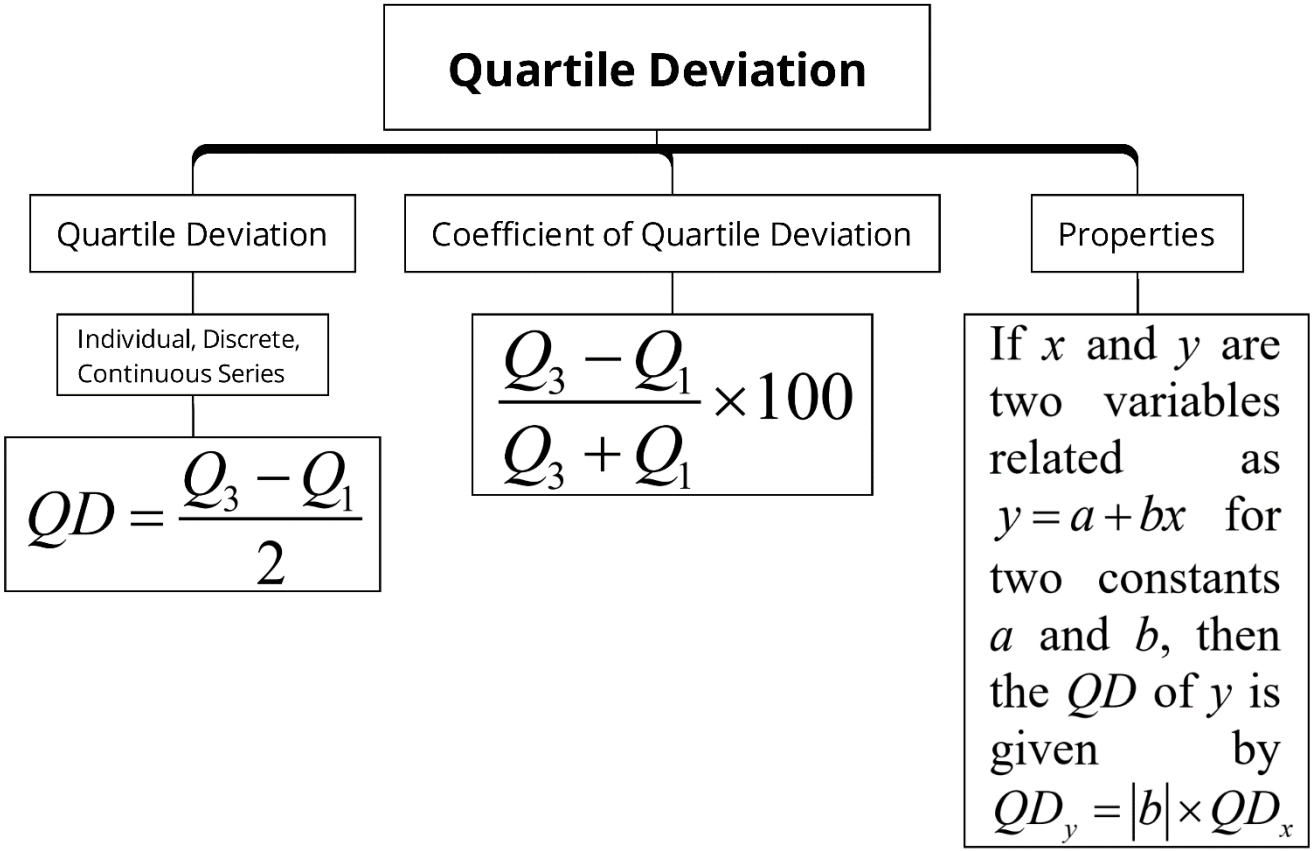
If the variance of random variable $x$ is 18, then what is variance of $y = 2x + 5$?

(a) 34 (b) 39 (c) 68 (d) 72

**Question 63 – MTP June, 2013**

In a given set, if all data are of same value, then variance would be:

(a) 0 (b) 1 (c) –1 (d) 0.5


Quartile Deviation
Quartile Deviation
Coefficient of Quartile Deviation
Properties
Individual, Discrete, Continuous Series
$QD = \frac{Q_3 - Q_1}{2}$
$\frac{Q_3 - Q_1}{Q_3 + Q_1} \times 100$
If $x$ and $y$ are two variables related as $y = a + bx$ for two constants $a$ and $b$, then the $QD$ of $y$ is given by $QD_y = |b| \times QD_x$

# Questions Based on Quartile Deviation

**Question 64 – ICAI SM**

The quartiles of a variable are 45, 52 and 65 respectively. Its quartile deviation is:

(a) 10 (b) 20 (c) 25 (d) 8.30

**Question 65 – MTP June, 2013**

In the equation $4x+2y=3$, quartile deviation for $y$ is 3. Find the quartile deviation for $x$.

(a) 4.5 (b) 6 (c) 1.5 (d) None

**Question 66 – ICAI SM**

The mean and SD for $a$, $b$, and 2 are 3 and $\frac{2}{\sqrt{3}}$ respectively. The value of $ab$ would be?

(a) 5 (b) 6 (c) 11 (d) 3

**Question 67 – ICAI SM**

Which one is an absolute measure of dispersion?

(a) Range (b) Mean Deviation (c) Standard Deviation (d) All these measures

**Question 68 – MTP June, 2013**

If Quartile deviation is 7, find the value of *x* from the arranged series: 2, *x*, 6, 7, 9, 16, 18.

(a) 5 (b) 2 (c) 8 (d) 6