

## **MEASURE OF CENTRAL TENDENCY**

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## MEANING

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A measure of central tendency is a single value that attempts **to describe a set of data by indentify the central position with in the set of data.**

It is also called **measure of central location.**

Sometimes measures of central tendency are often called **averages**

# Types of Measures Central Tendency

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## **Types of Measures central tendency:**

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**There are five types ,namely**

**1.Arithmetic Mean (A.M)**

**2.Median**

**3.Mode**

**4.Geometric Mean (G.M)**

**5.Harmonic Mean (H.M)**

## ARITHMETIC MEAN

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Average of a set of numerical values.

- **Important point:** The sum of deviations of the items from their arithmetic mean is always zero, i.e.  $\sum(x - \bar{x}) = 0$ .
- **Extreme values affects the mean**

# MEDIAN

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## Positional Average

- Arranging the series into ascending or descending order and then **find the middle number**.

### •Important points :

A.Extreme values **doesn't affect the median** .

B.Doesn't depend on each and every item .

## MODE

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Value which occurs with the **greatest frequency** and **denoted by “z”**

- **Important points :**
- **Extreme values doesn't affect the mode .**
- **Doesn't depend on each and every item .**

## GEOMETRIC MEAN

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nth root of the product **of all the n values** of the variable.

- Square root for 2 items, cube root for 3 items, and so on.
- For large number of items **log values are used.**

$$G = \sqrt[n]{X_1 \times X_2 \times \dots \times X_n}$$

## HARMONIC MEAN

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Depend on the reciprocal of the items.

- Used to compute **average speed or velocity**.

$$H = \frac{n}{\frac{1}{x_1} + \frac{1}{x_2} + \frac{1}{x_3} + \dots + \frac{1}{x_n}}$$



## MAIN POINTS

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- Arithmetic mean is **affected by both change in origin and change in scale**
- **Relationship** between AM , GM AND HM
- $AM \geq GM \geq HM$
- $AM * HM = (GM)^2$
- $Mode = 3median - 2mean$

THANK YOU