

Data, Averages & Statistics

ਔਸਤ (Mean), ਮੱਧਿਕਾ (Median), ਬਹੁਲਕ (Mode) ਅਤੇ ਡਾਟਾ ਦਾ ਰੋਜ਼ਾਨਾ ਹਿਸਾਬ-ਕਿਤਾਬ

1. The Three Central Measures (ਔਸਤ, ਮੱਧਿਕਾ ਅਤੇ ਬਹੁਲਕ)

Statistics helps us summarize large groups of numbers into single, easy-to-understand insights for everyday decisions like tracking vehicle mileage, exam scores, or monthly sales.

CORE STATISTICAL DEFINITIONS

Mean (Average) = Sum of All Values / Total Count of Values

Median = The middle value when numbers are sorted

Mode = The most frequently occurring value

2. Real-Life Practical Scenarios

Scenario A: Vehicle Mileage & Fuel Expense (ਗੱਡੀ ਦੀ ਐਵਰੇਜ ਕੱਢਣੀ)

Example: You track your car's fuel efficiency over 5 highway trips: 18 km/L, 20 km/L, 19 km/L, 17 km/L, and 21 km/L. What is your overall average mileage?

1. Step 1: Calculate Total Sum of Mileage Values

$$\text{Sum} = 18 + 20 + 19 + 17 + 21 = 95 \text{ km/L}$$

2. Step 2: Divide by Count of Trips (5)

$$\text{Average Mileage} = 95 / 5 = 19 \text{ km/L}$$



Practical Tip: Averages help you accurately budget fuel costs for long road trips well in advance!

Scenario B: Understanding Salaries & Median (ਮੱਧਿਕਾ ਦੀ ਵਰਤੋਂ)

Example: A small business has 5 employees earning ₹15,000, ₹18,000, ₹20,000, ₹22,000, and the owner earning ₹1,25,000. What is the typical salary?

1. Calculate Mean:

$$\text{Mean} = (15,000 + 18,000 + 20,000 + 22,000 + 1,25,000) / 5 = ₹40,000$$

(The owner's high salary skews the average upwards!)

2. Calculate Median (Middle Value):

Sorted Salaries: ₹15k, ₹18k, ₹20,000, ₹22k, ₹125k

Median = ₹20,000 (A much realistic picture of employee earnings)

3. Summary Table: Mean vs. Median vs. Mode

Measure	How to Calculate	Best Used For
Mean (ਔਸਤ)	Add all numbers and divide by count	Vehicle mileage, average marks, test scores
Median (ਮੱਧਿਕਾ)	Pick middle number from sorted list	House prices, salaries, income levels
Mode (ਬਹੁਲਕ)	Identify most common number	Shoe sizes, retail stock planning, popular shirt sizes

4. Practical Practice Exercises (ਅਭਿਆਸ ਲਈ ਪ੍ਰਸ਼ਨ)

Q1 Student Test Average: Gurpreet scored 85, 90, 78, and 87 in four math tests. What score does he need in his 5th test to achieve an overall average score of 85?

Answer: Required Total = $85 \times 5 = 425$. Current Sum = $85 + 90 + 78 + 87 = 340$. 5th Test Score = $425 - 340 = 85$.

Q2 Daily Electricity Usage: A household consumed 12, 14, 10, 16, 11, 15, and 13 units of electricity over a week. Calculate the mean daily consumption.

Answer: Sum = 91 units. Mean Daily Usage = $91 / 7 = 13$ units/day.

Q3 Retail Shoe Inventory (Mode): A shoe shop sold sizes 7, 8, 8, 9, 8, 10, 8, 7, 9 in one afternoon. Which shoe size represents the Mode?

Answer: Size 8 appears 4 times (most frequent). Mode = Size 8.