

Speed, Distance & Time

ਸਫ਼ਰ, ਗਤੀ (Speed) ਅਤੇ ਸਮੇਂ (Time) ਦਾ ਰੋਜ਼ਾਨਾ ਜ਼ਿੰਦਗੀ ਵਿੱਚ ਹਿਸਾਬ-ਕਿਤਾਬ

1. The Magic Triangle (ਗਤੀ, ਦੂਰੀ ਅਤੇ ਸਮੇਂ ਦਾ ਸੂਤਰ)

Whether you are driving, catching a bus, or planning a trip, understanding the relationship between **Speed**, **Distance**, and **Time** is essential for effective daily planning.

CORE FORMULAS (ਮੁੱਖ ਫਾਰਮੂਲੇ)

$$\text{Speed} = \text{Distance} / \text{Time}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Time} = \text{Distance} / \text{Speed}$$

2. Real-Life Travel Scenarios

Scenario A: Estimating Travel Time (ਸਫ਼ਰ ਦਾ ਸਮਾਂ ਕੱਢਣਾ)

Example: You need to travel **150 km** from Ludhiana to Amritsar. Your average driving speed on the highway is **60 km/h**. What time will you reach?

1. Step 1: Apply Time Formula

$$\text{Time} = \text{Distance} / \text{Speed} = 150 / 60 = 2.5 \text{ hours}$$

2. Step 2: Convert Decimal Hours to Minutes

$$2.5 \text{ hours} = 2 \text{ hours} + 0.5 \times 60 \text{ mins} = 2 \text{ hours } 30 \text{ minutes}$$



Pro Tip: Always add 15–20 minutes buffer time for traffic or fuel stops when planning a real journey!

Scenario B: Average Speed Calculation (ਔਸਤ ਗਤੀ ਕੱਢਣੀ)

Example: A bus travels **240 km** between two cities in **4 hours**. What was the average speed of the bus?

1. Step 1: Apply Speed Formula

$$\text{Speed} = \text{Distance} / \text{Time} = 240 \text{ km} / 4 \text{ hours} = 60 \text{ km/h}$$

3. Unit Conversion Quick-Reference

From Unit	To Unit	Conversion Rule	Example
km/h	m/s	Multiply by $\frac{5}{18}$	$90 \text{ km/h} = 90 \times (\frac{5}{18}) = 25 \text{ m/s}$
Hours	Minutes	Multiply by 60	$1.75 \text{ hours} = 1.75 \times 60 = 105 \text{ mins}$
Minutes	Hours	Divide by 60	$45 \text{ mins} = 45 / 60 = 0.75 \text{ hours}$

4. Practical Practice Exercises (ਅਭਿਆਸ ਲਈ ਪ੍ਰਸ਼ਨ)

Q1 Daily Commute: Simran drives her car at a speed of 40 km/h to reach her office which is 20 km away. How many minutes will it take her to reach office?

Answer: Time = $20 / 40 = 0.5 \text{ hours} = 30 \text{ minutes}$.

Q2 Total Distance Covered: A train travels at a constant speed of 75 km/h for 3 hours and 30 minutes (3.5 hours). How much total distance does it cover?

Answer: Distance = $75 \times 3.5 = 262.5 \text{ km}$.

Q3 Walking Speed: Aman walks 3 km to the market in 36 minutes. Calculate his walking speed in km/h.

Answer: Time = $36 / 60 = 0.6 \text{ hours}$. Speed = $3 / 0.6 = 5 \text{ km/h}$.