

Solving Inverse Proportion Problems

Chapter 10: Proportional Reasoning–2 · Topic 2

Key Concept

For example, if a car travels a fixed distance in 4 hours at 60 km/h, the total distance (speed $\times$ time) is 240 km — a constant regardless of how the speed changes. To find the time taken at 80 km/h for the same fixed distance: $240 = 80 \times \text{time}$, so $\text{time} = 240/80 = 3$ hours. This method is widely applicable to problems involving speed and time, workers and days, or any scenario where increasing one factor proportionally decreases another to complete the same fixed task or cover the same fixed distance.

Quick Revision Notes

- Inverse proportion problems keep the product of two quantities constant across scenarios.
- Example: distance = speed $\times$ time (constant distance); if speed increases, time decreases proportionally.
- For 240km distance: at 60km/h takes 4hrs; at 80km/h takes $240/80=3$ hrs.
- This method applies to speed-time, workers-days, and similar fixed-task problems.

Practice Questions

- 1 A car travels a fixed distance in 4 hours at 60km/h. Find the time taken at 80km/h.
- 2 If 8 pipes fill a tank in 6 hours, how long would 4 pipes take?
- 3 Explain why speed and time are inversely proportional for a fixed distance.