

Rational Numbers

Chapter 3: A Story of Numbers · Topic 1

Key Concept

Between any two rational numbers, there exist infinitely many other rational numbers — for example, between $\frac{1}{2}$ and $\frac{1}{3}$, numbers like $\frac{5}{12}$ or $\frac{7}{24}$ also fit — a property that distinguishes rational numbers as 'dense' on the number line. Numbers like 0.5 ($=\frac{1}{2}$) and $0.333\dots$ ($=\frac{1}{3}$) are rational since they can be written as exact fractions, while numbers like $\sqrt{2}$ cannot be expressed this way and are therefore classified as irrational.

Quick Revision Notes

- A rational number can be expressed as $\frac{p}{q}$, where p, q are integers and $q \neq 0$.
- Every integer is a rational number (can be written as itself over 1).
- Rational numbers include terminating and repeating decimals.
- Between any two rational numbers, infinitely many other rational numbers exist.

Practice Questions

- 1 Give an example of a negative rational number.
- 2 Find a rational number between $\frac{1}{4}$ and $\frac{1}{3}$.
- 3 Explain why every integer can be considered a rational number.