

Cubes and Cube Roots

Chapter 4: Cubes and Cube Roots · Topic 1

Key Concept

A cube number, like 27 ($3 \times 3 \times 3$), results from multiplying a number by itself three times, written as 3^3 .

The cube root of a number, written as $\sqrt[3]{27}$, is the value that when cubed gives that number - so $\sqrt[3]{27} = 3$.

We can find cube roots using prime factorisation, grouping factors in sets of three.

Understanding cubes and cube roots is essential for solving problems involving volume, like finding the side length of a cube from its volume.

Quick Revision Notes

- A cube number results from multiplying by itself three times.
- $27 = 3^3$ ($3 \times 3 \times 3$).
- A cube root is the inverse of cubing.
- $\sqrt[3]{27} = 3$.
- We find cube roots using prime factorisation.
- We group factors in sets of three.
- Cubes and roots help solve volume problems.
- They find side length from a cube's volume.

Practice Questions

- 1 Calculate 4^3 and 5^3 .
- 2 Find $\sqrt[3]{8}$ and $\sqrt[3]{125}$.
- 3 Use prime factorisation to find $\sqrt[3]{216}$.
- 4 Discuss the relationship between cubing and cube roots.
- 5 Solve a volume problem using cube roots.
- 6 Practice five cube and cube root calculations.