

Powers & Roots

Name:

Date:

INQUIRY

A square classroom at NIS has area 64 m². What's the side length? You need a square root!

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Power/Index	$2^3 = 2 \times 2 \times 2 = 8$.
Square root	$\sqrt{25} = 5$ because $5^2 = 25$.
Cube root	$\sqrt[3]{27} = 3$ because $3^3 = 27$.

Part A — Powers

1. Calculate: (a) 5^3 (b) 2^6 (c) 10^4 (d) $(-3)^2$ (e) $(-2)^3$. [5 marks]

Show your working:

Part B — Roots

2. Find: (a) $\sqrt{81}$ (b) $\sqrt{144}$ (c) $\sqrt[3]{64}$ (d) $\sqrt[3]{125}$. [4 marks]

Show your working:

Part C — Application

3. NIS classroom area = 64 m^2 (square). Find side length. [1 marks]

Show your working:

4. A Korean storage cube has volume 343 cm^3 . Find edge length. [2 marks]

Show your working: