

Unit 3 - Volume

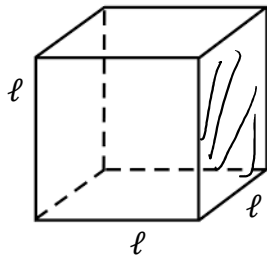
3.1 Cubes & Cube Roots

Cubes



Determine:

$$2^3 = 2 \cdot 2 \cdot 2 = 8 \quad 3^3 = 27 \quad 4^3 = 64 \quad 5^3 = 125 \quad 3.4^3 = 39.304$$

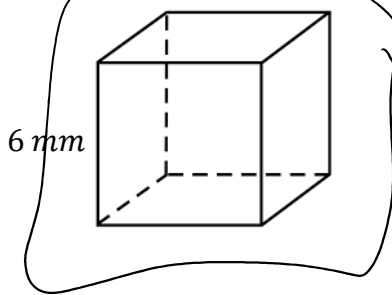


$$SA = 6l^2$$

$$V = l^3$$

Determine:

The volume of the cube shown.



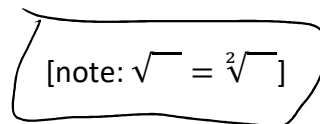
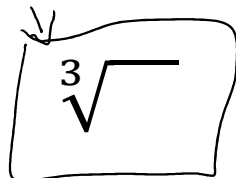
$$V = 6^3 = 216 \text{ mm}^3$$

The volume of a cube with sides 2.5 cm.

$$V = 2.5^3 = 15.625 \text{ cm}^3$$

Cube Roots

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Determine:

$$\sqrt[3]{8} = 2$$

$$\sqrt[3]{27} = 3$$

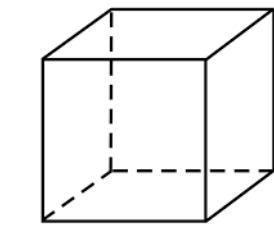
$$\sqrt[3]{343} = 7$$

$$\sqrt[3]{100} = 4.641588834 \approx 4.6$$

$$\sqrt[3]{2197} = 13$$

Determine:

The side length of the cube shown.



$$\underline{V = 729 \text{ m}^3}$$

$$V = l^3$$

$$l = \sqrt[3]{V}$$

$$l = \sqrt[3]{729}$$

$$= 9 \text{ m}$$

The side length of the cube with volume 100 cm^3 .

$$l = \sqrt[3]{100}$$

$$= 4.6 \text{ cm}$$

Determine:

The volume of a cube with surface area 150 in^2 .



$$SA = 6l^2$$

$$150 = 6l^2$$

$$25 = l^2$$

$$\sqrt{25} = l$$

$$5 \text{ in} = l$$

$$V = s^3$$

$$= 125 \text{ in}^3$$

Practice pg. 75/ #1, 3, 4, 6a, 7, 8a (just one), 9 – 13, 17, 21

*ignore any "sketch", "build", or "model"