

Build Volume Power

Use prism and cube dimensions to find volume.

GRADE 5 • TEKS 5.4.G

5.4.G "use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$); and"

NAME _____

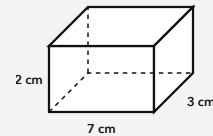
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VOLUME RULES

Volume tells how many cubic units fill a solid. For a rectangular prism, multiply length $\times$ width $\times$ height, or multiply the base area B by the height. For a cube, multiply the side length three times: $V = s \times s \times s$.

WORKED EXAMPLE

Find the volume of the rectangular prism in the figure.



$$1. V = l \times w \times h$$

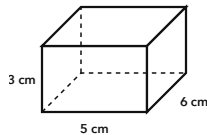
$$2. V = 7 \times 3 \times 2$$

$$3. V = 21 \times 2 = 42$$

Answer: 42 cm³

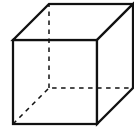
PRACTICE 6 problems

- 1** Find the volume of the rectangular prism in the figure.



ANSWER _____

- 2** Find the volume of the cube in the figure.



ANSWER _____

- 3** A rectangular prism has a base area of 24 cm² and a height of 5 cm. Find its volume.

ANSWER _____

- 4** Find the volume of a rectangular prism with a length of 9 m, a width of 2 m, and a height of 7 m.

ANSWER _____

- 5** A cube has side lengths of 6 in. Find its volume.

ANSWER _____

- 6** A rectangular prism has a base area of 35 ft² and a height of 4 ft. Find its volume.

ANSWER _____

APPLY IT

Show your work

- 1** A pet club is filling a rectangular fish tank for a classroom display. The tank is 12 in long, 5 in wide, and 4 in high. How many cubic inches of water can the tank hold when it is full?

WORK SPACE

ANSWER _____

- 2** A game store packs dice in a cube-shaped display box. Each edge of the box is 7 cm long. What is the volume of the box?

WORK SPACE

ANSWER _____

CHALLENGE

One step up

Mia says that a rectangular prism measuring 3 cm by 4 cm by 10 cm has the same volume as a rectangular prism measuring 2 cm by 5 cm by 12 cm. Is Mia correct? Show both volume calculations and explain.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of the rectangular prism in the figure.	90 cm³
2	Find the volume of the cube in the figure.	512 mm³
3	A rectangular prism has a base area of 24 cm ² and a height of 5 cm. Find its volume.	120 cm³
4	Find the volume of a rectangular prism with a length of 9 m, a width of 2 m, and a height of 7 m.	126 m³
5	A cube has side lengths of 6 in. Find its volume.	216 in³
6	A rectangular prism has a base area of 35 ft ² and a height of 4 ft. Find its volume.	140 ft³

PART 2 • APPLY IT

1. **240 in³** Multiply the three dimensions: $12 \times 5 \times 4 = 240$. The tank holds 240 cubic inches.
2. **343 cm³** Because the box is a cube, multiply the side length three times: $7 \times 7 \times 7 = 343$.

CHALLENGE

Yes. $3 \times 4 \times 10 = 120 \text{ cm}^3$, and $2 \times 5 \times 12 = 120 \text{ cm}^3$. Both rectangular prisms have a volume of 120 cm^3 .

Accept $V = B \times h$ or $V = l \times w \times h$ when either form fits the given information. Accept correct volume calculations with cubic units, including cm³, m³, in³, or ft³.