MATHEMATICS · GRADES 7-9

Volume of Prisms and Cylinders

Difficulty level: Intermediate

Mathematics: Grades 7-9

This document was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

Overview of the concept

This is how you work out how much space is inside a solid, like the water in a tank, a silo, or a swimming pool, from its base area times its height. Whether the base is a rectangle or a circle, the volume is the area of that base stretched up through the height. That one idea covers tanks, silos, pools, and pipes, because they are all a base shape filled to a height. Knowing it lets you work out how much water, grain, or concrete a container will hold.



Rule

Volume of prisms and cylinders: V = area of base × height.

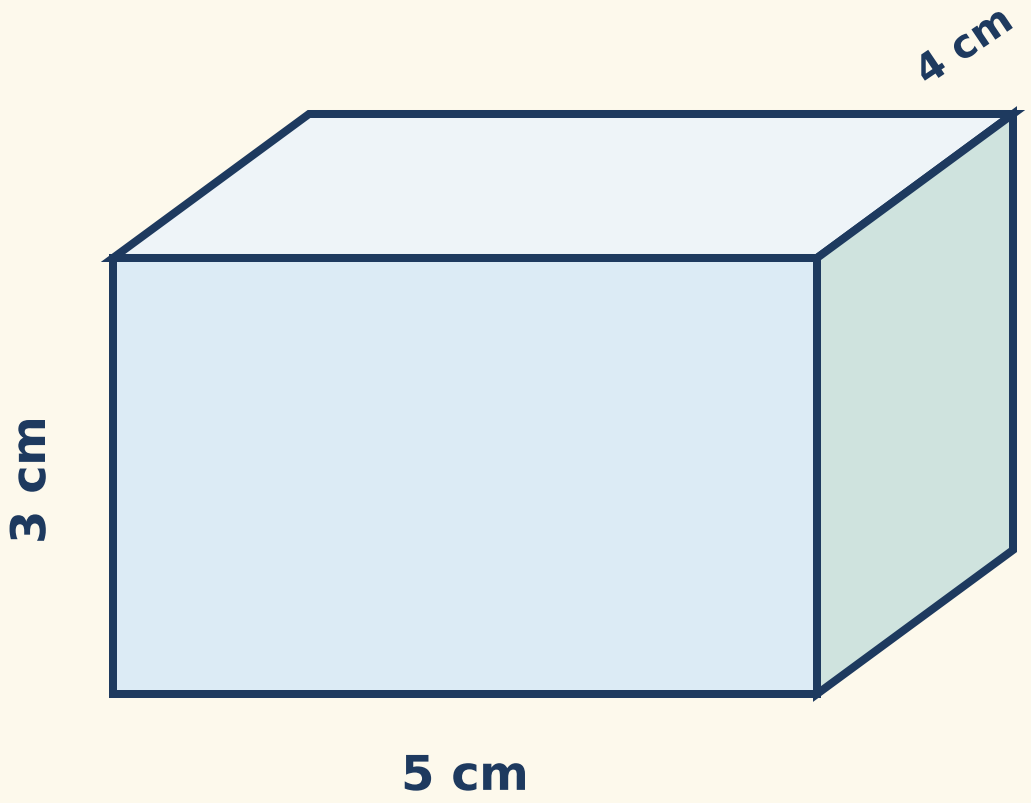
Whether the base is a rectangle or a circle, multiply the base area by the height.

© 2026 Brett Robbins. All Rights Reserved.

Worked examples

EXAMPLE 1

Q Find the volume of a rectangular prism 5 cm by 4 cm by 3 cm



SOLUTION

Volume = length × width × height

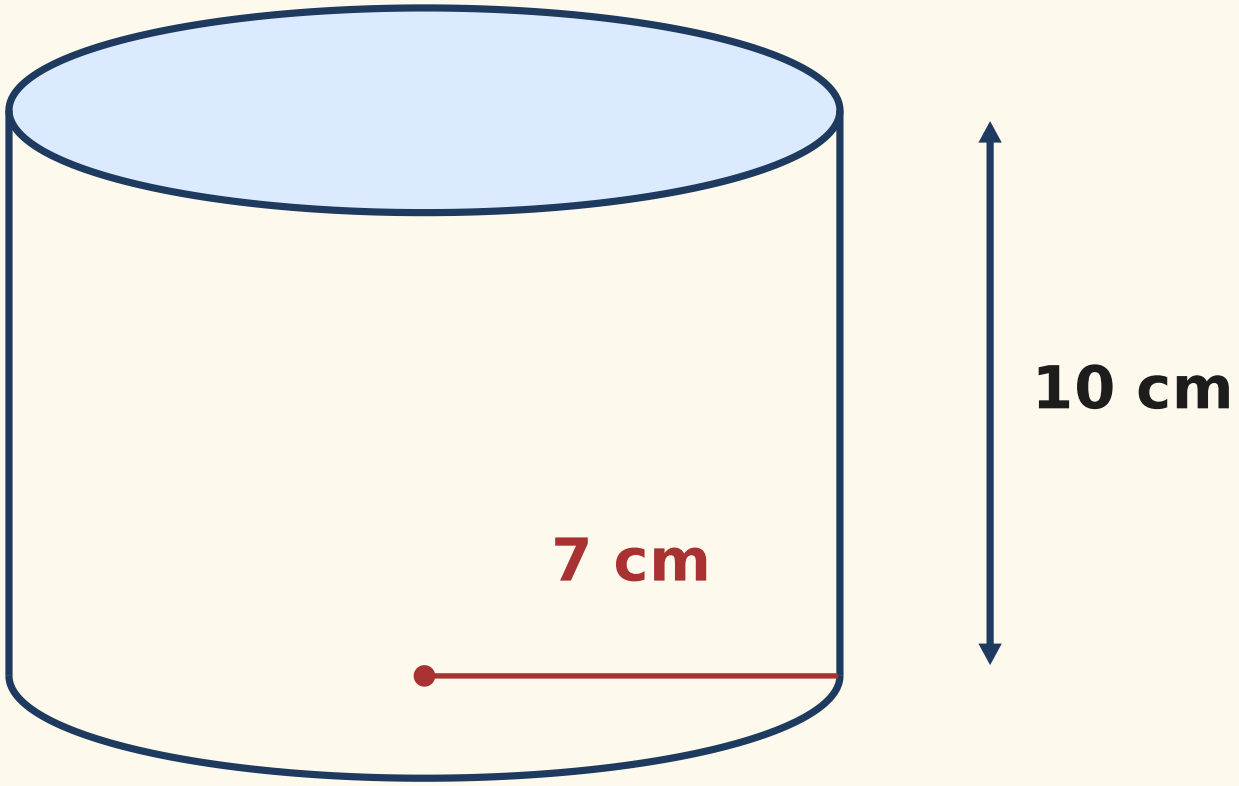
$5 \times 4 \times 3 = 60$

The volume is 60 cm^3.

© 2026 Brett Robbins. All Rights Reserved.

EXAMPLE 2

Q Find the volume of a cylinder with radius 7 cm and height 10 cm, pi = $\frac{22}{7}$



SOLUTION

Base area = pi × radius^2 = ($\frac{22}{7}$) × 49 = 154

Volume = base area × height = 154 × 10 = 1540

The volume is 1540 cm^3.

© 2026 Brett Robbins. All Rights Reserved.

Practice questions

1 A shoe box is a rectangular prism 7 cm by 3 cm by 4 cm. Find its volume.

- **A** 14 cm^3
- **B** 28 cm^3
- **C** 84 cm^3
- **D** 12 cm^3

Understand It with Pulse | Flag a mistake

2 A soup can is a cylinder with radius 7 cm and height 20 cm. Find its volume, using pi = $\frac{22}{7}$.

- **A** 1540 cm^3
- **B** 3080 cm^3
- **C** 6160 cm^3
- **D** 770 cm^3

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

3 A cereal box is a rectangular prism 2 cm by 3 cm by 4 cm. Find its volume.

- **A** 6 cm^3
- **B** 12 cm^3
- **C** 24 cm^3
- **D** 8 cm^3

Understand It with Pulse | Flag a mistake

4 A storage cube is a rectangular prism 10 cm by 10 cm by 10 cm. Find its volume.

- **A** 30 cm^3
- **B** 100 cm^3
- **C** 300 cm^3
- **D** 1000 cm^3

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

5 A dice is a cube with side 4 cm. Find its volume.

- **A** 12 cm^3
- **B** 16 cm^3
- **C** 48 cm^3
- **D** 64 cm^3

Understand It with Pulse | Flag a mistake

6 A sugar cube is a cube with side 3 cm. Find its volume.

- **A** 6 cm^3
- **B** 9 cm^3
- **C** 18 cm^3
- **D** 27 cm^3

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

7 A candle is a cylinder with radius 7 cm and height 5 cm. Find its volume, using pi= $\frac{22}{7}$

- A 154 cm^3
- B 385 cm^3
- C 770 cm^3
- D 1540 cm^3

Understand It with Pulse | Flag a mistake

8 A water tank is a cylinder with radius 14 cm and height 10 cm. Find its volume, using pi = $\frac{22}{7}$

- A 616 cm^3
- B 3080 cm^3
- C 6160 cm^3
- D 12320 cm^3

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

9 A prism has base area 20 cm² and height 6 cm. Find its volume.

- A 20 cm³
- B 26 cm³
- C 60 cm³
- D 120 cm³

Understand It with Pulse | Flag a mistake

10 A gift box is a rectangular prism 6 cm by 5 cm by 2 cm. Find its volume.

- A 10 cm³
- B 13 cm³
- C 30 cm³
- D 60 cm³

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

ANSWER KEY

1. 84 cm^3

2. 3080 cm^3

3. 24 cm^3

4. 1000 cm^3

5. 64 cm^3

6. 27 cm^3

7. 770 cm^3

8. 6160 cm^3

9. 120 cm^3

10. 60 cm^3

© 2026 Brett Robbins. All Rights Reserved.