

Volume of Rectangular Prisms

Geometry · Grade 5

Score: _____ / 10

◆ Medium · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

1. A rectangular prism has volume 360 cm^3 . Its base area is 45 cm^2 . Find the height.

Answer: _____

2. Two cubes are stacked. Each cube has side 4 cm. What is the total volume?

Answer: _____

3. A swimming pool is 25 m long, 10 m wide, and 2 m deep. How many m^3 of water does it hold?

Answer: _____

4. Water fills $\frac{3}{4}$ of a tank that is $20\text{ cm} \times 15\text{ cm} \times 12\text{ cm}$. How many cm^3 of water is in the tank?

Answer: _____

5. Find the volume of a rectangular prism: $l=8\text{ cm}$, $w=5\text{ cm}$, $h=6\text{ cm}$.

Answer: _____

6. A cube has volume 216 cm^3 . What is its side length?

Answer: _____

7. A box is $12 \text{ cm} \times 8 \text{ cm} \times 5 \text{ cm}$. What is its volume?

Answer: _____

8. Two boxes are joined: one is $4 \times 3 \times 2 \text{ cm}$ and the other is $5 \times 3 \times 2 \text{ cm}$. Combined volume?

Answer: _____

9. A rectangular prism has base 24 cm^2 and height 7 cm . Find the volume.

Answer: _____

10. A storage box has volume $1,200 \text{ cm}^3$. If its length is 20 cm and width is 10 cm , find the height.

Answer: _____

Answer Key

Volume of Rectangular Prisms — Medium

1. **8 cm**

$$V = \text{Base Area} \times h. 360 = 45 \times h. h = 360 \div 45 = 8 \text{ cm}.$$

2. **128 cm³**

$$\text{One cube: } 4^3 = 64 \text{ cm}^3. \text{ Two cubes: } 64 \times 2 = 128 \text{ cm}^3.$$

3. **500 m³**

$$V = 25 \times 10 \times 2 = 500 \text{ m}^3.$$

4. **2,700 cm³**

$$\text{Total } V = 20 \times 15 \times 12 = 3,600. \frac{3}{4} \text{ of } 3,600 = 2,700 \text{ cm}^3.$$

5. **240 cm³**

$$V = 8 \times 5 \times 6 = 240 \text{ cm}^3.$$

6. **6 cm**

$$V = s^3. 6^3 = 216. \text{ Side} = 6 \text{ cm}.$$

7. **480 cm³**

$$V = 12 \times 8 \times 5 = 480 \text{ cm}^3.$$

8. **54 cm³**

$$\text{Box 1: } 4 \times 3 \times 2 = 24. \text{ Box 2: } 5 \times 3 \times 2 = 30. \text{ Total} = 24 + 30 = 54 \text{ cm}^3.$$

9. **168 cm³**

$$V = \text{Base} \times h = 24 \times 7 = 168 \text{ cm}^3.$$

10. **6 cm**

$$V = l \times w \times h. 1,200 = 20 \times 10 \times h = 200h. h = 6 \text{ cm}.$$