

# Word Problems with Volume

Grade 5 Math • Section 9.5

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 10

## Quick Review and Helpful Hints

**Volume formula:**  $V = l \times w \times h$ .

**Finding a missing dimension:** If  $V$  and two dimensions are known, divide to find the third:  $h = V \div (l \times w)$ .

**Volume is always given in cubic units.** Read the problem carefully to identify what is given and what is asked.

**Example:** A box has a volume of  $480 \text{ in}^3$ . It is 12 in long and 8 in wide. What is the height?

$V = l \times w \times h$ , so  $h = V \div (l \times w) = 480 \div (12 \times 8) = 480 \div 96 = 5 \text{ in}$ .

**Answer:** 5 inches

## Practice Problems

Solve each word problem. Show your work.

- A toy box is 3 ft long, 2 ft wide, and 2 ft tall. What is its volume?  
\_\_\_\_\_
- A rectangular aquarium holds  $1,200 \text{ cm}^3$  of water. It is 15 cm long and 10 cm wide. How deep is the water?  
\_\_\_\_\_
- A cube has a volume of  $125 \text{ cm}^3$ . What is the length of one side? (Hint:  $5 \times 5 \times 5 = ?$ )  
\_\_\_\_\_
- A moving box is 18 in long, 12 in wide, and 15 in tall. How many cubic inches of space does it have?  
\_\_\_\_\_
- A swimming pool is 10 m long, 5 m wide, and 2 m deep. How many cubic meters of water can it hold?  
\_\_\_\_\_
- A storage container has a base area of  $36 \text{ ft}^2$  and a height of 5 ft. What is the volume?  
\_\_\_\_\_
- A crate has a volume of  $864 \text{ in}^3$ . Its length is 12 in and height is 9 in. What is the width?  
\_\_\_\_\_
- Two boxes have the same base (6 cm by 4 cm). Box A is 5 cm tall and Box B is 8 cm tall. How much more volume does Box B have?  
\_\_\_\_\_

## Word Problems

- A sandbox is 6 feet long, 4 feet wide, and 1 foot deep. Sand costs \$2 per cubic foot. How much will it cost to fill the sandbox?  
\_\_\_\_\_
- A warehouse has a room that is 40 ft long, 25 ft wide, and 12 ft tall. Boxes occupy 60% of the room's volume. What volume of the room is empty?  
\_\_\_\_\_



## Answer Keys

- |   |  |
|---|--|
| 1. <input type="text" value="12 ft³"/>    | 6. <input type="text" value="180 ft³"/>    |
| 2. <input type="text" value="8 cm"/>      | 7. <input type="text" value="8 in"/>       |
| 3. <input type="text" value="5 cm"/>      | 8. <input type="text" value="72 cm³"/>     |
| 4. <input type="text" value="3,240 in³"/> | 9. <input type="text" value="\$48"/>       |
| 5. <input type="text" value="100 m³"/>    | 10. <input type="text" value="4,800 ft³"/> |

### Step-by-Step Explanations

- Start with the main idea. For word problems with volume,  $3 \times 2 \times 2 = 12$  cubic feet. Volume counts cubic units, so the unit on the answer should be cubic units.
- Keep the work tidy. For word problems with volume, depth is  $1,200 \div (15 \times 10) = 8$  cm. For rectangular prisms, multiply length, width, and height.
- Look at what the numbers mean. For word problems with volume,  $5 \times 5 \times 5 = 125$ , so the side length is 5 cm. For composite figures, find each prism's volume first and then add.
- Use the setup first. For word problems with volume,  $18 \times 12 \times 15 = 3,240$  cubic inches. Volume counts cubic units, so the unit on the answer should be cubic units.
- Check the size of the answer. For word problems with volume,  $10 \times 5 \times 2 = 100$  cubic meters. For rectangular prisms, multiply length, width, and height.
- Match the operation to the words. For word problems with volume,  $V =$

$Bh = 36 \times 5 = 180$  cubic feet. For composite figures, find each prism's volume first and then add.

7. Write the important values first. For word problems with volume, width is  $864 \div (12 \times 9) = 8$  inches. Volume counts cubic units, so the unit on the answer should be cubic units.

8. Follow the pattern carefully. For word problems with volume, the shared base is  $6 \times 4 = 24$ ; extra height is  $8 - 5 = 3$ , so extra volume is  $24 \times 3 = 72$ . For rectangular prisms, multiply length, width, and height.

9. Start with the main idea. For word problems with volume, volume is  $6 \times 4 \times 1 = 24$  cubic feet; cost is  $24 \times 2 = 48$ . For composite figures, find each prism's volume first and then add.

10. Keep the work tidy. For word problems with volume, room volume is  $40 \times 25 \times 12 = 12,000$  cubic feet. Empty space is 40% of that, or 4,800 cubic feet. Volume counts cubic units, so the unit on the answer should be cubic units.



# Want Even More Practice?

Check Out Our Other Arkansas ATLAS Test Books!



## Arkansas ATLAS Grade 5 Math Preparation Bundle

18 full-length practice tests across three books  
(5 + 6 + 7)

No repeated questions—maximum practice value!



**18 Tests!**  
**3 Books**  
**One Bundle**

**Important:** All our test books contain **unique, completely different tests** from each other! Each book offers fresh practice questions—no repeats!

### 5 Practice Tests

- ✓ 5 complete practice tests with detailed explanations
- ✓ Perfect foundation for ATLAS test preparation
- ✓ Builds confidence and test-taking skills
- ✓ High-quality questions aligned with state standards

**Start your practice journey!**

### 6 Practice Tests

- ✓ 6 complete practice tests with detailed explanations
- ✓ **Unique tests**—different from the 5 tests book
- ✓ Perfect for more practice after mastering 5 tests
- ✓ Builds even more confidence and test-taking skills
- ✓ Same high-quality questions aligned with standards

**Take your practice to the next level!**

### 7 Practice Tests

- ✓ 7 complete practice tests for maximum preparation
- ✓ **Unique tests**—different from 5 and 6 tests books
- ✓ The most comprehensive practice for Grade 5
- ✓ Ideal for students aiming for top scores
- ✓ Extensive practice builds mastery and confidence

**Go all the way with comprehensive practice!**