

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 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 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 ft^2 and a height of 5 ft. What is the volume?

- A crate has a volume of 864 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. 12 ft ³ | 6. 180 ft ³ |
| 2. 8 cm | 7. 8 in |
| 3. 5 cm | 8. 72 cm ³ |
| 4. 3,240 in ³ | 9. \$48 |
| 5. 100 m ³ | 10. 4,800 ft ³ |

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 Arizona AASA Test Books!



Arizona AASA 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 AASA 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!