

Additive Volume (Composite Figures)

Grade 5 Math • Section 9.4

Name: _____

Date: _____

Score: _____ / 10

Quick Review and Helpful Hints

Additive volume: A composite solid can be split into two or more rectangular prisms. Find the volume of each part, then add them together.

Look for ways to cut the shape into non-overlapping rectangular boxes.

Make sure the parts don't overlap and that you include all parts of the figure.

Example: An L-shaped room is made of two rectangular prisms. Prism A: $6 \times 4 \times 3$. Prism B: $5 \times 4 \times 3$. Find the total volume.

$V_A = 6 \times 4 \times 3 = 72$. $V_B = 5 \times 4 \times 3 = 60$. Total = $72 + 60 = 132$ cubic units.

Answer: 132 cubic units

Practice Problems

Find the total volume of each composite figure.

1. Prism A: $4 \times 3 \times 2$. Prism B: $5 \times 3 \times 2$. Total volume = _____

2. Prism A: $10 \times 5 \times 3$. Prism B: $6 \times 5 \times 3$. Total volume = _____

3. Prism A: $8 \times 4 \times 2$. Prism B: $8 \times 3 \times 2$. Total volume = _____

4. Prism A: $7 \times 7 \times 4$. Prism B: $3 \times 7 \times 4$. Total volume = _____

5. Prism A: $12 \times 6 \times 5$. Prism B: $8 \times 6 \times 3$. Total volume = _____

6. Prism A: $5 \times 5 \times 5$. Prism B: $5 \times 5 \times 5$. Total volume = _____

7. A step-shaped figure: bottom $10 \times 4 \times 2$, top $6 \times 4 \times 2$. Total volume = _____

8. A T-shaped figure: base $8 \times 3 \times 2$, top $4 \times 3 \times 3$. Total volume = _____

Word Problems

9. A building has a ground floor that is 20 m long, 10 m wide, and 4 m tall. A smaller second floor on top is 12 m long, 10 m wide, and 3 m tall. What is the total volume? _____

10. A swimming pool is shaped like an L. One section is $8 \text{ m} \times 4 \text{ m} \times 2 \text{ m}$ and the other section is $6 \text{ m} \times 4 \text{ m} \times 2 \text{ m}$. What is the total volume of water the pool can hold? _____



Answer Keys

- 54
- 240
- 112
- 280
- 504

- 250
- 128
- 84
- 1,160 m³
- 112 m³

Step-by-Step Explanations

1. Start with the main idea. For additive volume (composite figures), add volumes: $4 \times 3 \times 2 = 24$ and $5 \times 3 \times 2 = 30$, total 54. Volume counts cubic units, so the unit on the answer should be cubic units.

2. Keep the work tidy. For additive volume (composite figures), $10 \times 5 \times 3 = 150$ and $6 \times 5 \times 3 = 90$, total 240. For rectangular prisms, multiply length, width, and height.

3. Look at what the numbers mean. For additive volume (composite figures), $8 \times 4 \times 2 = 64$ and $8 \times 3 \times 2 = 48$, so the total volume is $64 + 48 = 112$. For composite figures, find each prism's volume first and then add.

4. Use the setup first. For additive volume (composite figures), $7 \times 7 \times 4 = 196$ and $3 \times 7 \times 4 = 84$, total 280. Volume counts cubic units, so the unit on the answer should be cubic units.

5. Check the size of the answer. For additive volume (composite figures), $12 \times 6 \times 5 = 360$ and $8 \times 6 \times 3 = 144$, total 504. For rectangular prisms, multiply length, width, and height.

6. Match the operation to the words. For additive volume (composite figures), each prism is $5^3 = 125$; $125 + 125 = 250$. For composite figures, find each prism's volume first and then add.

7. Write the important values first. For additive volume (composite figures), bottom volume is $10 \times 4 \times 2 = 80$ and top volume is $6 \times 4 \times 2 = 48$; total 128. Volume counts cubic units, so the unit on the answer should be cubic units.

8. Follow the pattern carefully. For additive volume (composite figures), base volume is $8 \times 3 \times 2 = 48$ and top volume is $4 \times 3 \times 3 = 36$; total 84. For rectangular prisms, multiply length, width, and height.

9. Start with the main idea. For additive volume (composite figures), ground floor volume is $20 \times 10 \times 4 = 800$ and second floor volume is $12 \times 10 \times 3 = 360$; total 1,160. For composite figures, find each prism's volume first and then add.

10. Keep the work tidy. For additive volume (composite figures), add the two sections: $8 \times 4 \times 2 = 64$ and $6 \times 4 \times 2 = 48$, total 112. Volume counts cubic units, so the unit on the answer should be cubic units.



Want Even More Practice?

Check Out Our Other Pennsylvania PSSA Test Books!



Pennsylvania PSSA 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 PSSA 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!