Volume of Rectangular Prisms

Volume of rectangular prisms: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Rectangular prism volume is $V = lwh$, in cubic units. With $l = 4, w = 3, h = 2$ cm, the base has $4 \times 3 = 12$ unit squares and 2 layers make 24 cm^3. Fractional edges work too: $3 \times 2 \times \frac{1}{2} = 3$ cm^3. A missing edge equals volume divided by the product of the other two.

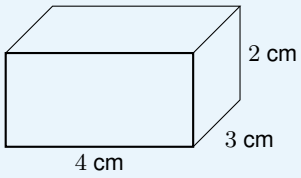
Worked example

Find the rectangular prism volume.

1. Base area $= 4 \times 3 = 12$ cm^2.

2. Volume $= 12 \times 2 = 24$ cm^3.

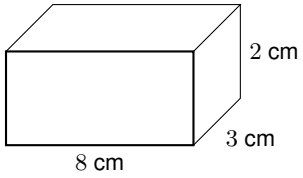
Answer: 24 cm^3.



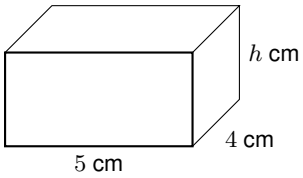
Practice Problems

Show your thinking.

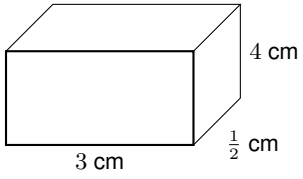
1. A student adds the three edges to find volume. Correct it.



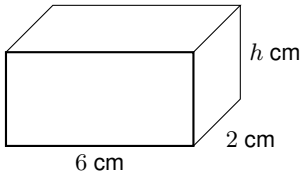
2. Recover the missing height from volume and base. Volume is 120 cm^3; find height h.



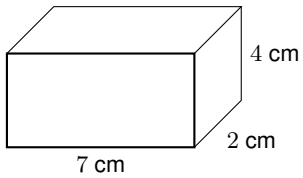
3. A student ignores the half-centimeter edge. Correct the volume.



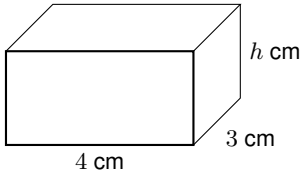
4. Find a fractional missing height. Volume is 30 cm^3; find height h.



5. A student reports square cm for capacity. Correct value and units.



6. Design a height for the given volume and base. Volume is 60 cm^3; find height h.



Answer Key

1. 48 cm^3.
2. 6 cm.
3. 6 cm^3.
4. $\frac{5}{2}$ cm.
5. 56 cm^3.
6. 5 cm.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Base area $= 8 \times 3 = 24$ cm^2.
2. Volume $= 24 \times 2 = 48$ cm^3.

Problem 2

1. Base area $= 5 \times 4 = 20$ cm^2.
2. $h = 120/20 = 6$ cm; check $20 \times 6 = 120$ cm^3.

Problem 3

1. Base area $= 3 \times \frac{1}{2} = \frac{3}{2}$ cm^2.
2. Volume $= \frac{3}{2} \times 4 = 6$ cm^3.

Problem 4

1. Base area $= 6 \times 2 = 12$ cm^2.
2. $h = 30/12 = \frac{5}{2}$ cm; check $12 \times \frac{5}{2} = 30$ cm^3.

Problem 5

1. Base area $= 7 \times 2 = 14$ cm^2.
2. Volume $= 14 \times 4 = 56$ cm^3.

Problem 6

1. Base area $= 4 \times 3 = 12$ cm^2.
2. $h = 60/12 = 5$ cm; check $12 \times 5 = 60$ cm^3.

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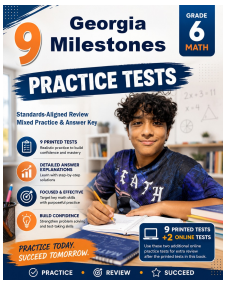

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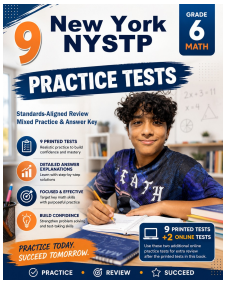

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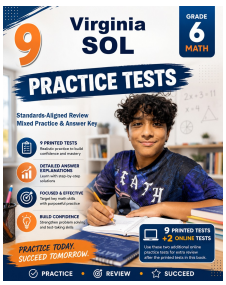

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