

Unit 1: Finding Volume

ADVANCED

Name: _____ Date: _____

Show all your work. Give each volume with its correct cubic units. Use the formula $\text{Volume} = \text{length} \times \text{width} \times \text{height}$ for rectangular prisms, and add or subtract prisms for composite figures.

1. A right rectangular prism has a length of 14 cm, a width of 9 cm, and a height of 6 cm. Find its volume in cubic centimeters.

Answer: _____

3. An L-shaped solid is made of two right rectangular prisms. Prism A measures 12 m long $\times$ 5 m wide $\times$ 4 m high. Prism B measures 7 m long $\times$ 5 m wide $\times$ 4 m high. The two prisms are joined with no overlap. Find the total volume in cubic meters.

Answer: _____

5. A box is filled completely with unit cubes measuring 1 cm on each side. The box is 8 cubes long, 6 cubes wide, and 5 cubes tall. How many unit cubes are needed to fill it?

Answer: _____

7. A solid is built by stacking a smaller prism directly on top of a larger prism. The bottom prism measures 10 in $\times$ 10 in $\times$ 3 in. The top prism measures 4 in $\times$ 4 in $\times$ 6 in. Find the total volume of the solid in cubic inches.

Answer: _____

9. A right rectangular prism has dimensions 2.5 cm $\times$ 4 cm $\times$ 6 cm. Find its volume in cubic centimeters.

Answer: _____

2. A right rectangular prism has a volume of 1848 cubic inches. Its base has a length of 12 in and a width of 11 in. Find the height of the prism in inches.

Answer: _____

4. A right rectangular prism has edge lengths of $\frac{3}{2}$ ft, $\frac{5}{2}$ ft, and 4 ft. Find its volume in cubic feet. Give an exact answer.

Answer: _____

6. A right rectangular prism has a volume of 720 cubic cm. The area of its base is 48 square cm. Find the height of the prism in cm.

Answer: _____

8. A rectangular tank is 9 cm long, 7 cm wide, and 8 cm tall and is filled completely with water. Find the volume of water in cubic centimeters.

Answer: _____

10. A rectangular block measuring 10 cm $\times$ 8 cm $\times$ 6 cm has a smaller rectangular hole cut straight through part of it. The removed piece is a prism measuring 4 cm $\times$ 3 cm $\times$ 2 cm. Find the volume of the remaining solid in cubic centimeters.

Answer: _____

11. A right rectangular prism has a volume of 1080 cubic mm. Two of its edges measure 12 mm and 9 mm. Find the length of the third edge in mm.

Answer: _____

12. A composite solid is made of two right rectangular prisms joined end to end with no overlap. The first prism is $20\text{ cm} \times 4\text{ cm} \times 3\text{ cm}$. The second prism is $6\text{ cm} \times 4\text{ cm} \times 3\text{ cm}$. Find the total volume in cubic centimeters.

Answer: _____