

Volume of Rectangular Prisms

Answer key

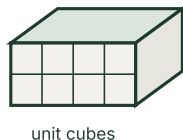
5.MD.C.3

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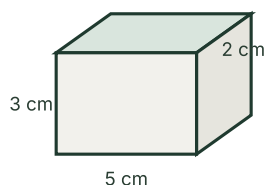
14 problems

1. Find the volume of the rectangular prism by counting unit cubes.

**Answer** 8 cubic units

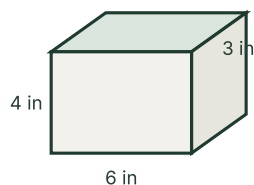
The front face is 4 cubes wide and 2 high = 8 cubes, and the prism is 1 cube deep, so $V = 8$ cubic units.

2. Find the volume of the rectangular prism.

**Answer** 30 cubic cm

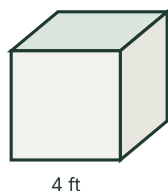
$V = l \times w \times h = 5 \times 3 \times 2 = 30$ cubic cm.

3. Find the volume of the rectangular prism.

**Answer** 72 cubic in

$V = l \times w \times h = 6 \times 4 \times 3 = 72$ cubic in.

4. Find the volume of a cube whose edges each measure 4 feet.

**Answer** 64 cubic ft

A cube has equal edges, so $V = s \times s \times s = 4 \times 4 \times 4 = 64$ cubic ft.

5. A rectangular prism has length 7 m, width 2 m, and height 5 m. Find its volume.

Answer 70 cubic m

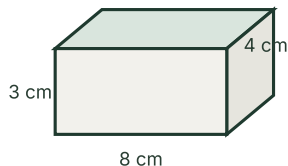
$V = l \times w \times h = 7 \times 2 \times 5 = 70$ cubic m.

6. A rectangular prism has a base area of 24 square cm and a height of 5 cm. Use $V = B \times h$ to find its volume.

Answer 120 cubic cm

$$V = B \times h = 24 \times 5 = 120 \text{ cubic cm.}$$

7. Find the volume of the rectangular prism.



Answer 96 cubic cm

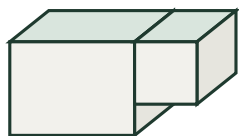
$$V = l \times w \times h = 8 \times 3 \times 4 = 96 \text{ cubic cm.}$$

8. Which expression gives the volume of a rectangular prism with length l , width w , and height h ?

Answer C) $l \times w \times h$

Volume is the product of the three edge lengths: $V = l \times w \times h$.

9. Two rectangular prisms are joined to make this solid. The larger prism measures $4 \times 2 \times 3$ units and the smaller prism measures $2 \times 2 \times 3$ units. Find the total volume.



Answer 36 cubic units

Find each prism and add. Larger prism: $4 \times 2 \times 3 = 24$. Smaller prism: $2 \times 2 \times 3 = 12$. Total = $24 + 12 = 36$ cubic units.

10. A rectangular prism has a volume of 60 cubic cm. Its length is 5 cm and its width is 3 cm. What is its height?

Answer 4 cm

$$V = l \times w \times h, \text{ so } 60 = 5 \times 3 \times h = 15h. \text{ Then } h = 60 \div 15 = 4 \text{ cm.}$$

11. A fish tank shaped like a rectangular prism is 20 in long, 10 in wide, and 12 in tall. What is the volume of the tank?

Answer 2400 cubic in

$$V = l \times w \times h = 20 \times 10 \times 12 = 2400 \text{ cubic in.}$$

12. A storage box is 6 ft long, 4 ft wide, and 3 ft tall. It is filled with cardboard cubes that are each 1 cubic foot. How many cubes fit inside the box?

Answer 72 cubes

The volume equals the number of 1-cubic-foot cubes: $V = 6 \times 4 \times 3 = 72$ cubes.

13. A swimming pool is shaped like a rectangular prism, 25 m long, 10 m wide, and 2 m deep. How many cubic meters of water does it hold when full?

Answer 500 cubic m

$$V = l \times w \times h = 25 \times 10 \times 2 = 500 \text{ cubic m.}$$

14. A gift box is 8 cm long, 5 cm wide, and 4 cm tall. A larger box is 8 cm long, 5 cm wide, and 8 cm tall. How much greater is the volume of the larger box?

Answer 160 cubic cm

Small box: $8 \times 5 \times 4 = 160$. Large box: $8 \times 5 \times 8 = 320$. Difference = $320 - 160 = 160$ cubic cm.