

Volume of prisms

Calculate volumes using base area and depth, or find missing dimensions.



Name _____

Date _____

How to work through each question

Use the formula $\text{Volume} = \text{base area} \times \text{depth (or length)}$. When finding a missing dimension, rearrange to divide: $\text{Area} = \text{Volume} \div \text{Depth}$. Show your working clearly and include units.

Worked example Find the volume of a rectangular prism with length 4 cm, width 5 cm, and height 6 cm.

$$\text{Volume} = \text{length} \times \text{width} \times \text{height} = 4 \times 5 \times 6 = 120 \text{ cm}^3$$

1. A rectangular prism has base area 12 cm^2 and depth 5 cm. Find its volume.

2. A triangular prism has base area 8 m^2 and length 10 m. Find its volume.

3. Volume is 60 cm^3 , cross-sectional area is 15 cm^2 . Find the depth.

4. A prism has depth 7 m and volume 84 m^3 . Find the base area.

5. A square prism has base side 3 cm and depth 8 cm. Find the volume.

6. A rectangular prism is $4 \text{ cm} \times 5 \text{ cm} \times 6 \text{ cm}$. Find its volume.

7. A triangular prism has base area 9 cm^2 and length 12 cm. Find its volume.

8. Volume 150 m^3 , depth 6 m. Find the cross-sectional area.

9. Cross-section 20 cm^2 , volume 100 cm^3 . Find the length.

10. A hexagonal prism has base area 18 m^2 and depth 5 m. Find its volume.

11. Rectangular prism $2 \text{ m} \times 3 \text{ m} \times 4 \text{ m}$. Find the volume.

12. Volume 72 cm^3 , depth 9 cm. Find the base area.

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(continued) Find volumes and missing dimensions.



Name _____

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13. Triangular prism, base area 14 cm^2 , length 8 cm . Find volume.

14. Square prism, volume 125 cm^3 , depth 5 cm . Find the base side length.

15. Rectangular prism, volume 240 cm^3 , $10 \text{ cm} \times 6 \text{ cm}$. Find height.

16. Prism cross-section 25 m^2 , depth 3 m . Find volume.

17. Triangular face area 6 cm^2 , length 20 cm . Find volume.

18. Volume 180 cm^3 , base area 15 cm^2 . Find the length.

19. Rectangular $2.5 \text{ m} \times 3.2 \text{ m} \times 4.1 \text{ m}$. Find volume to nearest m^3 .

20. Triangle base 6 cm , height 4 cm , prism length 15 cm . Find volume.

21. Volume 1.2 m^3 , depth 0.8 m . Find cross-section area.

22. Right triangle legs 5 cm , 12 cm , prism 30 cm long. Find volume.

23. Volume 1.5 m^3 , length 2 m , width 0.75 m . Find height in cm .

24. Two prisms, same cross-section. Prism A: depth 8 cm , volume 200 cm^3 . Prism B: depth 12 cm . Find volume of B.

25. Trapezium cross-section (parallel sides 4 cm and 6 cm , height 5 cm), prism 15 cm long. Find volume.

26. Prism cross-section 36 cm^2 , volume 432 cm^3 . Find depth.

27. Volume 960 cm^3 , length 16 cm , height 10 cm . Find width.

