

Volume of prisms – Solutions

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1. Base area 12 cm^2 , depth 5 cm. Volume?

$$12 \times 5 = 60 \text{ cm}^3$$

2. Base area 8 m^2 , length 10 m. Volume?

$$8 \times 10 = 80 \text{ m}^3$$

3. Volume 60 cm^3 , area 15 cm^2 . Depth?

$$60 \div 15 = 4 \text{ cm}$$

4. Depth 7 m, volume 84 m^3 . Base area?

$$84 \div 7 = 12 \text{ m}^2$$

5. Side 3 cm, depth 8 cm. Volume?

$$3^2 \times 8 = 9 \times 8 = 72 \text{ cm}^3$$

6. Dimensions $4 \times 5 \times 6 \text{ cm}$. Volume?

$$4 \times 5 \times 6 = 120 \text{ cm}^3$$

7. Base 9 cm^2 , length 12 cm. Volume?

$$9 \times 12 = 108 \text{ cm}^3$$

8. Volume 150 m^3 , depth 6 m. Area?

$$150 \div 6 = 25 \text{ m}^2$$

9. Area 20 cm^2 , volume 100 cm^3 . Length?

$$100 \div 20 = 5 \text{ cm}$$

10. Base 18 m^2 , depth 5 m. Volume?

$$18 \times 5 = 90 \text{ m}^3$$

11. Dimensions $2 \times 3 \times 4 \text{ m}$. Volume?

$$2 \times 3 \times 4 = 24 \text{ m}^3$$

12. Volume 72 cm^3 , depth 9 cm. Area?

$$72 \div 9 = 8 \text{ cm}^2$$

13. Base 14 cm^2 , length 8 cm. Volume?

$$14 \times 8 = 112 \text{ cm}^3$$

14. Volume 125 cm^3 , depth 5 cm. Side?

$$s^2 \times 5 = 125; s^2 = 25; s = 5 \text{ cm}$$

15. Volume 240 cm^3 , $10 \times 6 \text{ cm}$. Height?

$$240 \div (10 \times 6) = 240 \div 60 = 4 \text{ cm}$$

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16. Area 25 m^2 , depth 3 m. Volume?

$$25 \times 3 = 75 \text{ m}^3$$

17. Triangle area 6 cm^2 , length 20 cm. Volume?

$$6 \times 20 = 120 \text{ cm}^3$$

18. Volume 180 cm^3 , area 15 cm^2 . Length?

$$180 \div 15 = 12 \text{ cm}$$

19. Dimensions $2.5 \times 3.2 \times 4.1 \text{ m}$. Volume?

$$2.5 \times 3.2 \times 4.1 = 32.8 \approx 33 \text{ m}^3$$

20. Triangle base 6 cm, height 4 cm, prism 15 cm. Volume?

$$\begin{aligned} \text{Triangle area} &= \frac{1}{2} \times 6 \times 4 = 12 \text{ cm}^2 \\ \text{Volume} &= 12 \times 15 = 180 \text{ cm}^3 \end{aligned}$$

21. Volume 1.2 m^3 , depth 0.8 m. Area?

$$1.2 \div 0.8 = 1.5 \text{ m}^2$$

22. Right triangle legs 5 cm, 12 cm, prism 30 cm. Volume?

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 5 \times 12 = 30 \text{ cm}^2 \\ \text{Volume} &= 30 \times 30 = 900 \text{ cm}^3 \end{aligned}$$

23. Volume 1.5 m^3 , length 2 m, width 0.75 m. Height?

$$1.5 \div (2 \times 0.75) = 1.5 \div 1.5 = 1 \text{ m} = 100 \text{ cm}$$

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

$$\begin{aligned} \text{Area} &= 200 \div 8 = 25 \text{ cm}^2 \\ \text{Volume of B} &= 25 \times 12 = 300 \text{ cm}^3 \end{aligned}$$

25. Trapezium (parallel sides 4 and 6 cm, height 5 cm), prism 15 cm. Volume?

$$\begin{aligned} \text{Area} &= \frac{1}{2}(4 + 6) \times 5 = \frac{1}{2} \times 10 \times 5 = 25 \text{ cm}^2 \\ \text{Volume} &= 25 \times 15 = 375 \text{ cm}^3 \end{aligned}$$

26. Area 36 cm^2 , volume 432 cm^3 . Depth?

$$432 \div 36 = 12 \text{ cm}$$

27. Volume 960 cm^3 , length 16 cm, height 10 cm. Width?

$$960 \div (16 \times 10) = 960 \div 160 = 6 \text{ cm}$$