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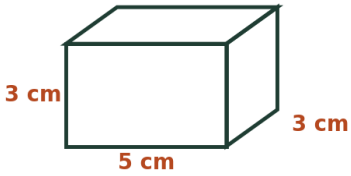
Volume of a Prism

Grade 4 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (50 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 74 marks.

Warm-up

1 Work out the volume of the cuboid. **[2 marks]**

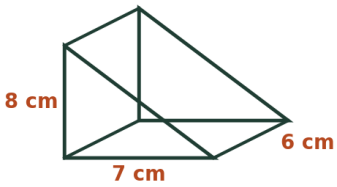


Answer _____

2 A cube has side 4 cm. Work out its volume. **[2 marks]**

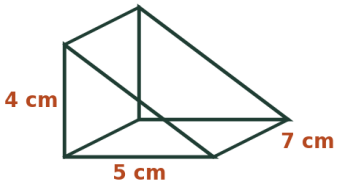
Answer _____

3 The diagram shows a triangular prism. Work out the area of the cross-section. **[2 marks]**



Answer _____

4 The diagram shows a triangular prism. Work out its volume. **[3 marks]**



Answer _____

5 A cuboid has base 4 cm by 8 cm and volume 128 cm³. Work out its height. **[3 marks]**

Answer _____

Core

6 A prism has a trapezium cross-section with parallel sides 6 cm and 10 cm and height 6 cm. The prism is 6 cm long. Work out its volume. **[4 marks]**

Answer _____

7 A swimming pool is a prism. Its cross-section is a trapezium with parallel sides 1 m and 3 m and width 25 m. It is 10 m wide. Work out the volume of water when full, in m³. **[5 marks]**

Answer _____

8 A prism has a cross-section of area 55 cm² and length 9 cm. Work out its volume. **[2 marks]**

Answer _____

9 A triangular prism has volume 160 cm³. The triangle has base 4 cm and height 8 cm. Work out the length of the prism. **[4 marks]**

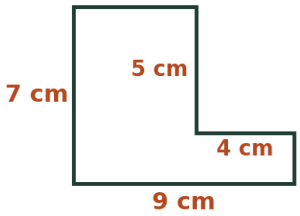
Answer _____

10 A water tank is a cuboid 40 cm by 70 cm by 40 cm. How many litres does it hold? (1 litre = 1000 cm³) **[4 marks]**

Answer _____

Stretch

11 The cross-section of a prism is an L-shape: 9 cm by 7 cm with a 4 cm by 5 cm corner removed. The prism is 12 cm long. Work out its volume. **[5 marks]**



Answer _____

12 A prism has volume 528 cm³. Its cross-section is a rectangle 11 cm by 8 cm. Work out its length. **[3 marks]**

Answer _____

13 A cuboid measures 10 cm by 3 cm by 5 cm. Each dimension is doubled. By what factor does the volume increase? **[4 marks]**

Answer _____

14 A chocolate bar is a triangular prism with a right-angled triangle cross-section (sides 3 cm and 8 cm) and length 9 cm. Work out its volume to 3 significant figures. **[4 marks]**

Answer _____

15 A cuboid has volume 72000 cm^3. Convert this to m^3. **[3 marks]**

Answer _____

Challenge

16 A cuboid tank 30 cm by 40 cm by 25 cm is filled at 6 litres per minute. How many seconds does it take to fill? (1 litre = 1000 cm³) **[5 marks]**

Answer _____

17 A prism has a right-angled triangular cross-section with hypotenuse 13 cm and one shorter side 5 cm. The prism is 10 cm long. Work out its volume. **[5 marks]**

Answer _____

18 Two similar prisms have lengths in the ratio 1 : 2. The smaller has volume 105 cm³. Work out the volume of the larger. **[4 marks]**

Answer _____

19 A rectangular block of metal 10 cm by 8 cm by 5 cm is melted and cast into cubes of side 2 cm. How many cubes can be made? **[5 marks]**

Answer _____

20 The cross-section of a prism is a semicircle of radius 6 cm and the prism is 10 cm long. Work out the volume to 3 s.f. **[5 marks]**

Answer _____