

GCSE Maths Volume, Surface Area and 3D Shapes (Higher): check-up and exam-style questions: answers

GCSE Maths - Volume, Surface Area and 3D Shapes - Higher - Test yourself

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch19-volume-surface-area-3d/higher/check-up-and-exam-style-questions/

Exercise 19Z Check-up (non-calculator)

Non-calculator

- 1 A solid has 5 faces, 9 edges and 6 vertices. What is the solid?

Answer: triangular prism

- 2 Work out the volume of a cuboid that is 6 cm long, 5 cm wide and 4 cm high.

Answer: 120 cm^3

- 3 The net of a cylinder has circles of radius 5 cm. Write the width of the rectangle in the net in terms of π .

Answer: $10\pi \text{ cm}$

- 4 Work out the total surface area of a cuboid that is 5 cm by 3 cm by 2 cm.

Answer: 62 cm^2

- 5 Change 2.5 litres to cm^3 .

Answer: 2500 cm^3

- 6 A triangular prism has a triangle of base 8 cm and height 3 cm, and is 10 cm long. Work out its volume.

Answer: 120 cm^3

- 7 Work out the volume of a cylinder with radius 2 cm and height 5 cm. Give your answer in terms of π .

Answer: $20\pi \text{ cm}^3$

- 8 Work out the total surface area of a cylinder with radius 3 cm and height 4 cm. Give your answer in terms of π .

Answer: $42\pi \text{ cm}^2$

- 9 A metal block has mass 600 g and volume 200 cm^3 . Work out its density.

Answer: 3 g/cm^3

- 10 Write down the shape of the front elevation of a cone that stands on its circular base.

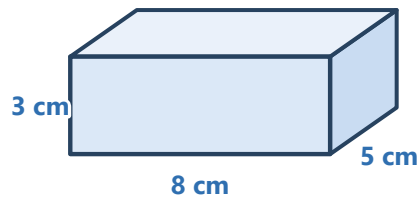
Answer: triangle

Exercise 19X Exam-style questions

Non-calculator

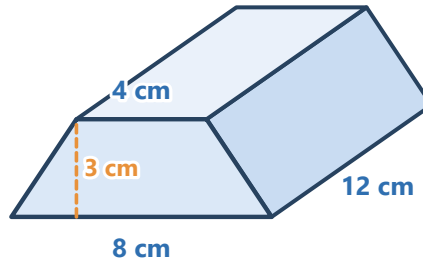
- 1 Work out the total surface area of this cuboid.

[3 marks]



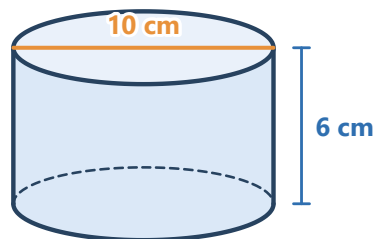
Answer: 158 cm^2

- 2 The diagram shows a prism. Its cross-section is a trapezium. Work out the volume of the prism. [3 marks]



Answer: 216 cm^3

- 3 A cylinder has diameter 10 cm and height 6 cm. Work out its volume. Give your answer correct to 3 significant figures. [3 marks]

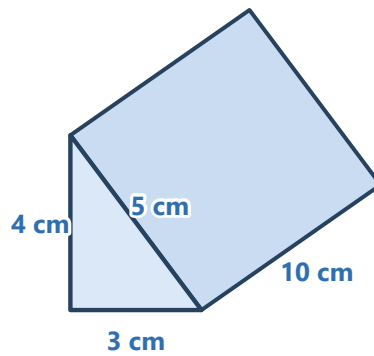


Answer: 471 cm^3

- 4 A tank is a cuboid 60 cm long, 30 cm wide and 40 cm high. How many litres of water can it hold? [3 marks]

Answer: 72 litres

- 5 The diagram shows a triangular prism. The triangle is right-angled. Work out the total surface area of the prism. [4 marks]

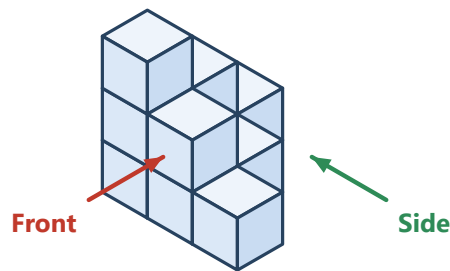


Answer: 132 cm^2

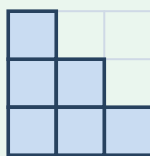
- 6 A block of metal is a cuboid 10 cm by 5 cm by 4 cm. Its mass is 1.6 kg. Work out the density of the metal in g/cm^3 . [3 marks]

Answer: 8 g/cm^3

- 7 The solid is made from 1 cm cubes. Draw the front elevation of the solid on squared paper. [3 marks]



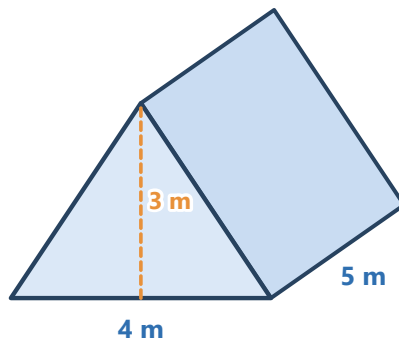
Answer:



- 8 An open cylinder (no lid) has radius 6 cm and height 14 cm. Work out the outside surface area. Give your answer correct to 3 significant figures. [4 marks]

Answer: 641 cm^2

- 9 A tent is a triangular prism. The triangular ends have base 4 m and height 3 m, and the tent is 5 m long. Each person needs 2.5 m^3 of air. How many people can sleep in the tent? [4 marks]



Answer: 12 people

- 10** A cone has radius 6 cm and vertical height 8 cm. Work out its volume. Give your answer in terms of π .

Answer: $96\pi \text{ cm}^3$

[3 marks]

- 11** A solid hemisphere has radius 6 cm. Work out its total surface area. Give your answer in terms of π .

Answer: $108\pi \text{ cm}^2$

[3 marks]

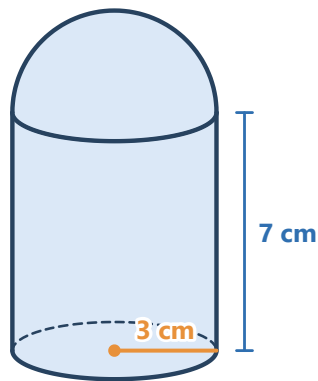
- 12** A pyramid has a rectangular base 8 cm by 6 cm and vertical height 9 cm. Work out its volume.

[3 marks]

Answer: 144 cm^3

- 13** The solid is a cylinder with a hemisphere on top. The cylinder has radius 3 cm and height 7 cm. Work out the volume of the solid. Give your answer in terms of π .

[4 marks]



Answer: $81\pi \text{ cm}^3$

- 14** Two similar solids have heights 6 cm and 10 cm. The smaller has volume 108 cm^3 . Work out the volume of the larger solid.

[3 marks]

Answer: 500 cm^3

- 15** A sphere has surface area $144\pi \text{ cm}^2$. (a) Work out the radius of the sphere. (b) Work out the volume of the sphere. Give your answer in terms of π .

[5 marks]

(a) Radius

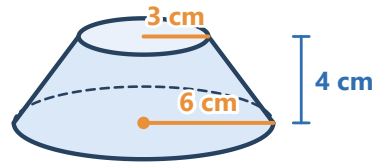
Answer: 6 cm

(b) Volume

Answer: $288\pi \text{ cm}^3$

16 The diagram shows a frustum. Work out its volume. Give your answer in terms of π .

[5 marks]



Answer: $84\pi \text{ cm}^3$