Surface area, volume and measurement - Practice test 2

Name: _____ Date: _____

16 questions | 41 marks | 55 minutes

Connect nets, unknown dimensions, scaling, error bounds and practical decisions.

A scientific calculator may be used.

1. A right triangular prism has two triangular ends. How many rectangular side faces does it have? [1 mark]

2. Convert 25 mm to centimetres and 0.12 m^2 to square centimetres. [2 marks]

3. A cube has volume 216 cm^3. Find its side length and total surface area. [3 marks]

4. A closed cylinder has diameter 6 cm and height 4 cm. Find its total surface area. [3 marks]

5. A rectangular prism has volume 600 cm³, length 10 cm and height 5 cm. Find its width. [2 marks]

6. A cylindrical pipe has external radius 4 cm and length 15 cm. Only its outer curved wall is painted. Ignore the end rings. Find the painted area. [2 marks]

7. A tank has internal dimensions 0.25 m by 0.4 m by 0.8 m. Find its capacity in litres. [2 marks]

8. A 2.5 m reference length is measured as 2.45 m. Find its absolute and percentage error. [3 marks]

9. A distance is recorded as 350 m to the nearest 10 m. [3 marks]

(a) State the maximum rounding error. [1 mark]

(b) Give the interval of distances that round to 350 m. [2 marks]

10. A right triangular prism has two end faces of area 12 cm² each. Its cross-section perimeter is 16 cm and its length is 7 cm. Find its surface area. [2 marks]

11. An open cylinder has one circular base, radius 3 cm and height 10 cm. Find its surface area. [3 marks]

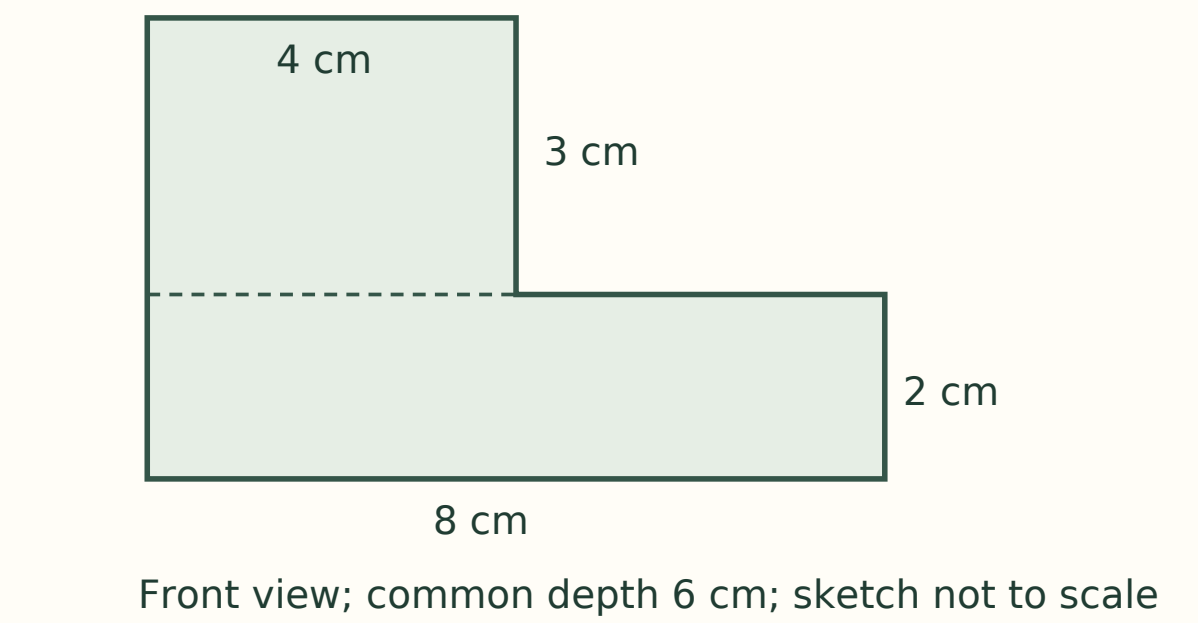
12. Two cylinders have the same height. The second has twice the radius of the first. How many times as large is its volume? Explain. [3 marks]

13. A container can hold 43.2 L. How many full 3.6 L bottles are needed to fill it exactly? [2 marks]

14. A surface of area 43 m^2 needs two coats of paint. Coverage is 10 m^2 per litre per coat. Paint is sold only in 4 L tins. Find the least number of tins required. [3 marks]

15. A rectangle is measured as 2.4 m by 3.1 m. Calculate its area to one decimal place. Explain why rounding the side lengths to whole metres first is unsuitable. [3 marks]

16. A stepped solid consists of a lower rectangular prism 8 cm by 6 cm by 2 cm and an upper prism 4 cm by 6 cm by 3 cm. The prisms meet without overlapping. [4 marks]



Front view; common depth 6 cm; sketch not to scale

(a) Find the volume of the solid. [2 marks]

(b) A student uses $8 \times 6 \times 5$. Explain why this is too large and state the excess volume. [2 marks]