Measurement topic test 1

Name: _____ Date: _____

10 questions | 46 marks | 65 minutes

Core methods and practical decisions. Use a scientific calculator, show working and include units. Sketches are not to scale.

A scientific calculator may be used.

1. A workshop must measure a fence length of about 35 m and a wire diameter of about 3 mm. [4 marks]

(a) Choose an instrument and unit for the fence. [2 marks]

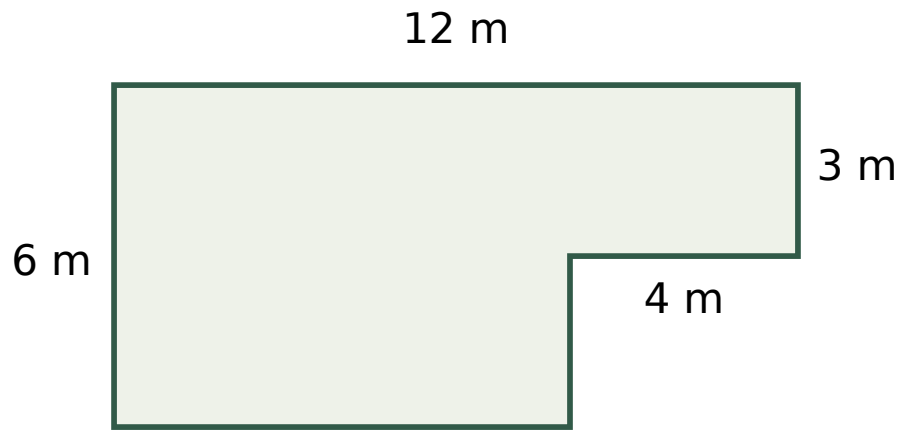
(b) Choose an instrument for checking the wire to the nearest 0.1 mm and explain. [2 marks]

2. Convert the following measurements and show the conversion factor. [4 marks]

(a) Convert 7500 cm^2 to m^2. [2 marks]

(b) Convert 65 L to cm^3. [2 marks]

3. A 12 m by 6 m rectangle has a 4 m by 3 m corner removed. [5 marks]

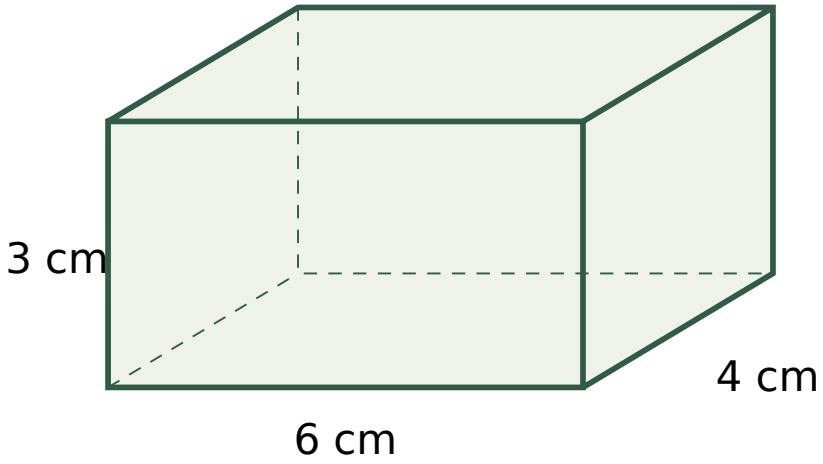


Sketch not to scale

(a) Find the remaining area. [2 marks]

(b) Find the outside perimeter. [3 marks]

4. An open-top box has internal length 6 cm, width 4 cm and height 3 cm. Ignore material thickness. [5 marks]

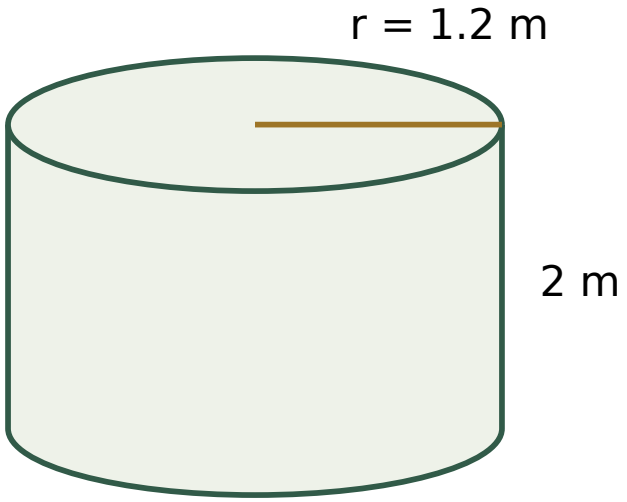


Sketch not to scale

(a) Find the base-and-wall material area. [3 marks]

(b) Find its capacity in millilitres. [2 marks]

5. A cylindrical tank has internal radius 1.2 m and height 2 m. [5 marks]



Sketch not to scale

(a) Find its full capacity to the nearest litre. [3 marks]

(b) Find the water volume when it is 75% full, to the nearest litre. [2 marks]

6. A rectangular floor is 7.2 cm by 3.6 cm on a 1:250 plan. [4 marks]

(a) Find its real dimensions. [2 marks]

(b) Find real floor area. [2 marks]

7. A car travels at a constant speed. [4 marks]

(a) Find the distance travelled at 90 km/h in 25 minutes. [2 marks]

(b) Convert 54 km/h to m/s. [2 marks]

8. A room is 5 m by 4 m with walls 2.5 m high. Openings total 5 m^2. Only the walls need two coats. Paint covers 8 m^2/L and is sold in 4 L tins at AUD 40 each. [5 marks]

(a) Find the net wall area for one coat. [2 marks]

(b) Find the number of tins and total cost. [3 marks]

9. A measured length is 12.4 cm to the nearest 0.1 cm. A reference length is 12.5 cm. [4 marks]

(a) State the rounding interval for the recorded value. [2 marks]

(b) Find percentage error relative to the reference. [2 marks]

10. A garden bed is 3.5 m by 2.4 m and needs soil 0.18 m deep. Add 10% for settling. Soil comes in 40 L bags. [6 marks]

(a) Calculate the required soil volume including settling allowance. [3 marks]

(b) Find a whole-bag order and state one model assumption. [3 marks]