Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

- $6 \times 4 \times 3 = \mathbf{72}$ cm^3

2.2

- faces 24, 18 and 12 cm^2, each twice
- $2(24 + 18 + 12) = \mathbf{108}$ cm^2

2.3

- $\pi \times 5^2 \times 8$
- $= 200\pi = \mathbf{628}$ cm^3

2.4

- $18 \times 12 = \mathbf{216}$ cm^3

2.5

- $\frac{4}{3} \times \pi \times 216 = \mathbf{288}\pi$ cm^3

3.1

- $\frac{1}{3} \times \pi \times 4^2 \times 9$
- $= 48\pi = \mathbf{151}$ cm^3

3.2

(a)

- cross-section $\frac{1}{2} \times 8 \times 6 = 24$ cm^2
- $24 \times 12 = \mathbf{288}$ cm^3

(b)

- two triangles $2 \times 24 = 48$ cm^2
- three rectangles $(6 + 8 + 10) \times 12 = 288$ cm^2
- total **336** cm^2

3.3

- $\pi \times 5^2 \times h = 500$
- $h = 500 \div 78.54 = \mathbf{6.37}$ cm

3.4

(a)

- $\pi \times 4^2 \times 11$
- $= 176\pi = \mathbf{553}$ cm^3

(b)

- $2\pi \times 4 \times 11$
- $= 88\pi = \mathbf{276}$ cm^2

(c)

- each can needs 8 cm by 8 cm: $24 \div 8 = 3$ and $16 \div 8 = 2$
- $3 \times 2 = \mathbf{6}$ cans

(d)

- box $24 \times 16 \times 11 = 4224$, cans $6 \times 552.9 = 3317.5$ cm^3
- empty $906.5 \div 4224 \times 100 = \mathbf{21.5}\%$