Prism/cylinder volume and capacity

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Find the volume of a rectangular prism 5 cm by 3 cm by 8 cm. [2 marks]

$V = 5 \times 3 \times 8 = 120$ cm³.

Answer: 120 cm³

2. A triangular prism has a cross-section with base 6 cm and perpendicular height 4 cm. Its length is 9 cm. Find its volume. [2 marks]

$B = \frac{1}{2}(6)(4) = 12$ cm²; $V = 12(9) = 108$ cm³.

Answer: 108 cm³

3. A cylinder has radius 3 cm and height 20 cm. Give its exact volume and its capacity to the nearest millilitre. [3 marks]

$V = \pi(3^2)(20) = 180\pi$ cm³ ≈ 565.49 cm³.

This is about 565 mL.

Answer: 180π cm³; 565 mL.

4. A rectangular tank has internal dimensions 0.8 m by 0.5 m by 0.4 m. Find its capacity in litres. [2 marks]

$V = 0.8 \times 0.5 \times 0.4 = 0.16$ m³.

$0.16 \times 1000 = 160$ L.

Answer: 160 L

5. A small pool is 2 m long, 1.5 m wide and 0.6 m deep. How many litres fill it? [2 marks]

$V = 2 \times 1.5 \times 0.6 = 1.8$ m³ $= 1800$ L.

Answer: 1800 L

6. A tank has a 50 cm by 40 cm internal base. Find the water depth when it contains 13 L. [3 marks]

13 L $= 13000$ cm³. Base area $= 2000$ cm².

$h = \frac{13000}{2000} = 6.5$ cm.

Answer: 6.5 cm