MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 28

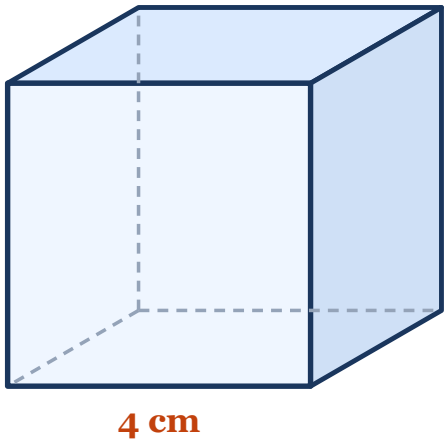
Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

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1 A cube has a volume of 343 cm^3. Determine the length of one edge, and hence the total surface area of the cube. **(4)**

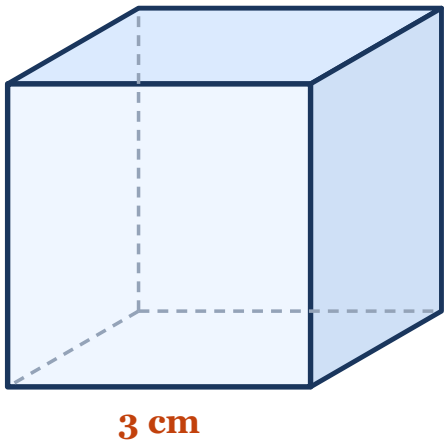
> edge $= \sqrt[3]{343} = \mathbf{7\ cm}$ *(2)*
> A cube has 6 square faces, so SA $= 6 \times 7^2$ *(1)*
> $= \mathbf{294\ cm^2}$ *(1)* ✓✓✓✓ (4)

2 Volume of a cube with side 4 cm *(cube)* **(1)**



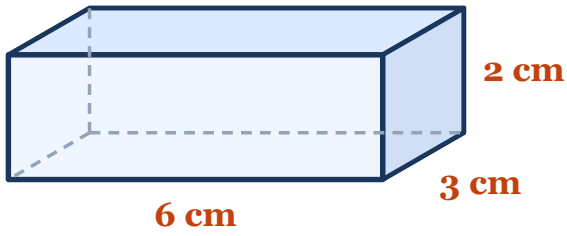
> $4^3 = \mathbf{64\ cm^3}$ ✓ (1)

3 Surface area of a cube with side 3 cm *(cube)* (2)



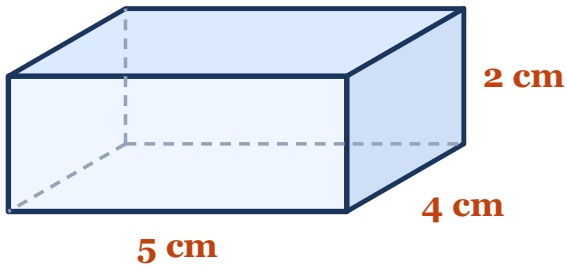
$6 \times 9 = \mathbf{54\ cm^2}$ ✓✓ (2)

4 Volume of a box $6 \times 3 \times 2$ cm *(box)* (2)



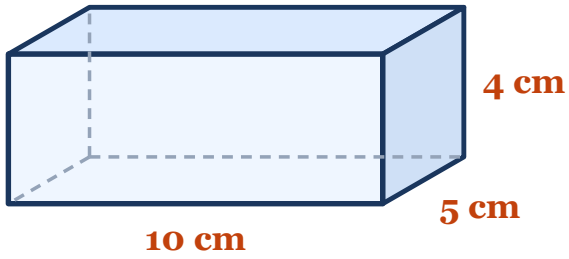
$6 \times 3 \times 2 = \mathbf{36\ cm^3}$ ✓✓ (2)

5 Surface area of a box $5 \times 4 \times 2$ cm *(box)* (3)



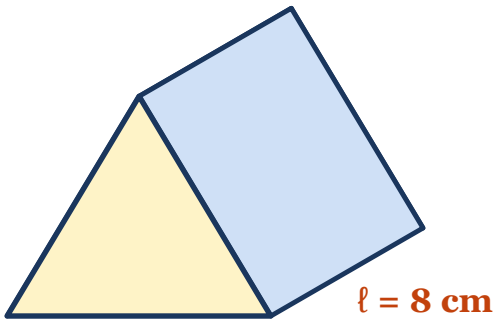
$2[(5 \times 4) + (5 \times 2) + (4 \times 2)] = 2(38) = \mathbf{76\ cm^2}$ ✓✓✓ (3)

6 Volume of a box $10 \times 5 \times 4$ cm *(box)* (2)



200 cm³ ✓✓ (2)

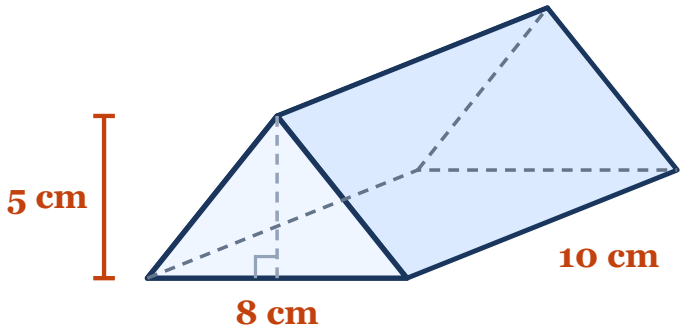
7 Triangular prism: cross-section area 15 cm², length 8 cm. Volume? *(prism)* (2)



shaded cross-section = 15 cm²

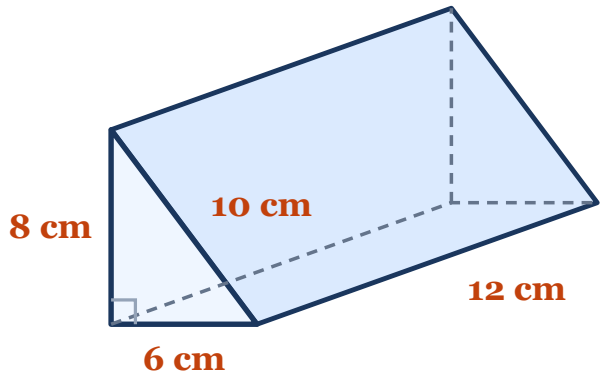
$15 \times 8 =$ **120 cm³** ✓✓ (2)

8 Triangular prism: triangle base 8 cm, height 5 cm, length 10 cm. Volume? *(prism)* (3)



$\frac{1}{2} \times 8 \times 5 = 20$; $20 \times 10 =$ **200 cm³** ✓✓✓ (3)

9 Triangular prism: the cross-section is a right-angled triangle with sides 6 cm, 8 cm and 10 cm, and the prism is 12 cm long. Calculate its total surface area. *(prism)* **(4)**



Two triangles: $2 \times \frac{1}{2} \times 6 \times 8 = 48$ cm^2

Three rectangles: $(6 + 8 + 10) \times 12 = 288$ cm^2

Total $=$ **336 cm^2** ✓✓✓✓ **(4)**

10 How many mℓ does a 200 cm^3 container hold? *(capacity)* **(1)**

200 mℓ ✓ **(1)**

11 A box has volume 60 cm^3, base 5×4 cm. Find the height. *(reverse)* **(2)**

$60 \div 20 =$ **3 cm** ✓✓ **(2)**

12 A cube has volume 125 cm^3. Find its side length. *(reverse)* **(2)**

$\sqrt[3]{125} =$ **5 cm** ✓✓ **(2)**

TOTAL: 28 marks

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