



Rosary School \ Marj Elhamam

Name : Answers.

Date : / 11 / 2025

Subject: Worksheet (4) / Unit (4)

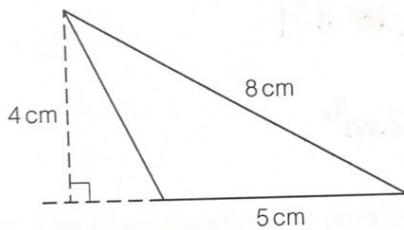
Grade : 7 ()

2D shapes and 3D solids

4.1 Area of Shapes Triangle, Parallelogram and Trapezium.

Q1. Find the area of these triangles.

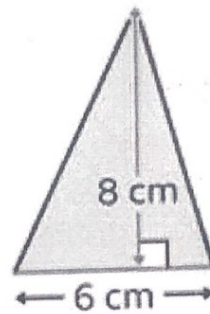
a.



$$A = \frac{1}{2} \times \text{base} \times h$$
$$\frac{1}{2} \times 5 \times 4 = 10$$

10 cm²

b.

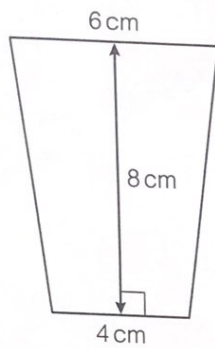


$$A = \frac{1}{2} \times b \times h$$
$$= \frac{1}{2} \times 6 \times 8$$
$$= 24$$

24 cm²

Q2. Find the area of these trapeziums.

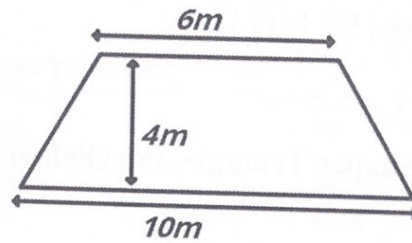
a.



$$\begin{aligned}
 A &= \frac{1}{2} \times (b_1 + b_2) \times h \\
 &= \frac{1}{2} \times (4 + 6) \times 8 \\
 &= \frac{1}{2} \times 10 \times 8 \\
 &= 40
 \end{aligned}$$

40 cm²

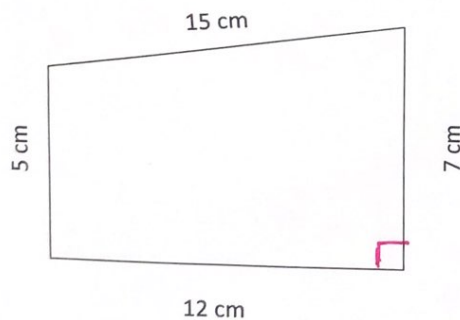
b.



$$\begin{aligned}
 A &= \frac{1}{2} (6 + 10) \times 4 \\
 &= \frac{1}{2} \times 16 \times 4 \\
 &= 32 \text{ m}^2
 \end{aligned}$$

32 cm²

c.

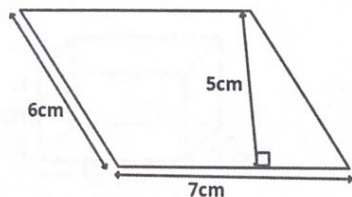


$$\begin{aligned}
 A &= \frac{1}{2} \times (b_1 + b_2) \times h \\
 &= \frac{1}{2} \times (7 + 5) \times 12 \\
 &= \frac{1}{2} \times 12 \times 12 \\
 &= 72
 \end{aligned}$$

72 cm²

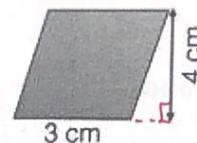
Q3. Find the area of these parallelograms.

a.



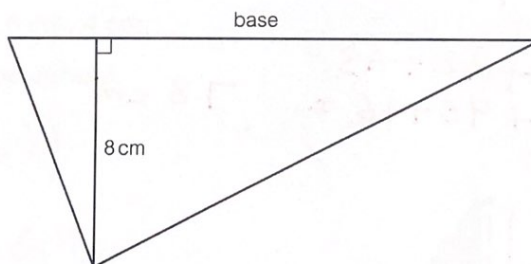
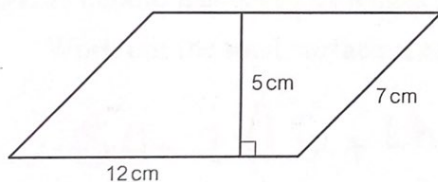
$$\begin{aligned} A &= b \times h \\ &= 7 \times 5 \\ &= 35 \text{ cm}^2 \end{aligned}$$

b.



$$\begin{aligned} A &= b \times h \\ &= 3 \times 4 \\ &= 12 \text{ cm}^2 \end{aligned}$$

Q4. The diagram shows a parallelogram and a triangle.



The parallelogram and the triangle have the same area.

Show that the base of the triangle is 15 cm.

$$\begin{aligned} A &= b \times h \\ &= 12 \times 5 \\ &= 60 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} A &= \frac{1}{2} \times b \times h \\ 60 &= \frac{1}{2} \times b \times 8 \end{aligned}$$

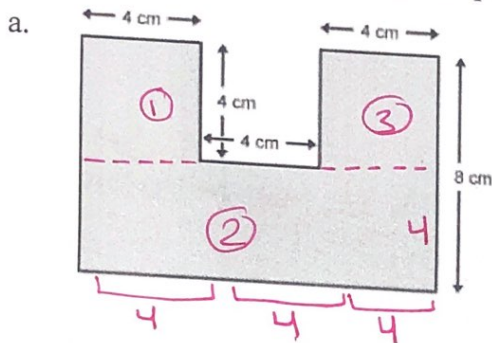
$$\frac{60}{4} = \frac{4b}{4}$$

$$\boxed{15 \text{ cm} = b}$$

3

4.2 Area of Compound Shape

Q1. Find the area of the following compound shapes.

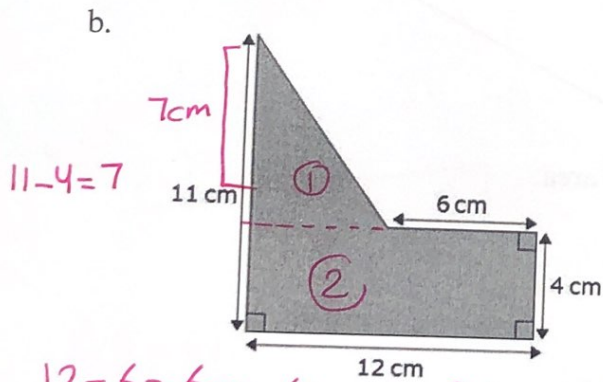


$$A_1 = 4 \times 4 = 16 \text{ cm}^2$$

$$A_2 = 12 \times 4 = 48 \text{ cm}^2$$

$$A_3 = 4 \times 4 = 16 \text{ cm}^2$$

$$A = A_1 + A_2 + A_3 \\ 16 + 48 + 16 = 78 \text{ cm}^2$$



$$12 - 6 = 6 \text{ cm (base of triangle)}$$

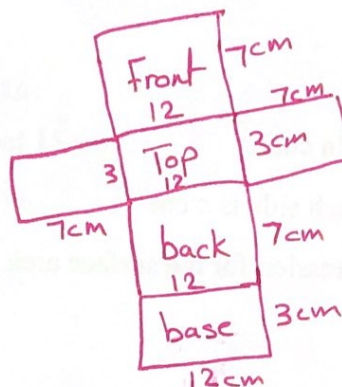
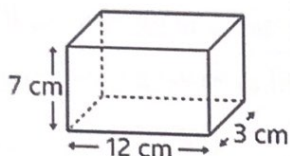
$$A_1 = \frac{1}{2} \times b \times h \\ = \frac{1}{2} \times 6 \times 7 \\ = 21 \text{ cm}^2$$

$$A_2 = L \times w \\ = 12 \times 4 \\ = 48 \text{ cm}^2$$

$$A = A_1 + A_2 \\ = 21 + 48 \\ = 69 \text{ cm}^2$$

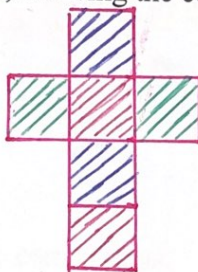
4.3 Properties of 3D solids

Q1. Sketch the net of the following cuboid.



Q2. A cube has 2 opposite faces coloured red, 2 opposite faces coloured blue and the other faces coloured green.

Sketch the net of this cube, showing the colour of each face.



4.4 Surface area

Q1. A cuboid has edges of length 5 cm, 6 cm, 4 cm.

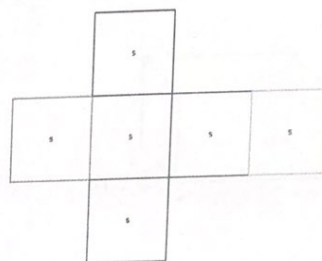
Work out the total surface area of the cuboid.

$$\begin{aligned}
 S.A. &= 2 \times (Lw + Lh + wh) \\
 &= 2 \times (5 \times 6 + 5 \times 4 + 6 \times 4) \\
 &= 2 \times (30 + 20 + 24) \\
 &= 2 \times 74 \\
 &= 148
 \end{aligned}$$

148 cm²

Q2. Here is a net of a cube.

The length of each side is s cm.



a. Write an expression for the surface area

$$6s^2$$

b. Work out the surface area when the edge is 6 m

$$\begin{aligned} \text{S.A.} &= 6s^2 \\ &= 6 \times 6^2 \\ &= 6 \times 36 \\ &= 216 \text{ m}^2 \end{aligned}$$

4.5 Volume

Q1. Find the volume of:

a. A cube with side 7 cm.

$$\begin{aligned} V &= 7 \times 7 \times 7 \\ &= 343 \text{ cm}^3 \end{aligned}$$

$$\underline{343} \text{ cm}^3$$

b. A cuboid with width 4 cm, height 5 cm, and length 12 cm.

$$\begin{aligned} V &= 4 \times 5 \times 12 \\ &= 240 \end{aligned}$$

$$\underline{240} \text{ cm}^3$$

Q2. A fish tank is in the shape of a cuboid.

The base of the tank measures 45 cm by 20 cm.

Sam pours water into the tank up to a depth of 15 cm.

Work out the amount of water that he pours in.

Give your answer in litres.

$$45 \times 20 \times 15 = 1350 \text{ cm}^3$$

$$1 \text{ L} = 1000 \text{ cm}^3$$

$$1350 \text{ cm}^3 \rightarrow \text{L} \quad (1350 \div 1000) = 1.350 \text{ L}$$

1.350 litres

Q3. Copy and complete these conversions.

a. 0.26 litres = 260 cm^3

b. 2.3 cm^3 = 2.3 ml

c. 5.241 litres = 5241 cm^3

4.6 STEM: Measure of area and volume

Q1. Change 50 cm^3 to mm^3 . $\times 1000$

50 000 mm^3

Q2. Show that $5.4 \text{ m}^3 = 5\,400 \text{ litres}$.

Show your working clearly.

$$\begin{aligned} 5.4 \text{ m}^3 &\rightarrow \text{cm}^3 \\ 5.4 \times 1\,000\,000 &= 5\,400\,000 \text{ cm}^3 \\ 5\,400\,000 \text{ cm}^3 &\rightarrow \text{L} \\ 1 \text{ L} &= 1\,000 \text{ cm}^3 \\ 5\,400\,000 \div 1\,000 &= 5\,400 \text{ L} \end{aligned}$$

Q3. Copy and complete these conversions.

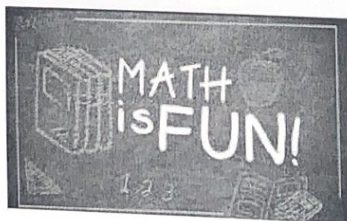
a. $\frac{3000}{1000} \text{ cm}^3 = \underline{3} \text{ l}$

b. $0.8 \text{ l} = \underline{800} \text{ cm}^3$
 $\times 1000$

c. $0.5 \text{ m}^2 = \underline{5000} \text{ cm}^2$
 $\times 10000$

d. $4 \text{ hectare} = \underline{40000} \text{ m}^2$
 $\times 10000$

e. $89000 \text{ m}^2 = \underline{8.9} \text{ hectare}$
 $\div 10000$



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