

3D Areas & Volume

Difficulty: Easy

Question Paper 2

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Mensuration (Perimeters, Areas & volumes)
Sub-Topic	3D Areas & Volume
Paper	Paper 2
Difficulty	Easy
Booklet	Question Paper 2

Time allowed: 46 minutes

Score: /36

Percentage: /100

Grade Boundaries:

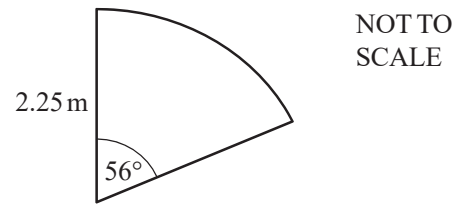
CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

CIE IGCSE Maths (0980)

9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%

Question 1



The diagram shows a sand pit in a child's play area.

The shape of the sand pit is a sector of a circle of radius 2.25 m and sector angle 56° .

(a) Calculate the area of the sand pit.

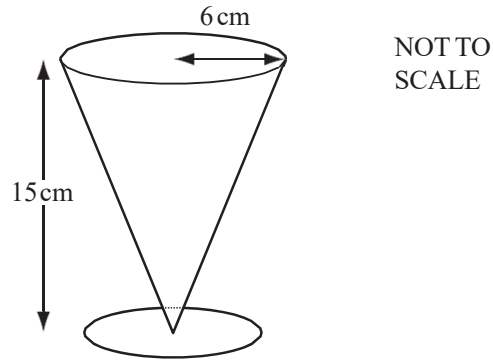
[2]

(b) The sand pit is filled with sand to a depth of 0.3 m.

Calculate the volume of sand in the sand pit.

[1]

Question 2



The diagram shows a glass, in the shape of a cone, for drinking milk.
The cone has a radius of 6 cm and height 15 cm.
A bottle of milk holds 2 litres.

- (a) How many times can the glass be completely filled from the bottle?

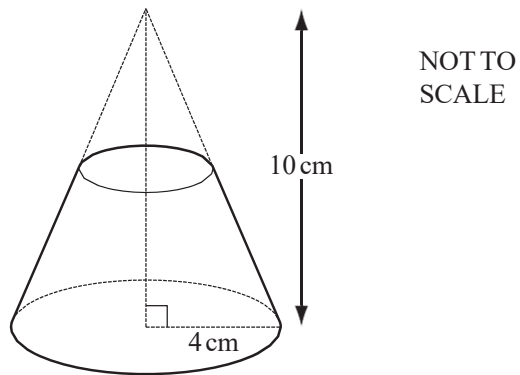
[The volume, V , of a cone with radius r and height h is $V = \frac{1}{3}\pi r^2 h$.]

[4]

- (b) Calculate the volume of milk left in the bottle.
Give your answer in cm^3 .

[3]

Question 3



A **solid** cone has base radius 4 cm and height 10 cm.

A mathematically similar cone is removed from the top as shown in the diagram.

The volume of the cone that is removed is $\frac{1}{8}$ of the volume of the original cone.

(a) Explain why the cone that is removed has radius 2 cm and height 5 cm.

[2]

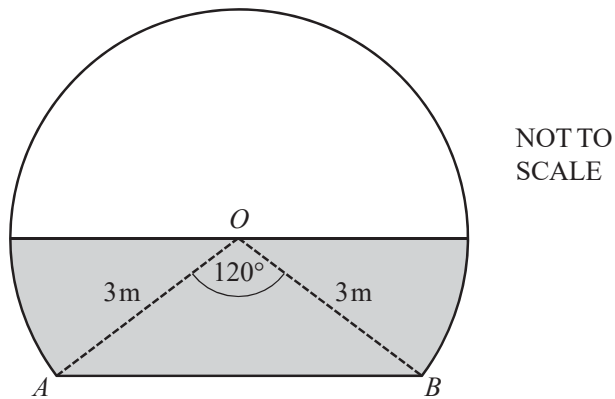
(b) Calculate the volume of the remaining solid.

[The volume, V , of a cone with radius r and height h is $V = \frac{1}{3}\pi r^2 h$.]

[4]

Question 4

The diagram shows the entrance to a tunnel.
The circular arc has a radius of 3m and centre O .
 AB is horizontal and angle $AOB = 120^\circ$.



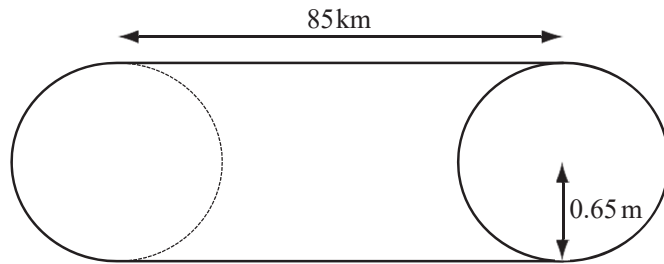
During a storm the tunnel filled with water, to the level shown by the shaded area in the diagram.

(a) Calculate the shaded area. [4]

(b) The tunnel is 50 m long.

Calculate the volume of water in the tunnel. [1]

Question 5



NOT TO
SCALE

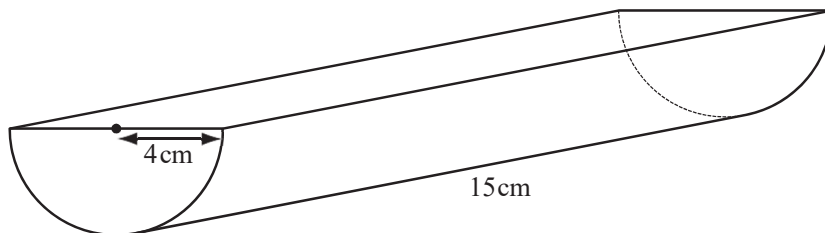
A water pipeline in Australia is a cylinder with **radius 0.65 metres** and length **85 kilometres**.

Calculate the volume of water the pipeline contains when it is full.

Give your answer in cubic metres.

[3]

Question 6



NOT TO
SCALE

The diagram shows a solid prism of length 15 cm.
The cross-section of the prism is a semi-circle of radius 4 cm.

Calculate the total surface area of the prism.

[4]

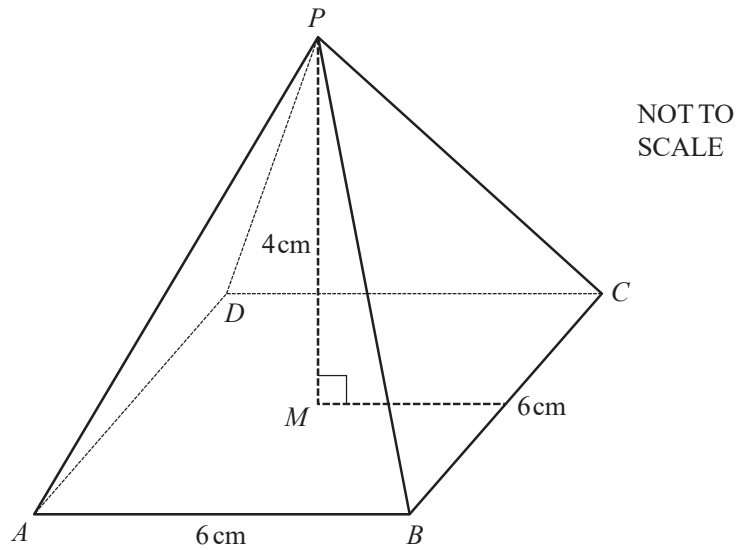
Question 7

A cylinder has a height of 12 cm and a volume of 920cm^3 .

Calculate the radius of the base of the cylinder.

[3]

Question 8



The diagram shows a pyramid with a square base $ABCD$ of side 6 cm.

The height of the pyramid, PM , is 4 cm, where M is the centre of the base.

Calculate the total surface area of the pyramid.

[5]