

Similarity

Difficulty: Hard

Question Paper 1

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Geometry
Sub-Topic	Similarity
Paper	Paper 2
Difficulty	Medium
Booklet	Question Paper 1

Time allowed: 26 minutes

Score: /20

Percentage: /100

Grade Boundaries:

CIE IGCSE Maths (0580)

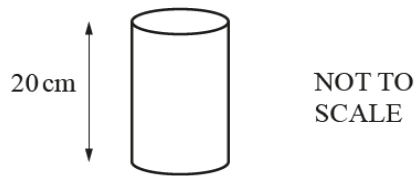
A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

CIE IGCSE Maths (0980)

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

Question 1

(a)

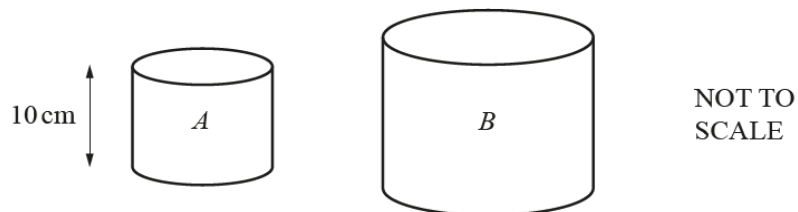


A cylinder has height 20 cm.
The area of the circular cross section is 74cm^2 .

Work out the volume of this cylinder.

[1]

(b) Cylinder *A* is mathematically similar to cylinder *B*.



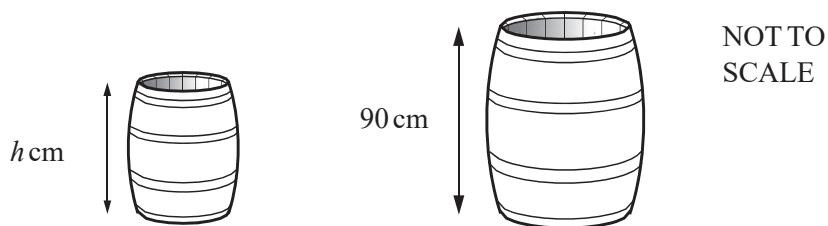
The height of cylinder *A* is 10 cm and its surface area is 440cm^2 .
The surface area of cylinder *B* is 3960cm^2 .

Calculate the height of cylinder *B*.

[3]

Question 2

The two barrels in the diagram are mathematically similar.

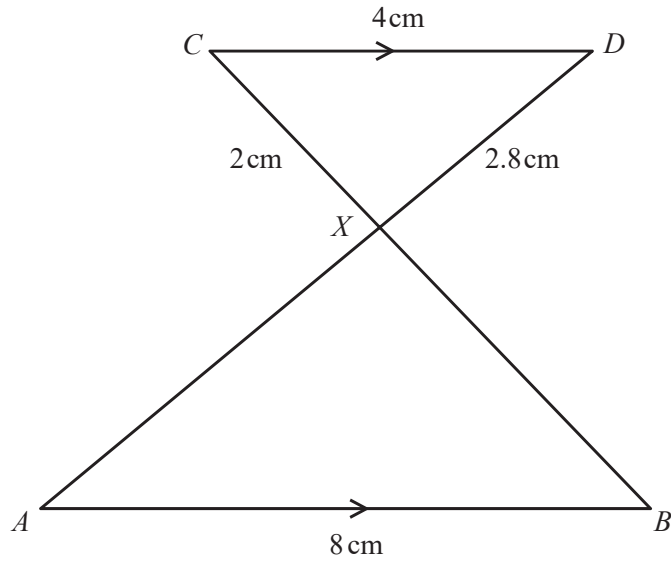


The smaller barrel has a height of h cm and a capacity of 100 litres.
The larger barrel has a height of 90 cm and a capacity of 160 litres.

Work out the value of h .

[3]

Question 3



NOT TO SCALE

In the diagram, AB and CD are parallel.
 AD and BC intersect at X .
 $AB = 8$ cm, $CD = 4$ cm, $CX = 2$ cm and $DX = 2.8$ cm.

(a) Complete this mathematical statement. [1]

Triangle ABX is to triangle DCX .

(b) Calculate AX . [2]

(c) The area of triangle ABX is y cm².

Find the area of triangle DCX in terms of y . [1]

Question 4

Two bottles and their labels are mathematically similar.
The smaller bottle contains 0.512 litres of water and has a label with area 96 cm^2 .
The larger bottle contains 1 litre of water.

Calculate the area of the larger label.

[3]

Question 5

Two cups are mathematically similar.
The larger cup has capacity 0.5 litres and height 8 cm.
The smaller cup has capacity 0.25 litres.

Find the height of the smaller cup.

[3]

Question 6

The length of a backpack of capacity 30 litres is 53 cm.

Calculate the length of a mathematically similar backpack of capacity 20 litres.

[3]