Similarity
Difficulty: Easy

Question Paper 2

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

Time allowed: **36 minutes**

Score: **/28**

Percentage: **/100**

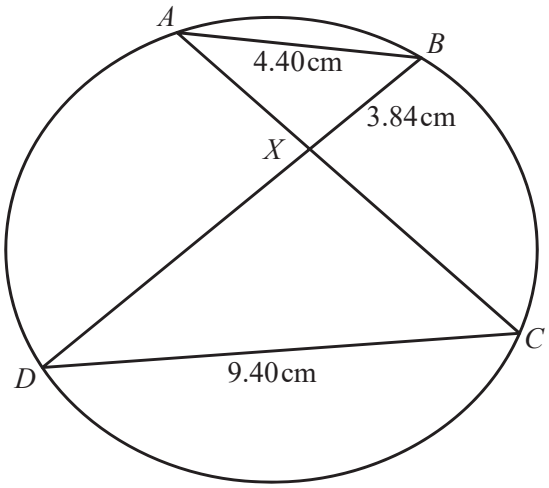
Grade Boundaries:

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%



NOT TO SCALE

A, B, C and D lie on a circle.
AC and BD intersect at X.

(a) Give a reason why angle BAX is equal to angle CDX. [1]

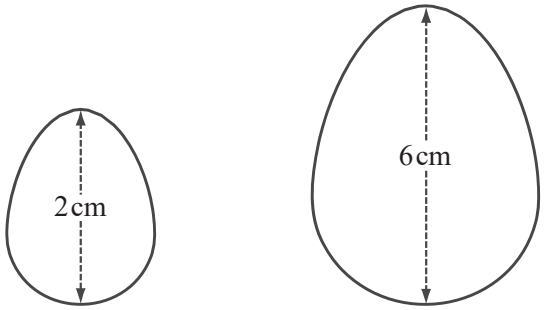
(b) $AB = 4.40$ cm, $CD = 9.40$ cm and $BX = 3.84$ cm.

(i) Calculate the length of CX. [2]

(ii) The area of triangle ABX is 5.41 cm^2.

Calculate the area of triangle CDX. [2]

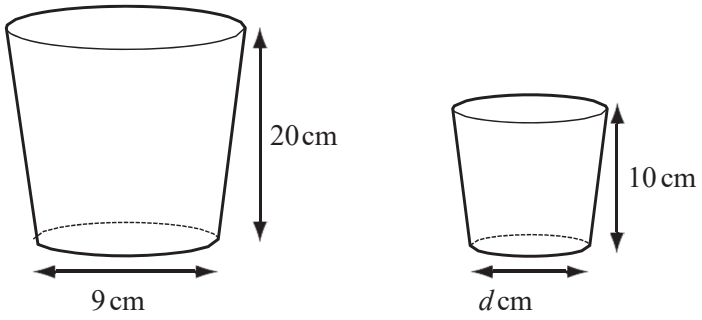
Question 2



NOT TO SCALE

A company makes solid chocolate eggs and their shapes are mathematically similar.
The diagram shows eggs of height 2 cm and 6 cm.
The mass of the small egg is 4 g.

Calculate the mass of the large egg. [2]



NOT TO SCALE

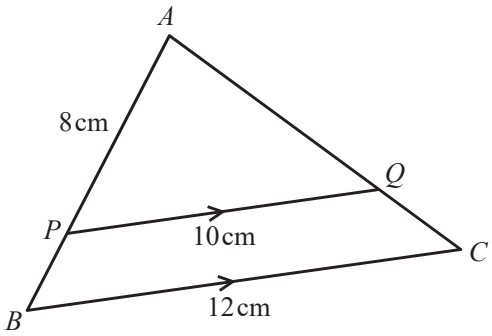
The diagrams show two mathematically similar containers.
The larger container has a base with diameter 9 cm and a height 20 cm.
The smaller container has a base with diameter d cm and a height 10 cm.

(a) Find the value of d. [1]

(b) The larger container has a capacity of 1600 ml. [2]

Calculate the capacity of the smaller container.

Question 4



NOT TO SCALE

APB and *AQC* are straight lines. *PQ* is parallel to *BC*.
AP = 8 cm, *PQ* = 10 cm and *BC* = 12 cm. [2]
Calculate the length of *AB*.

A cylindrical glass has a radius of 3 centimetres and a height of 7 centimetres.
A large cylindrical jar full of water is a similar shape to the glass.
The glass can be filled with water from the jar exactly 216 times.
Work out the radius and height of the jar. [3]

Question 6

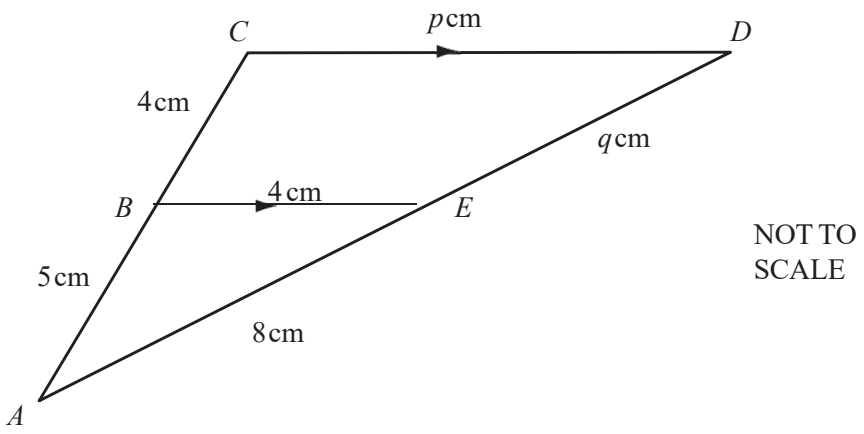
A car manufacturer sells a similar, scale model of one of its real cars.

(a) The fuel tank of the real car has a volume of 64 litres and the fuel tank of the model has a volume of 0.125 litres.
Show that the length of the real car is 8 times the length of the model car. [2]

(b) The area of the front window of the model is $0.0175\ m^2$.
Find the area of the front window of the real car. [2]

Question 7

(a)



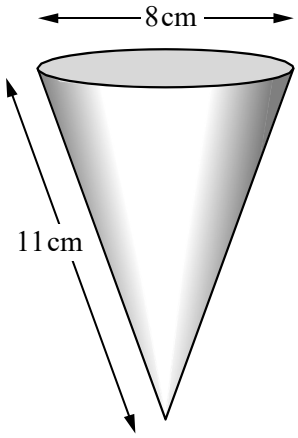
NOT TO SCALE

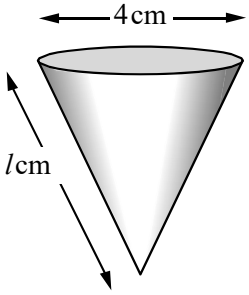
In the diagram triangles ABE and ACD are similar.
BE is parallel to CD.
$AB = 5$ cm, $BC = 4$ cm, $BE = 4$ cm, $AE = 8$ cm, $CD = p$ cm and $DE = q$ cm.
Work out the values of p and q.

[4]

(b) A spherical balloon of radius 3 metres has a volume of 36π cubic metres.
It is further inflated until its radius is 12 m.
Calculate its new volume, leaving your answer in terms of π.

[2]





NOT TO SCALE

The two cones are similar.

(a) Write down the value of l. [1]

(b) When full, the larger cone contains 172 cm^3 of water.
How much water does the smaller cone contain when it is full? [2]