

# Similarity

## Difficulty: Hard

### Question Paper 2

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

**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

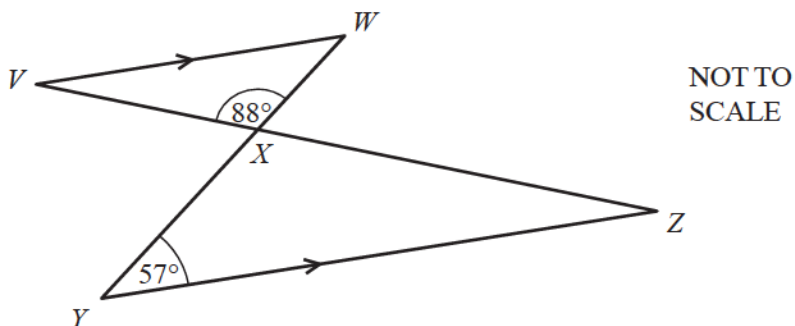
Two containers are mathematically similar.  
Their volumes are  $54 \text{ cm}^3$  and  $128 \text{ cm}^3$ .  
The height of the smaller container is  $4.5 \text{ cm}$ .

Calculate the height of the larger container.

[3]

## Question 2

(a)

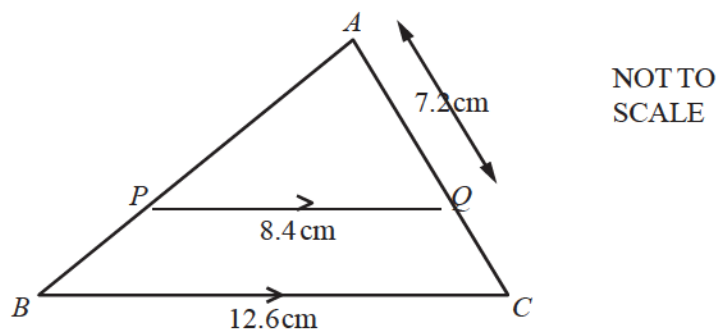


Two straight lines  $VZ$  and  $YW$  intersect at  $X$ .  
 $VW$  is parallel to  $YZ$ , angle  $XYZ = 57^\circ$  and angle  $VXW = 88^\circ$ .

Find angle  $WXZ$ .

[2]

(b)



$ABC$  is a triangle and  $PQ$  is parallel to  $BC$ .  
 $BC = 12.6\text{ cm}$ ,  $PQ = 8.4\text{ cm}$  and  $AQ = 7.2\text{ cm}$ .

Find  $AC$ .

[2]

### Question 3

A car, 4.4 metres long, has a fuel tank which holds 65 litres of fuel when full.  
The fuel tank of a mathematically similar model of the car holds 0.05 litres of fuel when full.

Calculate the length of the model car in centimetres.

[3]

### Question 4

Two similar vases have heights which are in the ratio 3 : 2.

- (a) The volume of the larger vase is  $1080 \text{ cm}^3$ .  
Calculate the volume of the smaller vase.

[2]

- (b) The surface area of the smaller vase is  $252 \text{ cm}^2$ .  
Calculate the surface area of the larger vase.

[2]

## Question 5

A statue two metres high has a volume of five cubic metres.  
A similar model of the statue has a height of four centimetres.

(a) Calculate the volume of the model statue in cubic centimetres.

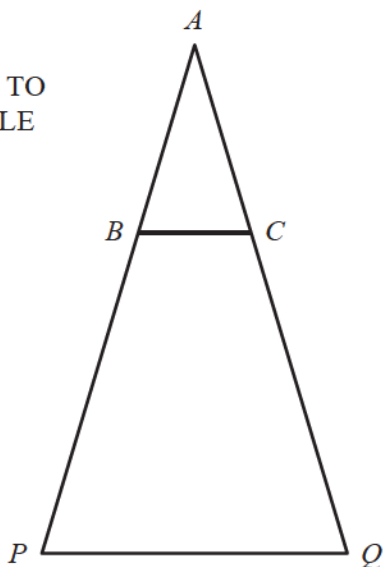
[2]

(b) Write your answer to **part (a)** in cubic metres.

[1]

## Question 6

NOT TO  
SCALE



The area of triangle  $APQ$  is  $99 \text{ cm}^2$  and the area of triangle  $ABC$  is  $11 \text{ cm}^2$ .  $BC$  is parallel to  $PQ$  and the length of  $PQ$  is  $12 \text{ cm}$ .

Calculate the length of  $BC$ .

[3]