

# Similarity

## Question Paper 1

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Shape, Space and Measures
Sub Topic	Similarity
Booklet	Question Paper 1

**Time Allowed:** 60 minutes

**Score:** /50

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

1

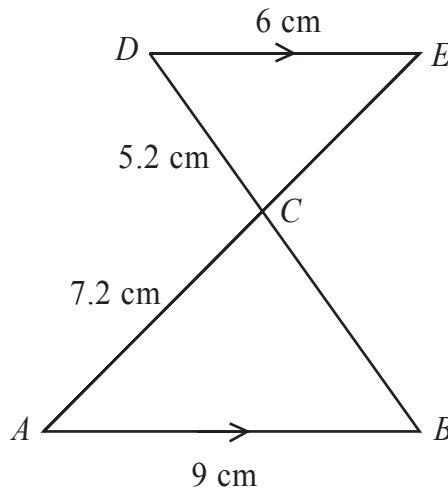


Diagram **NOT** accurately drawn

- AB* is parallel to *DE*.
- ACE* and *BCD* are straight lines.
- AB* = 9 cm.
- AC* = 7.2 cm.
- CD* = 5.2 cm.
- DE* = 6 cm.

(a) Calculate the length of *BC*.

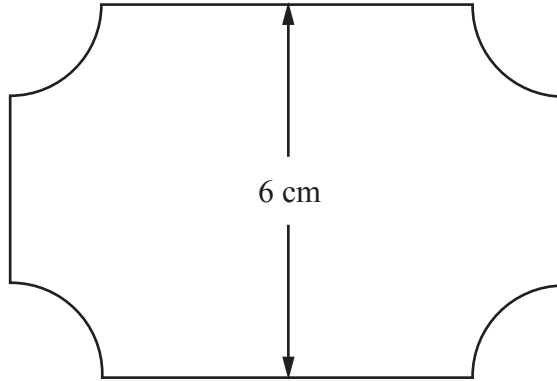
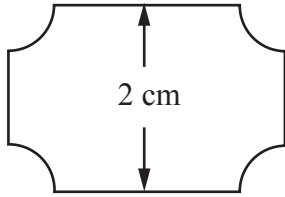
..... cm  
(2)

(b) Calculate the length of *CE*.

..... cm  
(2)

**(Total for Question 1 is 4 marks)**

2 Here are two supermarket price tickets.



Diagrams **NOT** accurately drawn

The two supermarket price tickets are mathematically similar.

The area of the smaller ticket is  $7 \text{ cm}^2$ .

Calculate the area of the larger ticket.

.....  $\text{cm}^2$

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(Total for Question 2 is 2 marks)

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3  $ABCD$  and  $APQR$  are two similar quadrilaterals.

- $PQ = 9$  cm.
- $BC = 6$  cm.
- $AD = 5$  cm.
- $QR = 12$  cm.

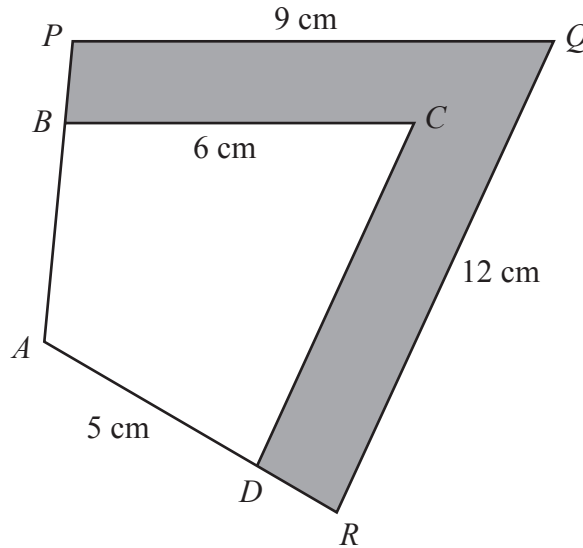


Diagram **NOT** accurately drawn

(a) Find the length of  $DC$ .

..... cm  
(2)

(b) Find the length of  $AR$ .

..... cm  
(2)

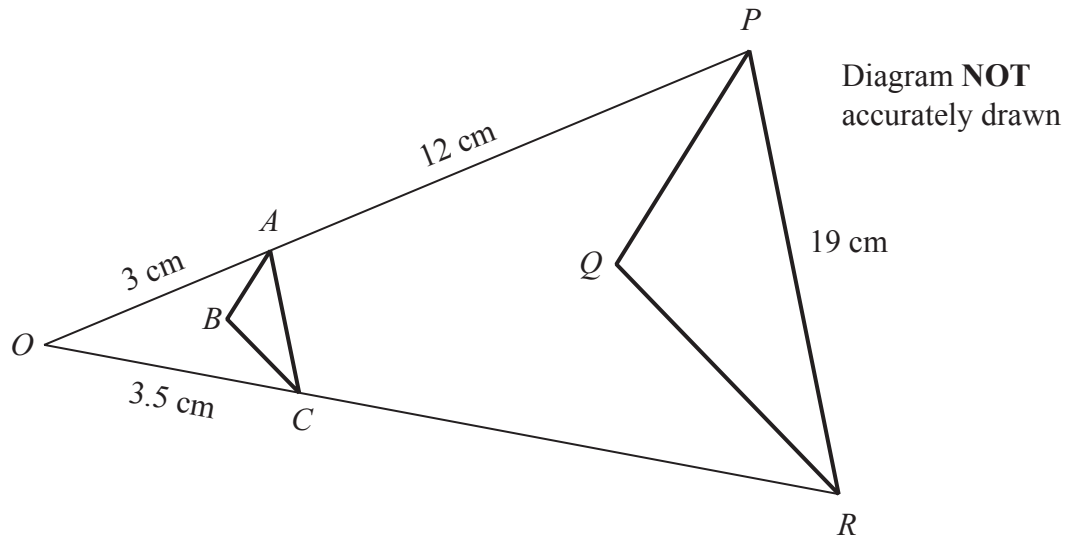
The area of the quadrilateral  $ABCD$  is  $32$  cm<sup>2</sup>.

(c) Calculate the area of the shaded region.

..... cm<sup>2</sup>  
(3)

**(Total for Question 3 is 7 marks)**

4



Triangle  $PQR$  is an enlargement, centre  $O$ , of triangle  $ABC$ .

$OAP$  and  $OCR$  are straight lines.

$OA = 3$  cm.

$AP = 12$  cm.

$OC = 3.5$  cm.

$PR = 19$  cm.

(a) Work out the length of  $CR$ .

..... cm

(2)

(b) Work out the length of  $AC$ .

..... cm

(3)

The area of triangle  $ABC$  is  $2$  cm<sup>2</sup>

(c) Work out the area of triangle  $PQR$ .

..... cm<sup>2</sup>

(2)

**(Total for Question 4 is 7 marks)**

5

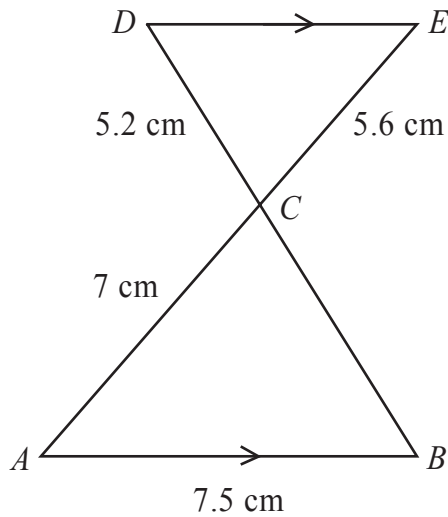


Diagram **NOT** accurately drawn

$AB$  is parallel to  $DE$ .  
 The lines  $AE$  and  $BD$  intersect at  $C$ .  
 $AB = 7.5$  cm,  $AC = 7$  cm,  $CD = 5.2$  cm,  $CE = 5.6$  cm.

(a) Calculate the length of  $BC$ .

..... cm  
 (2)

(b) Calculate the length of  $DE$ .

..... cm  
 (2)

(c) The area of triangle  $ABC$  is  $21$  cm<sup>2</sup>  
 Calculate the area of triangle  $EDC$ .

..... cm<sup>2</sup>  
 (3)

**(Total for Question 5 is 7 marks)**

6

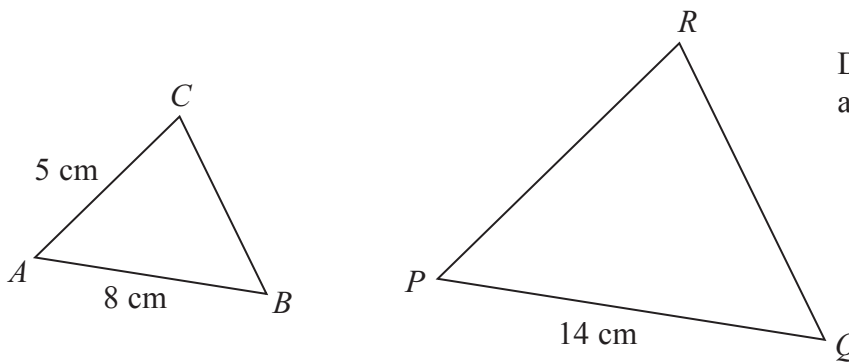


Diagram **NOT** accurately drawn

Triangle  $ABC$  is similar to triangle  $PQR$ .

$AB$  corresponds to  $PQ$ .

$AC$  corresponds to  $PR$ .

$AB = 8\text{ cm}$ .

$AC = 5\text{ cm}$ .

$PQ = 14\text{ cm}$ .

(a) Calculate the length of  $PR$ .

..... cm  
(2)

The area of triangle  $ABC$  is  $16\text{ cm}^2$

(b) Calculate the area of triangle  $PQR$ .

.....  $\text{cm}^2$   
(3)

**(Total for Question 6 is 5 marks)**

7 Triangles  $ABC$  and  $ACD$  are similar.

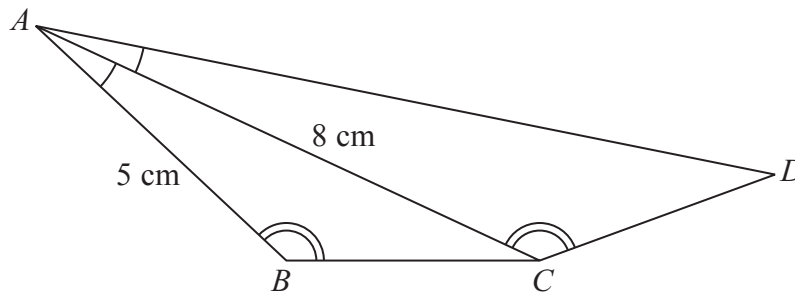


Diagram NOT accurately drawn

Angle  $BAC =$  angle  $CAD$ .  
Angle  $ABC =$  angle  $ACD$ .  
 $AB = 5$  cm and  $AC = 8$  cm.

(a) Calculate the length of  $AD$ .

..... cm  
(2)

The area of triangle  $ABC$  is  $12$  cm<sup>2</sup>

(b) Calculate the area of triangle  $ACD$ .

..... cm<sup>2</sup>  
(2)

(Total for Question 7 is 4 marks)



8

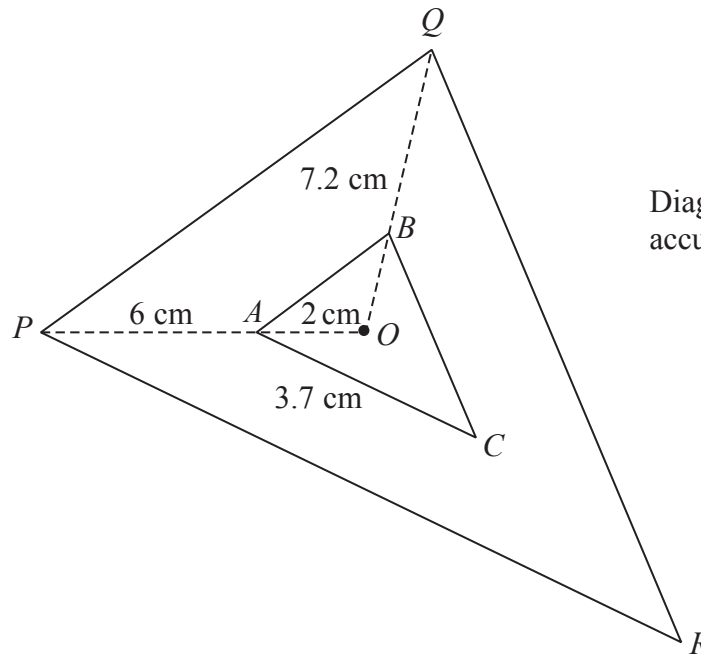


Diagram **NOT** accurately drawn

Triangle  $PQR$  is an enlargement, centre  $O$ , of triangle  $ABC$ .

$OAP$  and  $OBQ$  are straight lines.

$OA = 2$  cm.

$AP = 6$  cm.

$BQ = 7.2$  cm.

$AC = 3.7$  cm.

(a) Work out the length of  $OB$ .

..... cm  
(2)

(b) Work out the length of  $PR$ .

..... cm  
(3)

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The area of triangle  $PQR$  is  $72 \text{ cm}^2$

(c) Work out the area of triangle  $ABC$ .

.....  $\text{cm}^2$   
(2)

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**(Total for Question 8 is 7 marks)**

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9 On a map, 4 centimetres represents a real distance of 1 kilometre.

- (a) On the map, the distance between two points is 14 cm.  
Work out the real distance between these two points.  
Give your answer in kilometres.

..... km  
(2)

- (b) Work out the scale of the map in the form 1 :  $n$

1 : .....  
(2)

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**(Total for Question 9 is 4 marks)**

10 The diagram shows two regular hexagons,  $OABCDE$  and  $OFGHIJ$ .

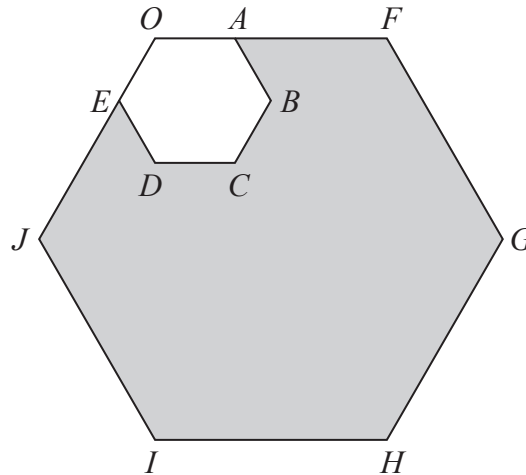


Diagram **NOT** accurately drawn

$OAF$  and  $OEJ$  are straight lines.

$OF = 3 OA$ .

The area of  $OABCDE$  is  $4 \text{ cm}^2$ .

Calculate the area of the shaded region.

.....  $\text{cm}^2$

**(Total for Question 10 is 3 marks)**