

Similarity (Lengths ONLY)

Question Paper

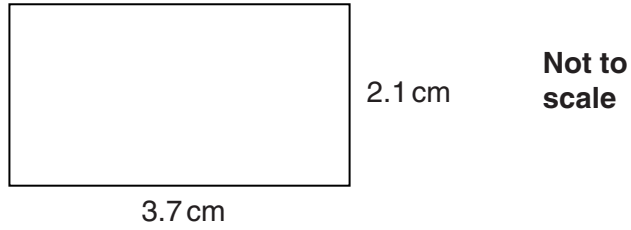
Level	OCR
Subject	Maths
Exam Board	GCSE (9-1)
Topic	Congruence and Similarity
Sub Topic	Similarity (Length ONLY)
Grade Level	Grade 5
Booklet	Question Paper

Time Allowed: 56 minutes

Score: /46

Percentage: /100

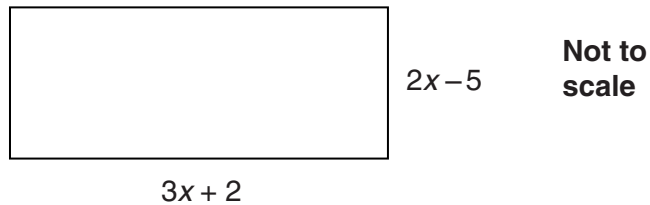
1 (a) Here is a rectangle.



Work out the perimeter of the rectangle.

(a) _____ cm [2]

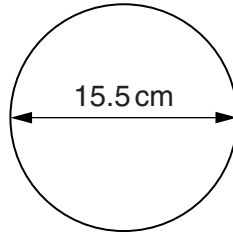
(b) Here is a different rectangle.
All lengths are in centimetres.



Work out the perimeter of the rectangle.
Give your answer in its simplest form.

(b) _____ cm [3]

- (c) A circular tea plate has a diameter of 15.5 cm.



- (i) Work out the circumference of this plate.

(c)(i) _____ cm [2]

- (ii) A circular dinner plate is an enlargement of the circular tea plate.
The dinner plate has a diameter of 27.9 cm.

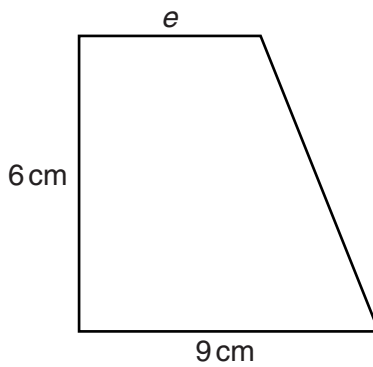
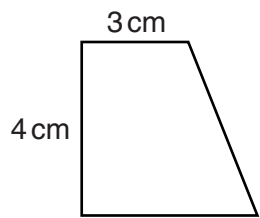
Complete the following sentences.

The scale factor of the enlargement is _____ .

The circumference of the dinner plate is _____ times the
circumference of the tea plate.

[3]

2 These two trapeziums are similar.

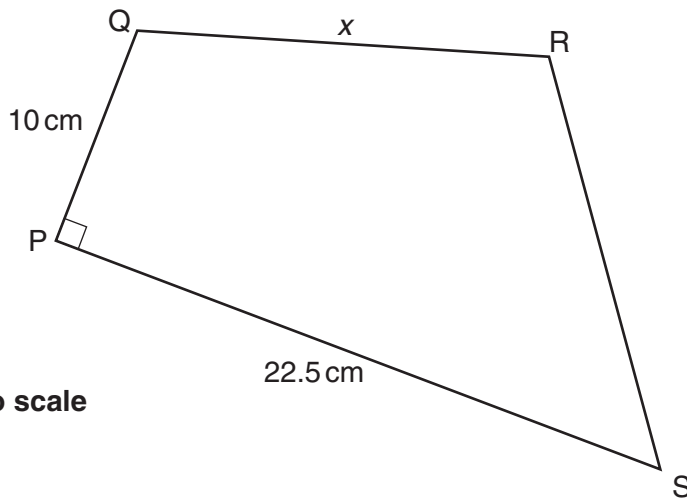
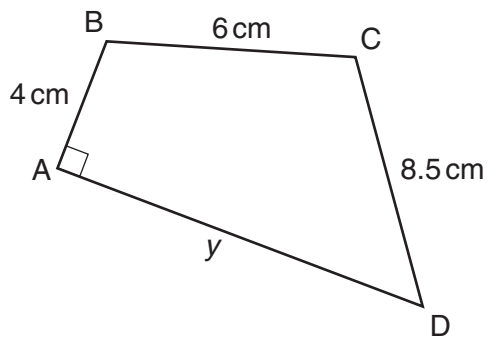


Not to scale

Calculate length e .

_____ cm [3]

3 ABCD and PQRS are mathematically similar.

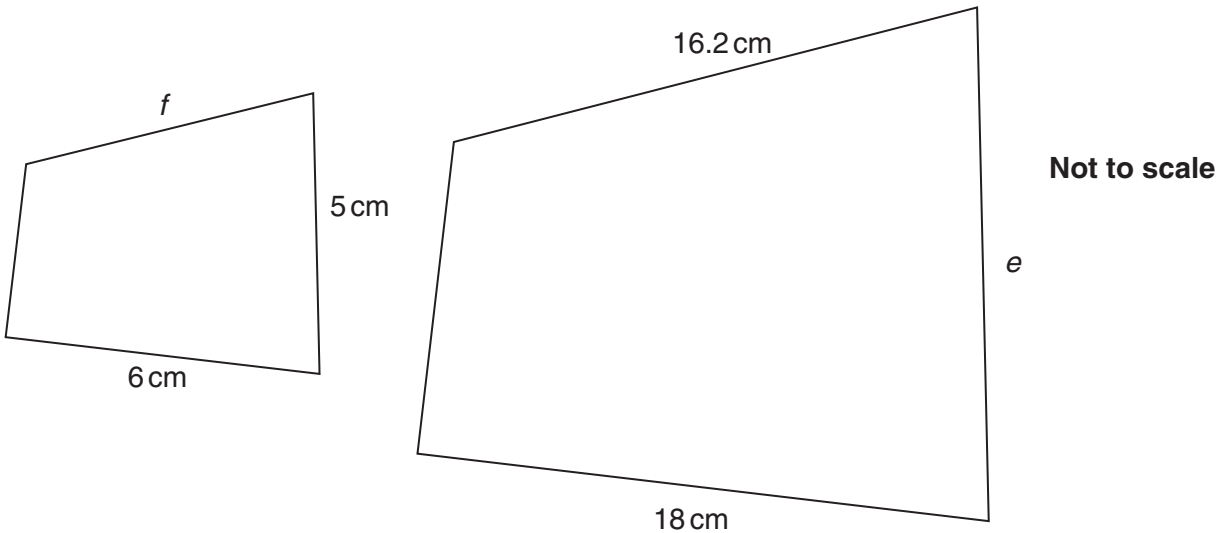


Not to scale

Calculate lengths x and y .

[5]

- 4 These two shapes are mathematically similar.



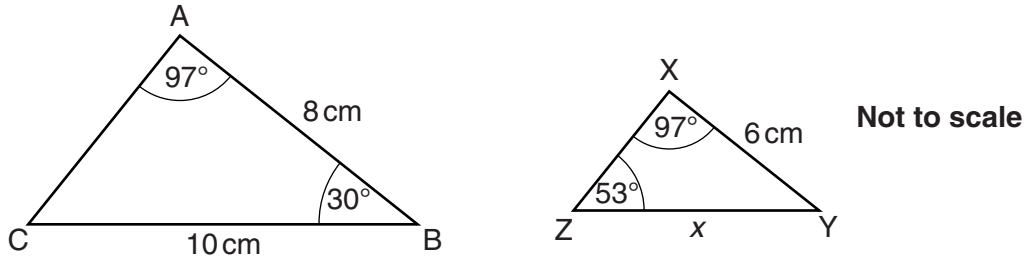
- (a) Calculate the length e .

(a) _____ cm [3]

- (b) Calculate the length f .

(b) _____ cm [2]

5 Triangles ABC and XYZ are drawn below.



(a) Explain why the two triangles are mathematically similar.

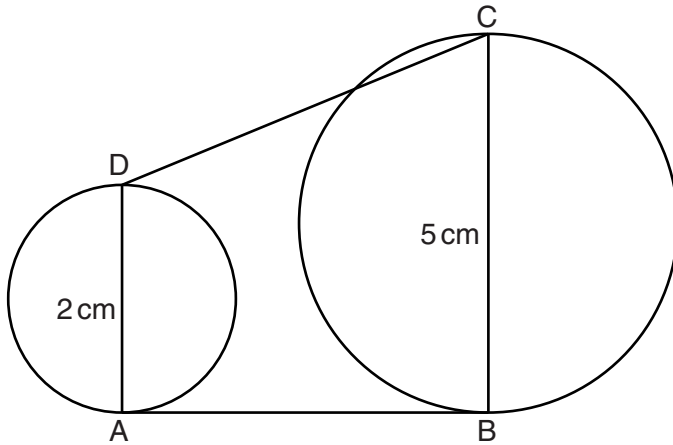
[3]

(b) Calculate length x .

(b) _____ cm [3]

- 6 (a) The diagram shows a small circle and a large circle.
 AB is a tangent to both circles.
 AD and BC are diameters.
 AD = 2 cm, BC = 5 cm.

- (i) Find the scale factor of the enlargement from the small circle to the large circle.



Not to scale

(a)(i) _____ [1]

Any two circles of different size are mathematically similar.

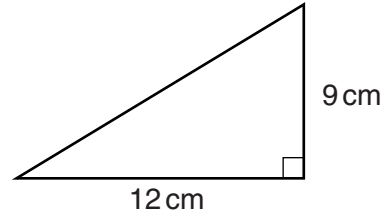
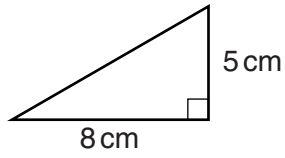
- (ii) Name another shape where **all** sizes of the shape will be mathematically similar to each other.

(ii) _____ [1]

- (iii)* Prove that ABCD is a trapezium.

[3]

(b) (i)* Show that these two triangles are **not** similar.



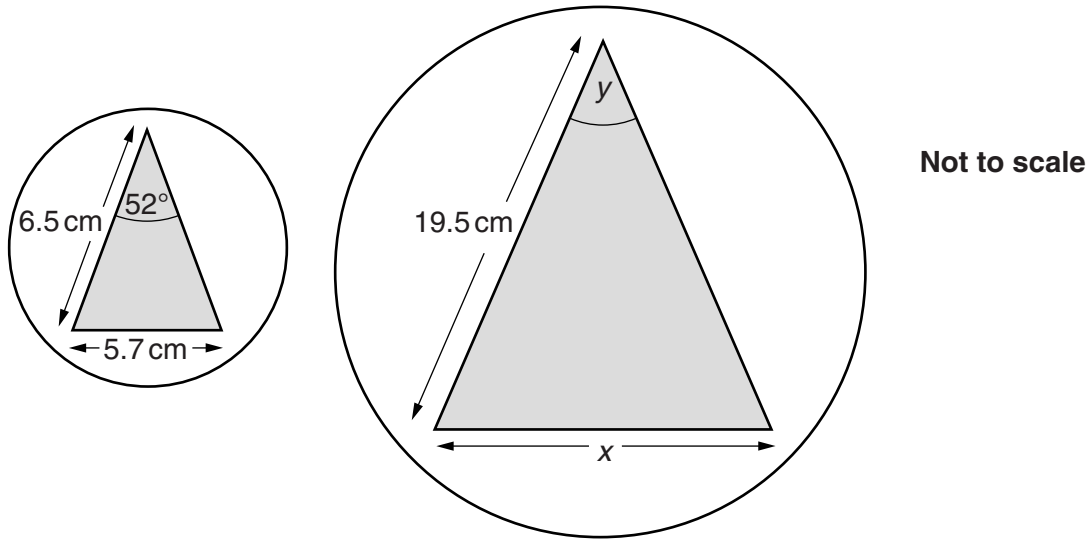
Not to scale

[3]

(ii) Change **one** measurement on **one** triangle so that the triangles will be similar.

(b)(ii) Change the _____ cm side to _____ cm [3]

7 These diagrams are mathematically similar.



(a) Calculate the length x .

(a) _____ cm [3]

(b) What is the size of angle y ?

(b) _____ ° [1]

(c) The area of the smaller circle is 51 cm^2 .

Calculate the area of the larger circle.

(c) _____ cm^2 [2]