

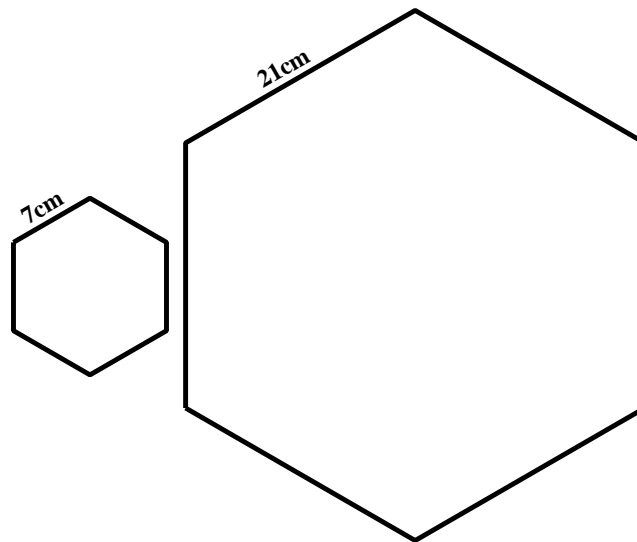
2.7 Homework

GCSE Mathematics Ratio and Similarity

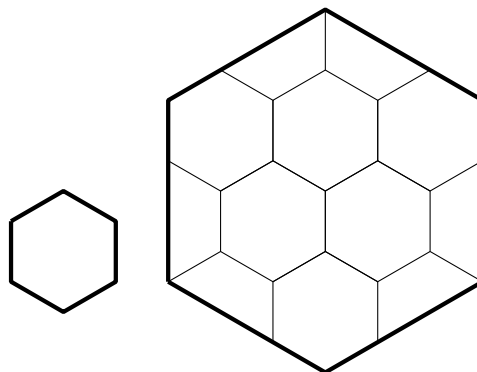
Marks Available : 26

Question 1

A hexagon of side length 7cm is similar to a larger hexagon of side length 21cm.



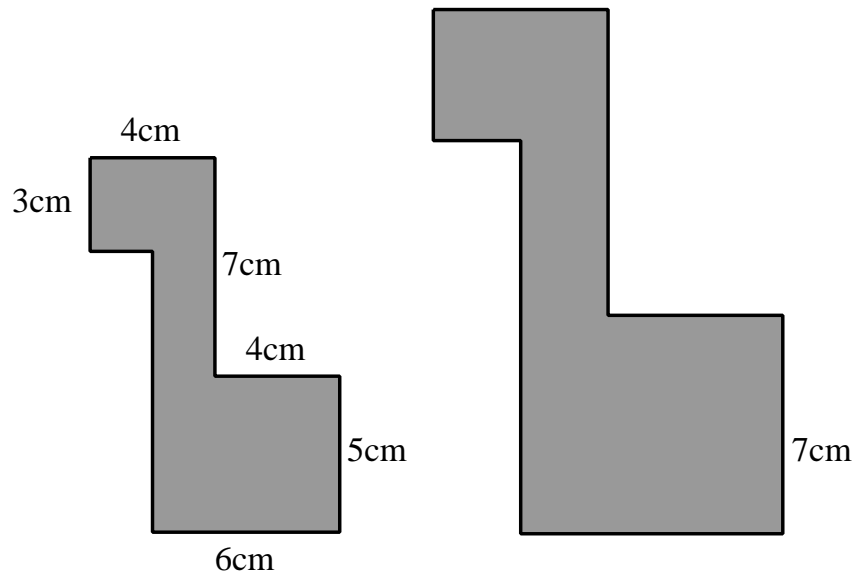
- (i) What is the *length* scale factor, greater than 1, of the similarity ?
[1 mark]
- (ii) What is the *area* scale factor, greater than 1, of the similarity ?
[1 mark]
- (iii) If the small hexagon has an area of 126cm^2 , what is the area of the larger ?
[2 marks]
- (iv) Explain how this diagram helps you understand your part (iii) answer.



[2 marks]

Question 2

The two shapes shown below are similar.



- (i) Work out the area of the left hand shape.

[3 marks]

- (ii) What is the *length scale factor*, greater than 1, of the similarity ?

[1 mark]

- (iii) What is the *area scale factor*, greater than 1 of the similarity ?

[1 mark]

- (iv) Use your part (iii) answer to work out the area of the right hand shape.

[2 marks]

Question 3

A larger rectangle has 16 times the *AREA* of a smaller, similar rectangle.

The smaller rectangle measures 3 cm by 2 cm.

(i) What are the measurements of the larger rectangle ?

[3 marks]

(ii) Draw full size the two rectangles.

[2 marks]

Question 4

A larger rectangle has 100 times the *AREA* of a smaller, similar rectangle.

The larger rectangle measures 26cm by 17cm.

What are the measurements of the smaller rectangle ?

[3 marks]

Question 5

A rectangle is 18cm in wide and 12cm high.

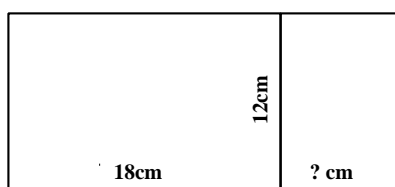
Another smaller but similar rectangle has a width of 12cm.

(i) What is its height ?

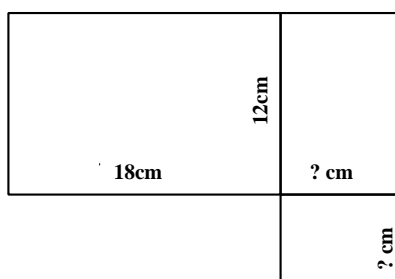
[1 mark]

The two rectangles are joined as shown below.

You've just worked out the value of the side marked with a question mark.



A third rectangle, similar to the first two is now added as shown below.



(ii) What are the measurements of this third rectangle ?
(Note : the answer is a fraction and not an integer)

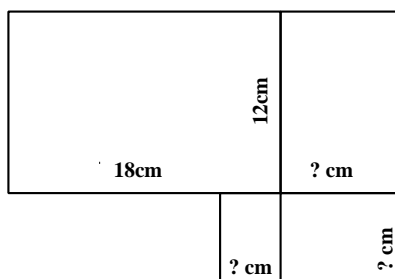
[2 marks]

Finally, a fourth rectangle is added as shown below.

This rectangle is similar to the other three.

What are the measurements of this fourth rectangle ?

(Note : once again, the answer is a fraction and not an integer)



[2 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com