

## GCSE MATHEMATICS

Higher tier

Geometry and measures

Topic test – Similar shapes

v1.0

Name \_\_\_\_\_

### Materials

**For this paper you must have:**

- Mathematical instruments
- A calculator.



### Information

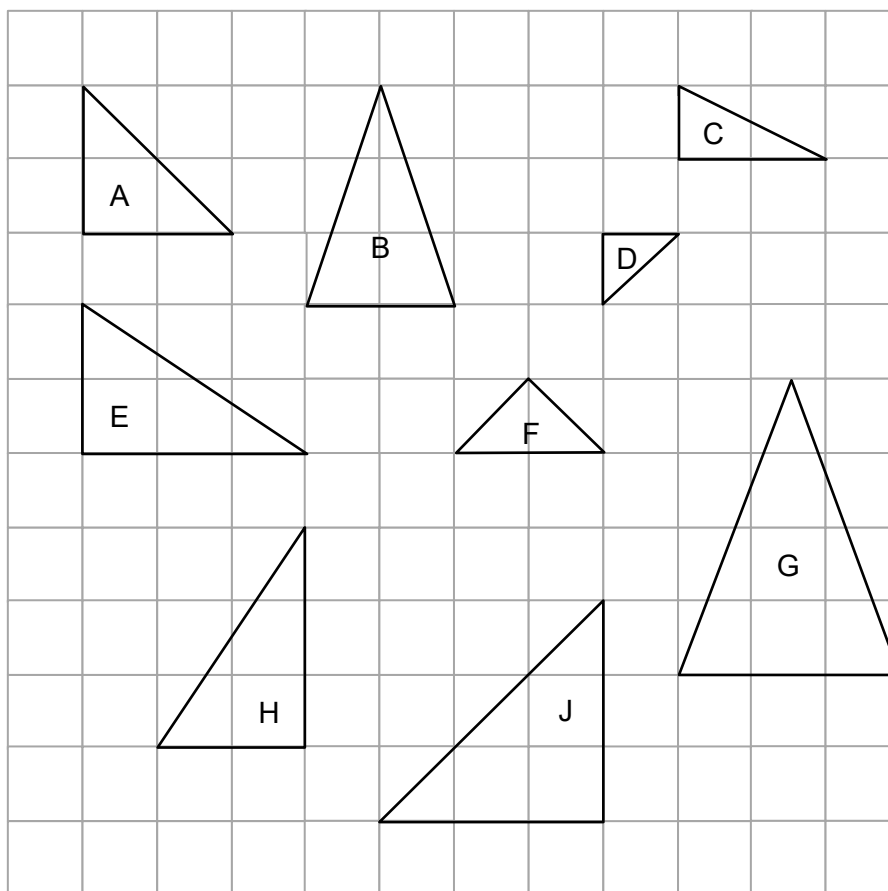
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 25.

### Advice

- In all calculations, show clearly how you work out your answer.

For Teacher's Use	
Pages	Mark
2 - 3	
4 - 5	
6 - 7	
8 - 9	
<b>TOTAL</b>	

1



Which triangles are similar to triangle A?

[2 marks]

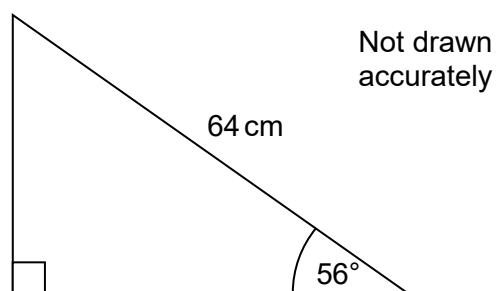
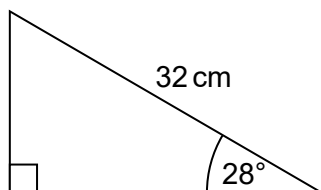
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Answer \_\_\_\_\_

2



Are these triangles similar?

Yes

☐

No

☐

Give a reason for your answer.

[2 marks]

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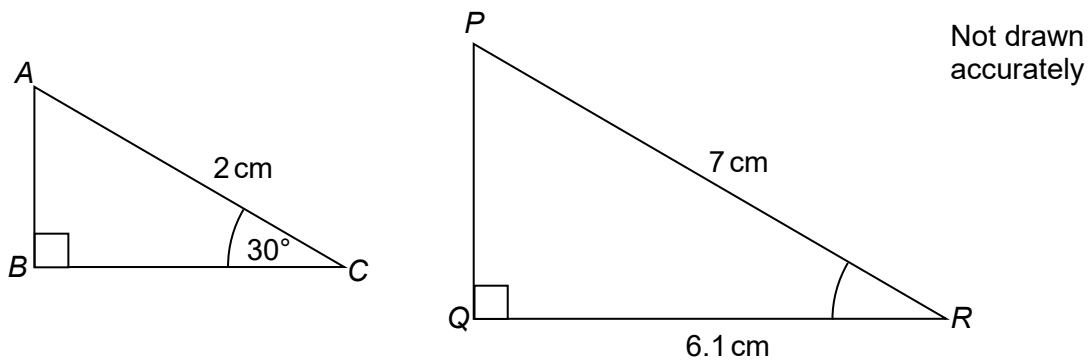
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Turn over for the next question

- 3** Triangles  $ABC$  and  $PQR$  are similar.  
Angle  $BCA$  and angle  $PRQ$  are the same.



- 3 (a)** Work out angle  $QPR$

**[2 marks]**

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Answer \_\_\_\_\_ °

- 3 (b)** Work out the length of  $BC$

**[2 marks]**

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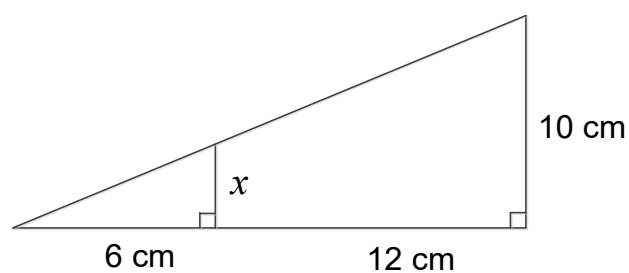
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Answer \_\_\_\_\_ cm

4

Not drawn  
accuratelyWork out the length  $x$ **[2 marks]**


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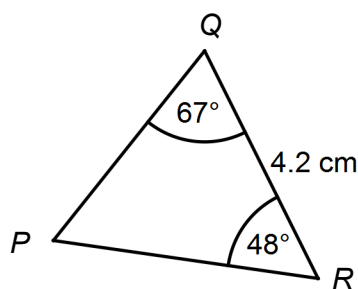
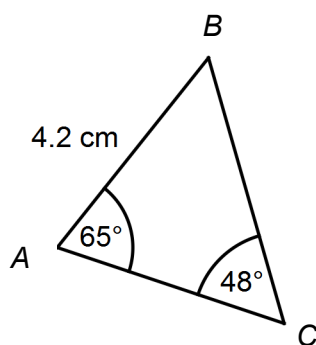
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Answer \_\_\_\_\_ cm

5

Are triangles  $ABC$  and  $PQR$  similar, congruent or neither?

You must give reasons and show working for your answer.

**[3 marks]**Not drawn  
accurately

Answer \_\_\_\_\_

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**Turn over** ▶

- 6 (a)** Describe a shape that is similar but not congruent to a regular hexagon with sides of 5 cm.

**[1 mark]**

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- 6 (b)** Describe a shape that is congruent to a circle of radius 2 cm.

**[1 mark]**

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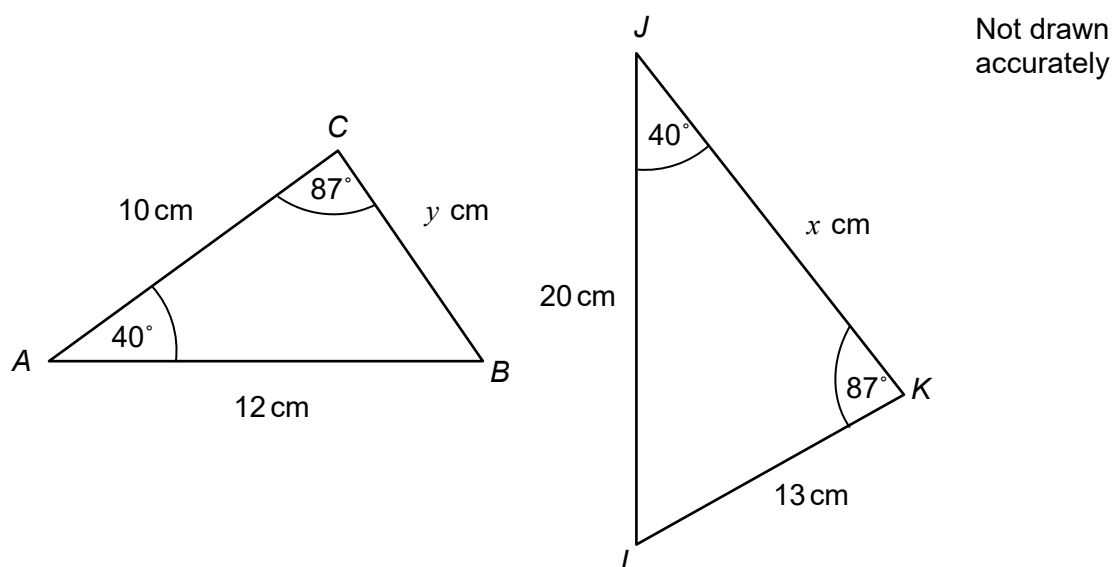
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- 7 Triangles  $ABC$  and  $JKL$  are similar.



Work out the values of  $x$  and  $y$   
Give your answers to 1 decimal place.

[3 marks]

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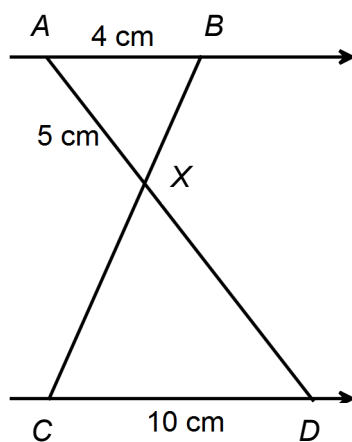
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$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

Turn over for the next question

- 8  $AB$  and  $CD$  are parallel lines  
 $AD$  and  $BC$  meet at  $X$ .



- 8 (a) Show that triangles  $ABX$  and  $DCX$  are similar.

[3 marks]

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- 8 (b) Work out the length of  $XD$ .

[2 marks]

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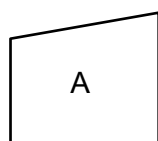
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Answer \_\_\_\_\_ cm

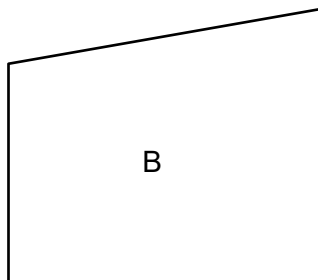


9

A and B are similar shapes.  
B is an enlargement of A with scale factor 2.5



17 mm

 $a$ 

46 mm

 $b$ 

Not drawn  
accurately

Work out the lengths of  $a$  and  $b$

[2 marks]

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 $a =$  \_\_\_\_\_

 $b =$  \_\_\_\_\_

**END OF QUESTIONS**