

Congruent Shapes

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

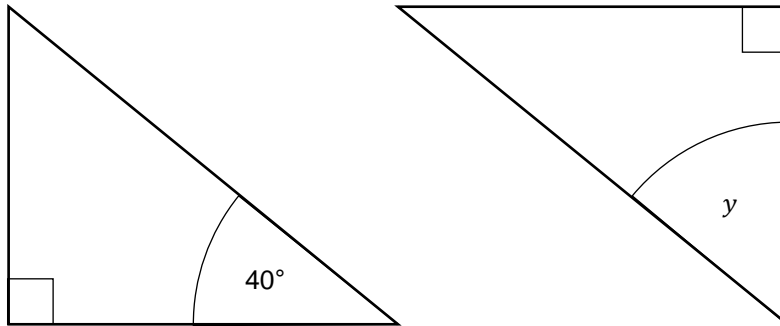
Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

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

- 1 The two triangles below are congruent.



Not drawn accurately

What is the value of y ?

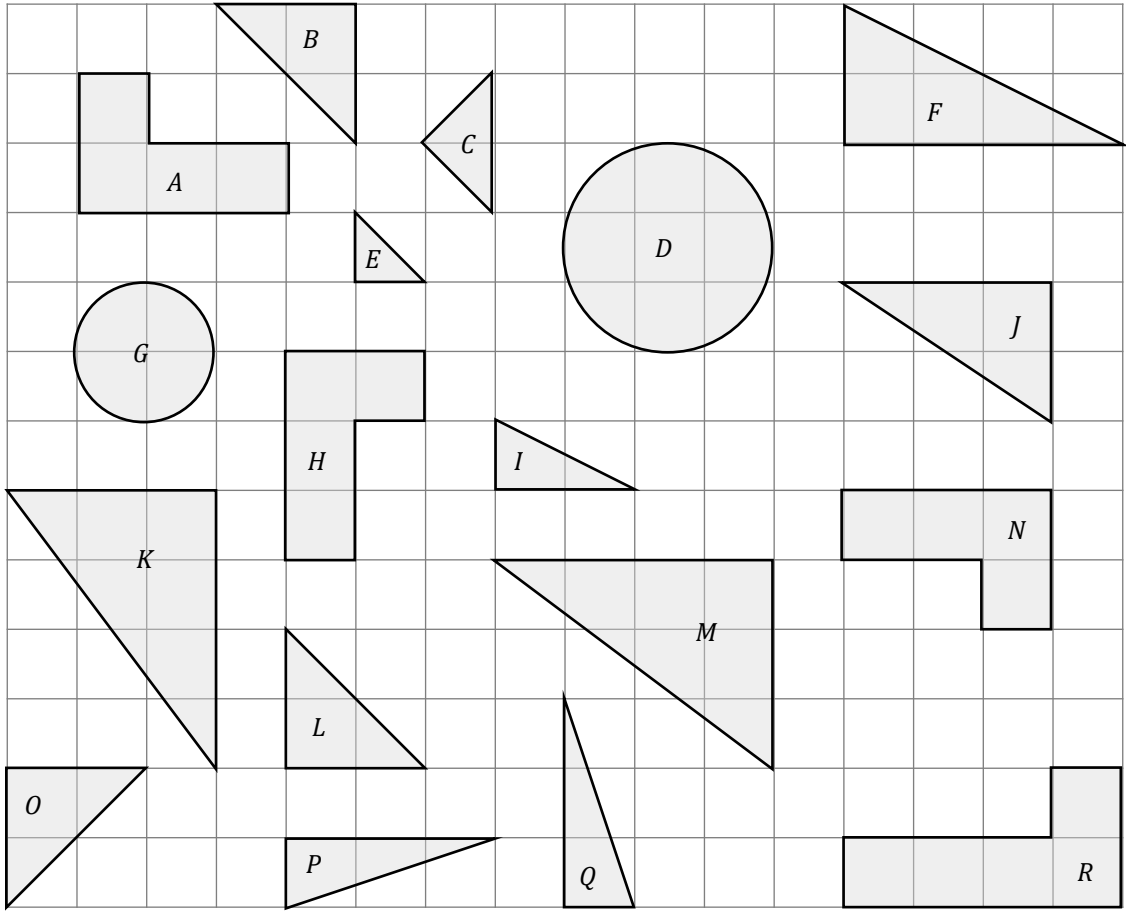
[1 mark]

$y =$ _____

Turn over for next question

Turn over ►

2 Look at the shapes on the grid below.



Identify two pairs and two triplets of congruent shapes from the diagram above.

[4 marks]

..... and and

..... and and

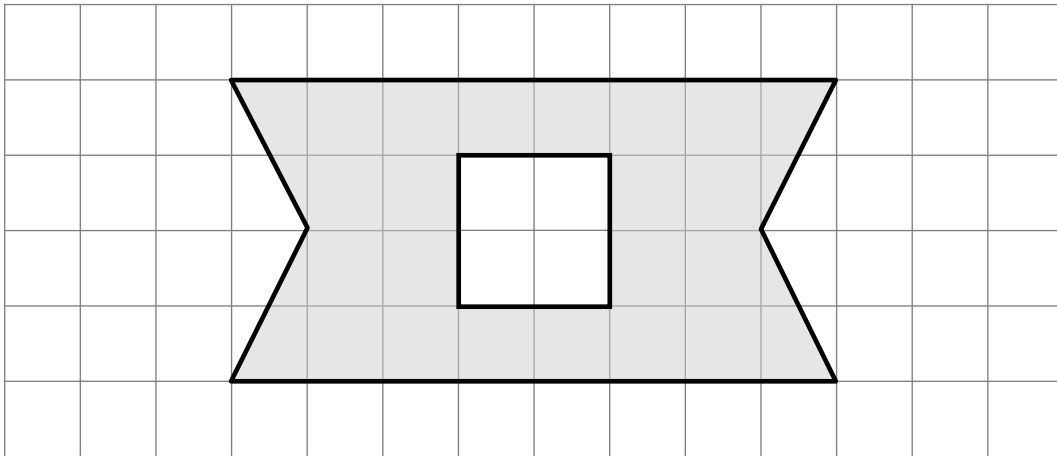
..... and

..... and

Turn over for next question

Turn over ►

3 Below is a shape drawn on a centimetre grid.



3(a) Divide the shape above into four congruent shapes.

[1 mark]

3(b) Dan believes that the shape can be divided into 8 congruent shapes.
Is he correct?

You **must** explain your answer

[2 marks]



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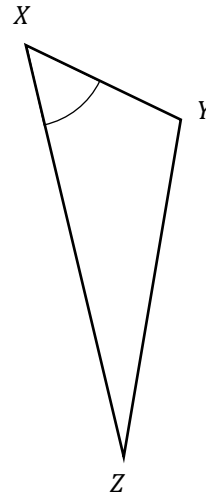
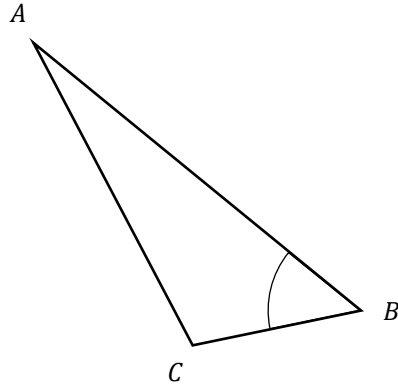
4

ABC and XYZ are triangles

$$AB = XZ$$

$$CB = XY$$

$$\angle CBA = \angle ZXY$$



Not drawn
accurately

Prove these two triangles are congruent.

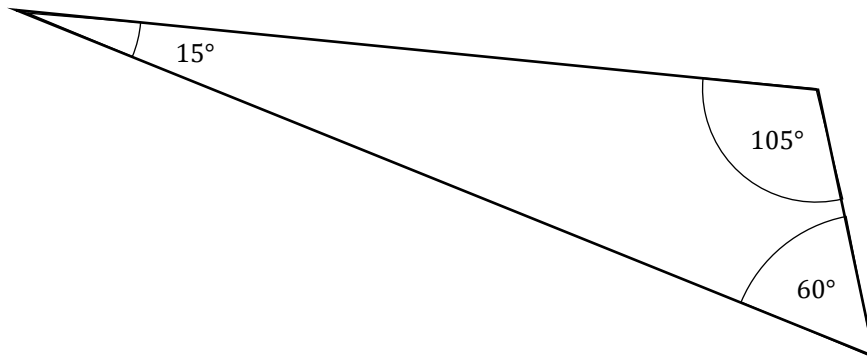
[2 marks]

Answer _____

Turn over for next question

Turn over ►

- 5** Sophie draws a triangle with angles x , $4x$ and $7x$.
Ben then uses this information to draw the triangle below.



Not drawn accurately

- 5(a)** Is his triangle correct, based on the information given?
You **must** justify your answer.

[2 marks]

- 5(b)** Is Ben's triangle congruent to Sophie's?
You must explain your answer.

[1 mark]

Turn over for next question

Turn over ►

6

In the diagram below:

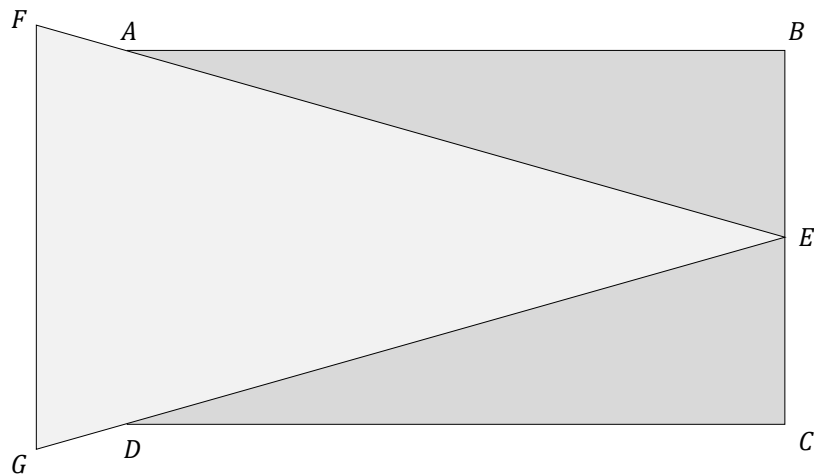
$$\angle GFE = \angle EGF$$

AB is parallel and equal to DC

E is the midpoint of BC

$$FA : AE = 1 : 3$$

$$GD : DE = 1 : 3$$



Not drawn
accurately

6(a) Using RHS, show that the triangles ABE and ECD are congruent.

You **must** justify your answer

[2 marks]

Answer _____

6(b) Show that the triangles ADG and ADF are congruent.

[4 marks]

Turn over for next question

Turn over ►

7 Of the following, which can be used to prove two triangles are congruent?

7(a) Circle those that apply.

[3 marks]

AAA

AAS

SAS

RHS

SSS

SSA

ASA

7(b) For those that you did not select, **through use of a description or diagram**, explain why they cannot be used to prove congruence.

[2 marks]



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END