MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 3 - 5)

Similar Shapes (Level 3-5)

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

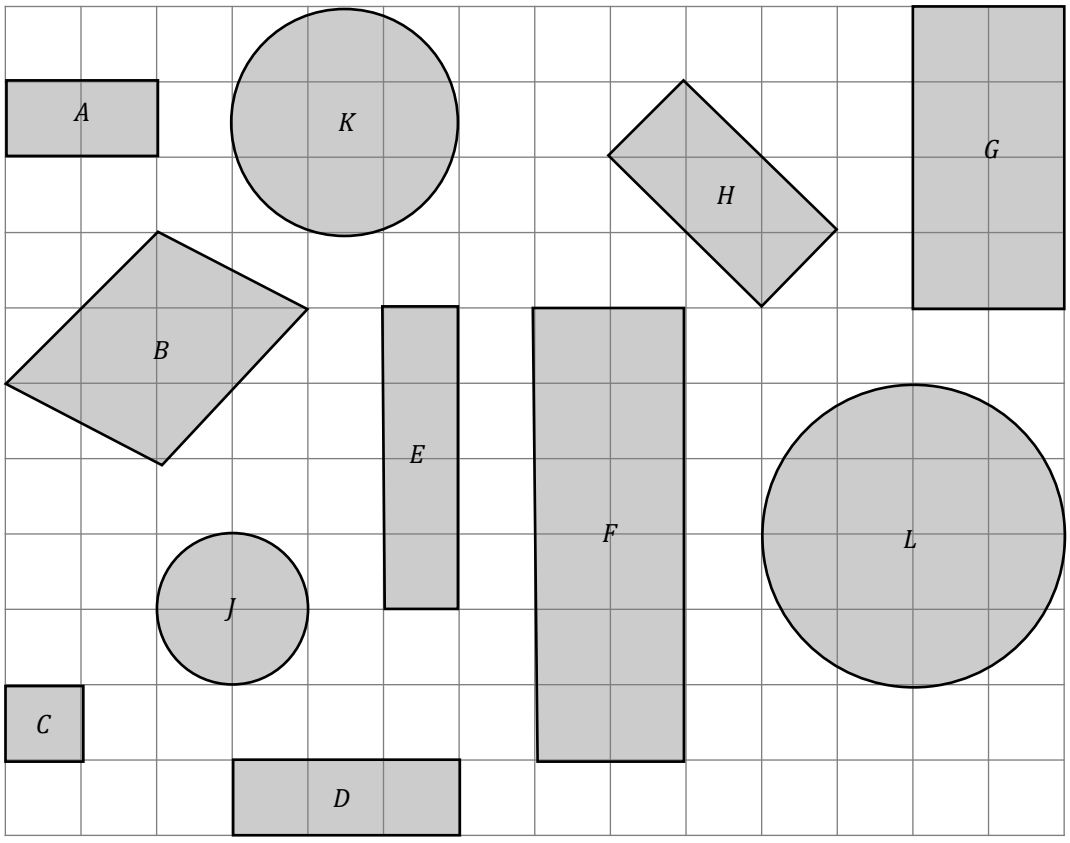
- In all calculations, show clearly how you work out your answer.

1(a) Define the term **similar shape.** *(Level 3)*

[1 mark]

1(b) From the shapes below find two pairs and one triplet of similar shapes.

[3 marks]



……. and …….

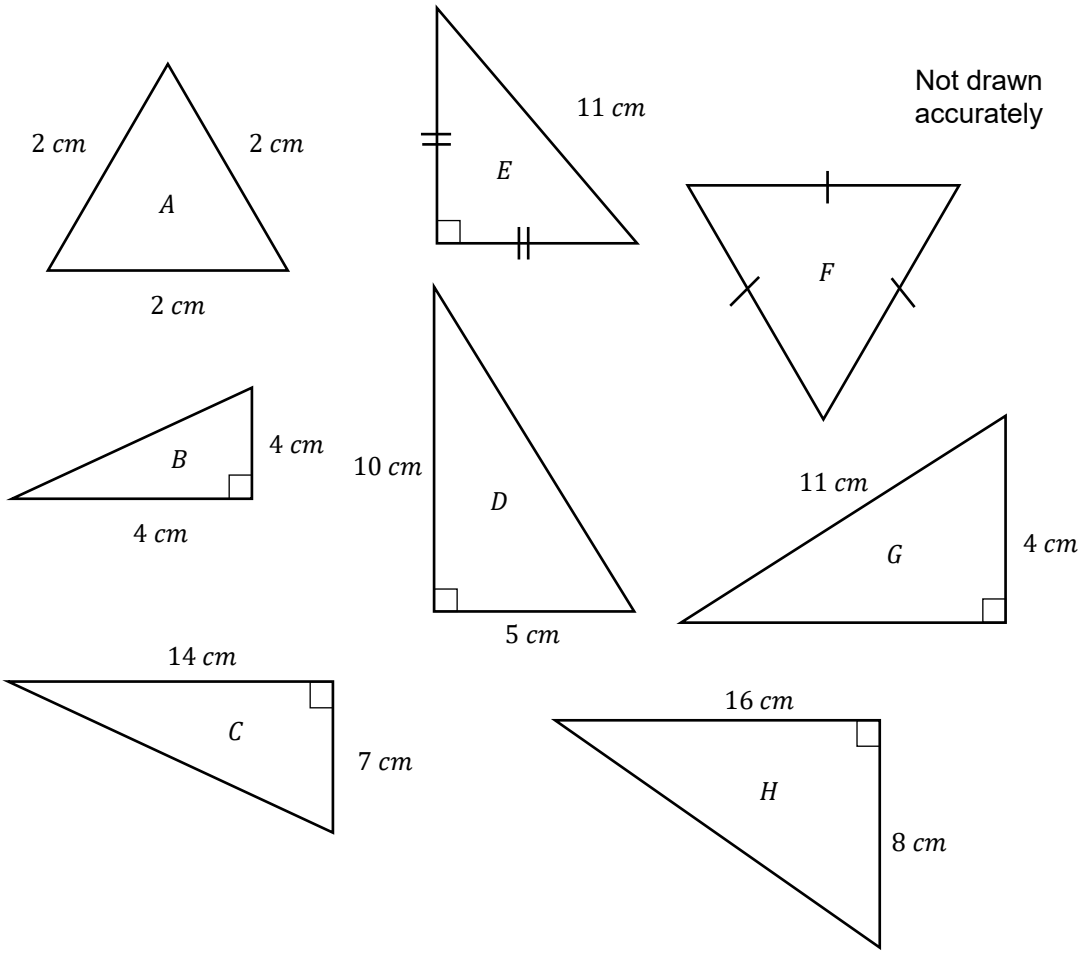
……. and …….

……. and …….and……..

4

2 The diagram below shows a variety of triangles. *(Level 3)*

In the set of shapes there are two pairs of similar triangles and one triplet of similar triangles.



From the shapes above identify the pairs and triplet of similar triangles.

[3 marks]

……. and ……. are mathematically similar

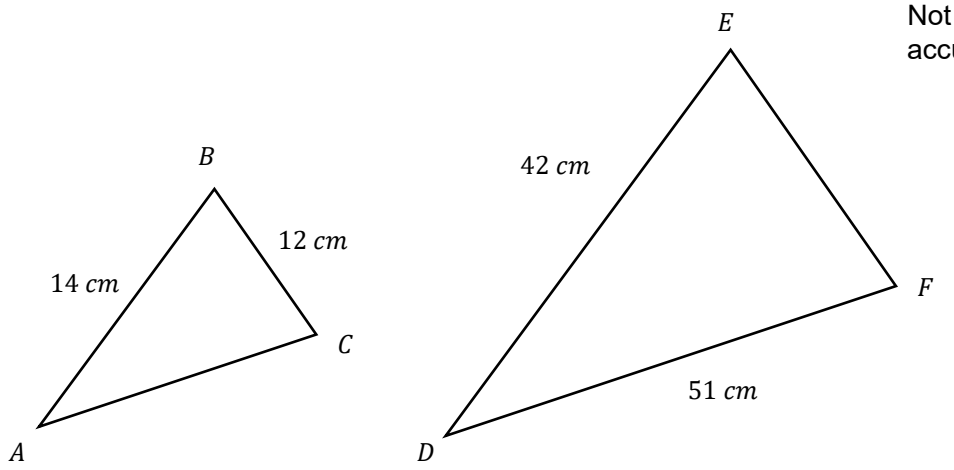
……. and ……. are mathematically similar

……. and …….and…….. are mathematically similar

Turn over for next question

3

3 The two triangles, ABC and DEF shown below are similar. *(Level 4)*



3(a) What is the scale factor that transforms ABC to DEF?

[1 mark]

Answer _____

3(b) Hence, or otherwise, calculate length EF

[1 mark]

Answer _____

3(c) Hence, or otherwise, calculate length AC

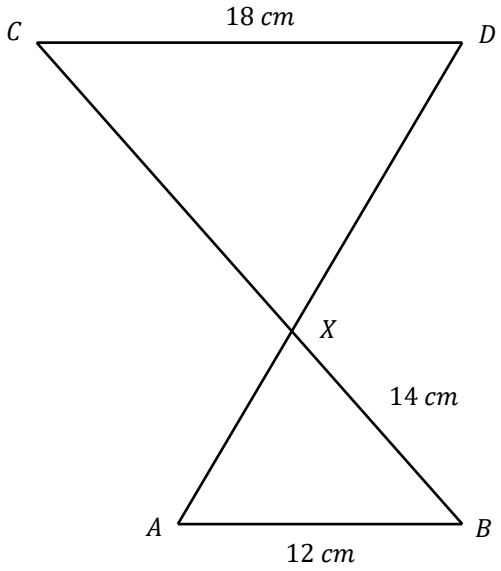
[1 mark]

Answer _____

Turn over for next question

3

4 In the diagram below the triangles XCD and XAB are similar. *(Level 4)*



Not drawn accurately

4(a) What is the scale factor of the triangles?

[1 mark]

Answer _____

4(b) Using the scale factor, calculate XC

[1 mark]

Answer _____

4(c) Given that $AD = 25cm$, find the values of AX and XD.

[2 marks]

Answer _____

4

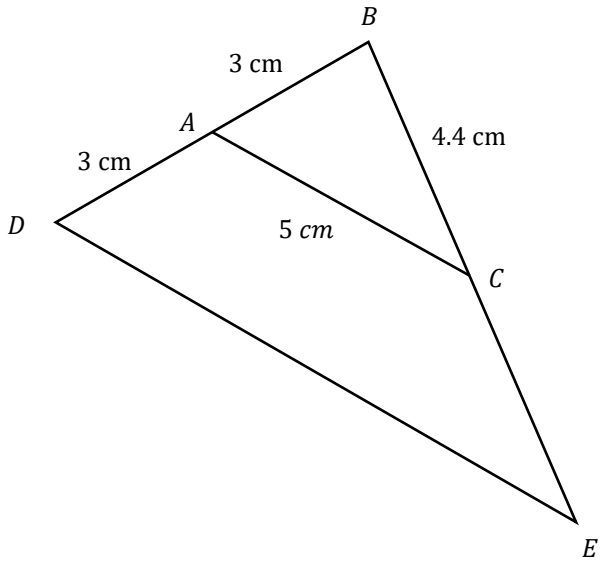
5 Triangles BCA and BED are mathematically similar. *(Level 5)*

$BC = 4.4$ cm

$BA = 3$ cm

$AD = 3$ cm

$AC = 5$ cm



Not drawn accurately

5(a) What is the scale factor that transforms ABC to BDE?

[1 mark]

Answer _____

5(b) Use the scale factor to calculate the length of BE and DE.

[2 marks]

$BE =$ _____ $DE =$ _____

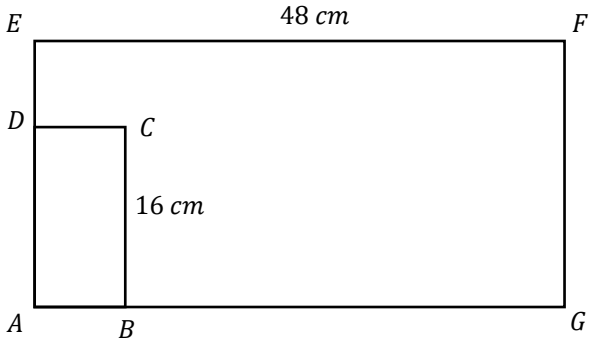
3

6 $ABCD$ and $AGFE$ are mathematically similar *(Level 5)*

$EF = 48\ cm$

$CB = 16\ cm$

Not drawn accurately



6(a) What is the scale factor of $ADCB$ to $AEFG$?

[1 mark]

Answer _____

6(b) The area of $ABDC$ is $24\ cm^2$.

Calculate the area of $AEFG$.

[2 marks]

Answer _____

Turn over for next question

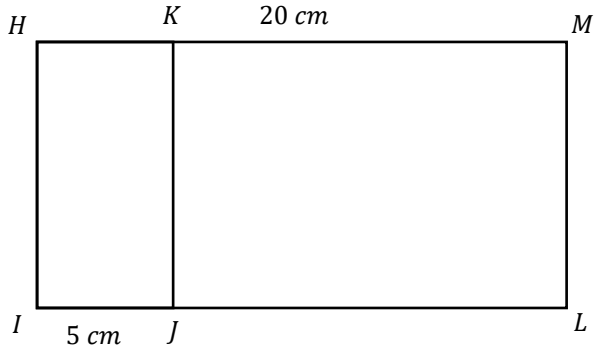
3

7 In the diagram below, $IJKH$ and $ILMH$ are mathematically similar. *(Level 5)*

$IJ = 5\ cm$

$HM = 20\ cm$

Not drawn accurately



Show that the scale factor of $IJKH$ to $ILMH$ is 2.

[3 marks]

Answer _____

3

END