Transformations

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You must *not* 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

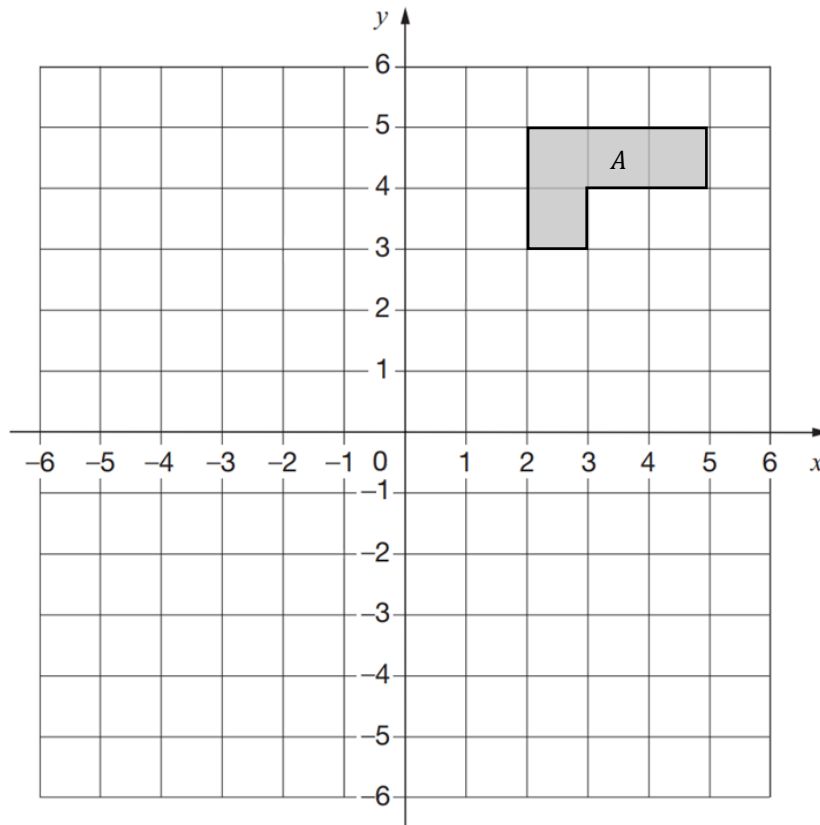- In all calculations, show clearly how you work out your answer.

1(a) Translate the shape A by the vector *(Level 3)*

$$\begin{pmatrix} -7 \\ -2 \end{pmatrix}$$

Label the new shape B.

[2 marks]

1(b) Translate the shape B by the vector

$$\begin{pmatrix} 4 \\ -3 \end{pmatrix}$$

Label the new shape C.

[2 marks]

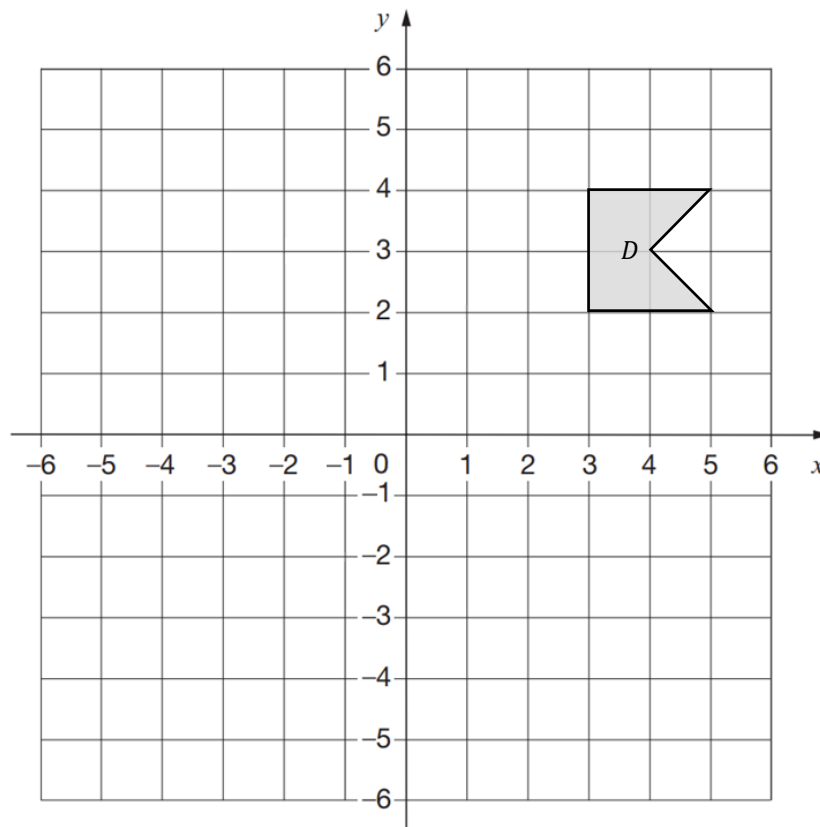**1(c)** Describe fully the single transformation from A to C.

[2 marks]

_____

_____

_____

Turn over for next question

6

2(a) Rotate the shape D by 180° clockwise about (0,0). *(Level 3)*

Label the new shape E.

[2 marks]

2(b) Rotate the shape D by 90° anticlockwise about (0,0).

Label the new shape F.

[2 marks]

4

Turn over ▶

3   Reflect the four shapes below in the line of reflection.   *(Level 3)*

[4 marks]
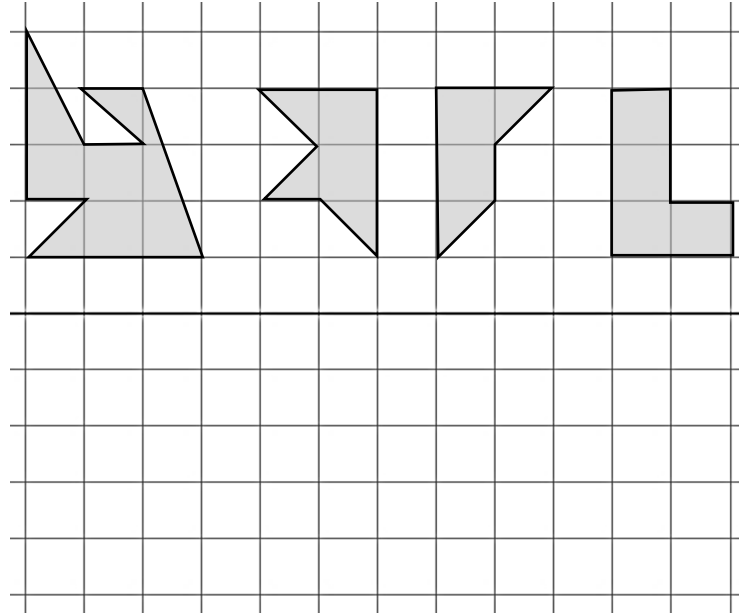
4   Reflect the shape G separately in the following three lines.   *(Level 4)*
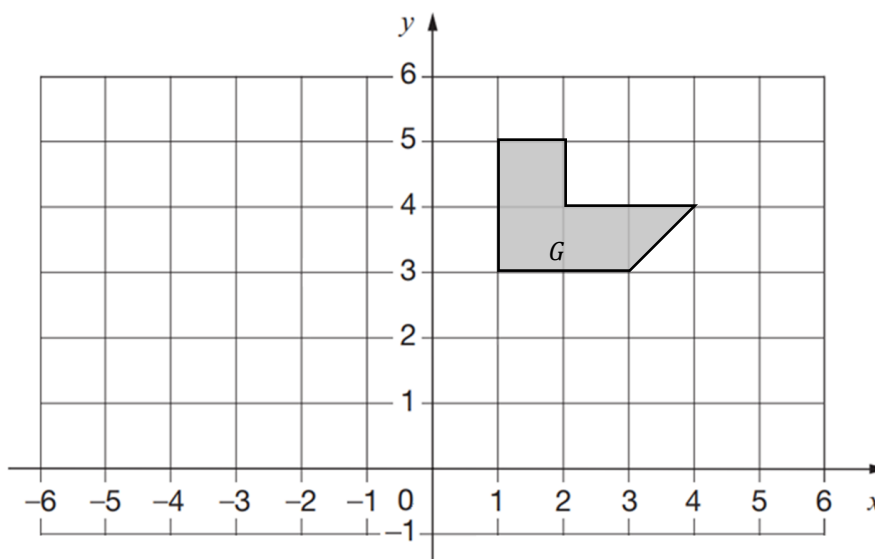
Label each new shape with the appropriate letter

$$y = 3 \text{ H}$$

$$x = -1 \text{ J}$$

$$y = 4 - x \text{ K}$$
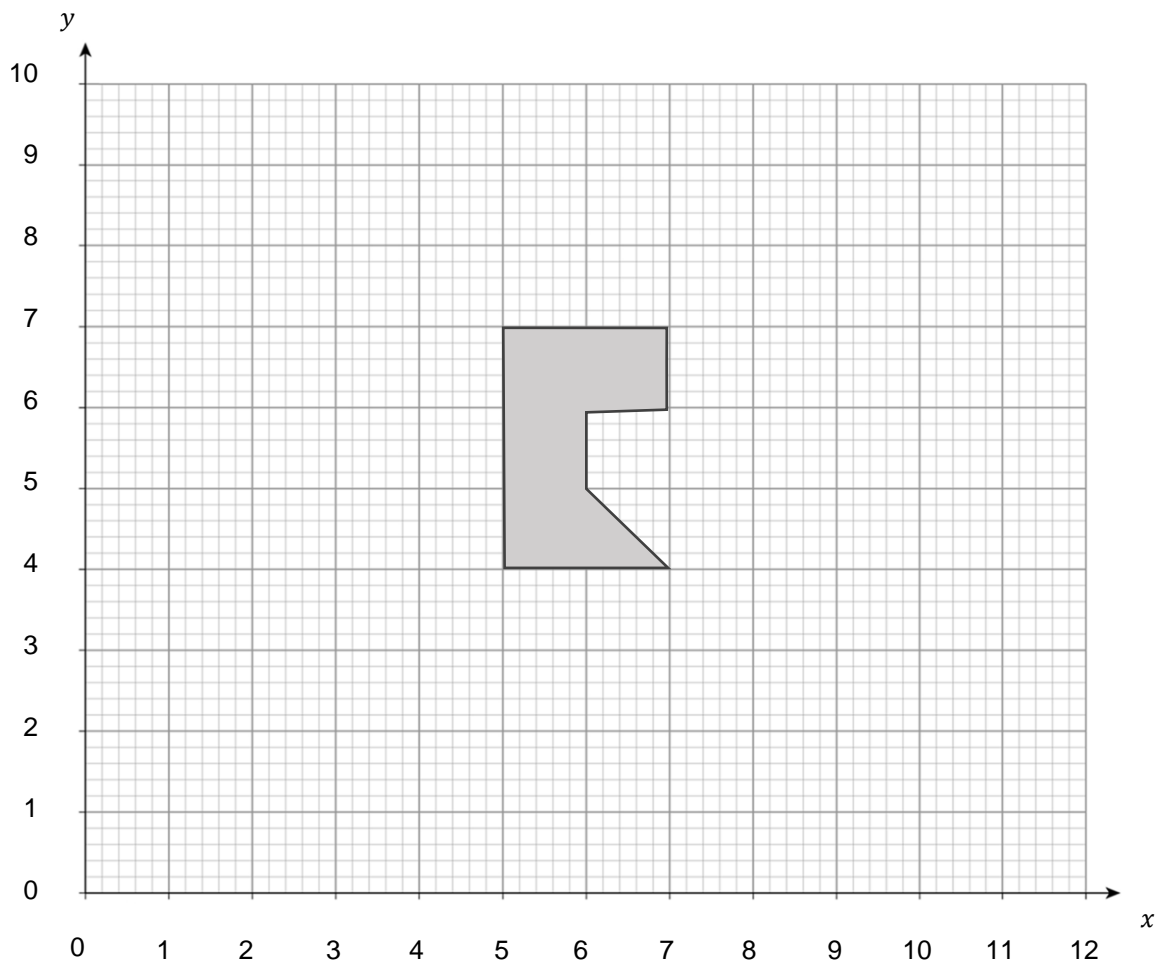
[3 marks]

Turn over for next question

7

Turn over ▶

5 Enlarge the shape below by a scale factor of 0.5 with the center of enlargement at (1,1) *(Level 4)*

[4 marks]

4

Turn over ▶

6   Enlarge the shape X by a scale factor of -1 with center of enlargement (0,0).   *(Level 5)*

Label the new shape Y.
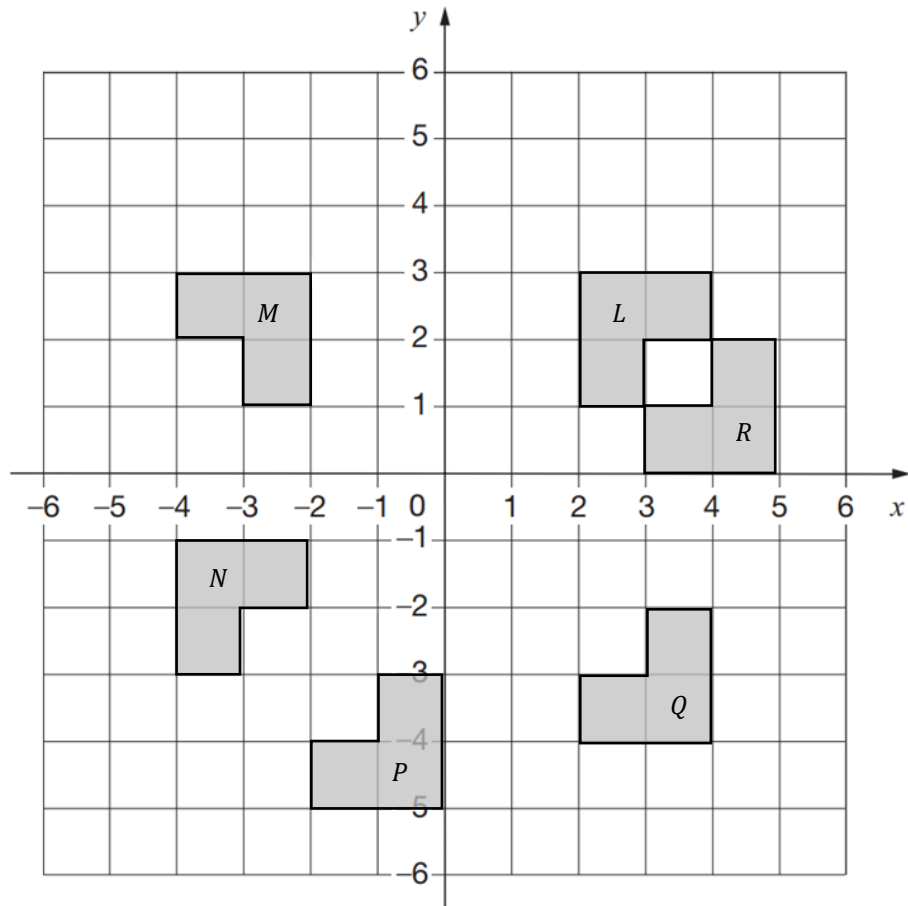
[3 marks]

Turn over ▶
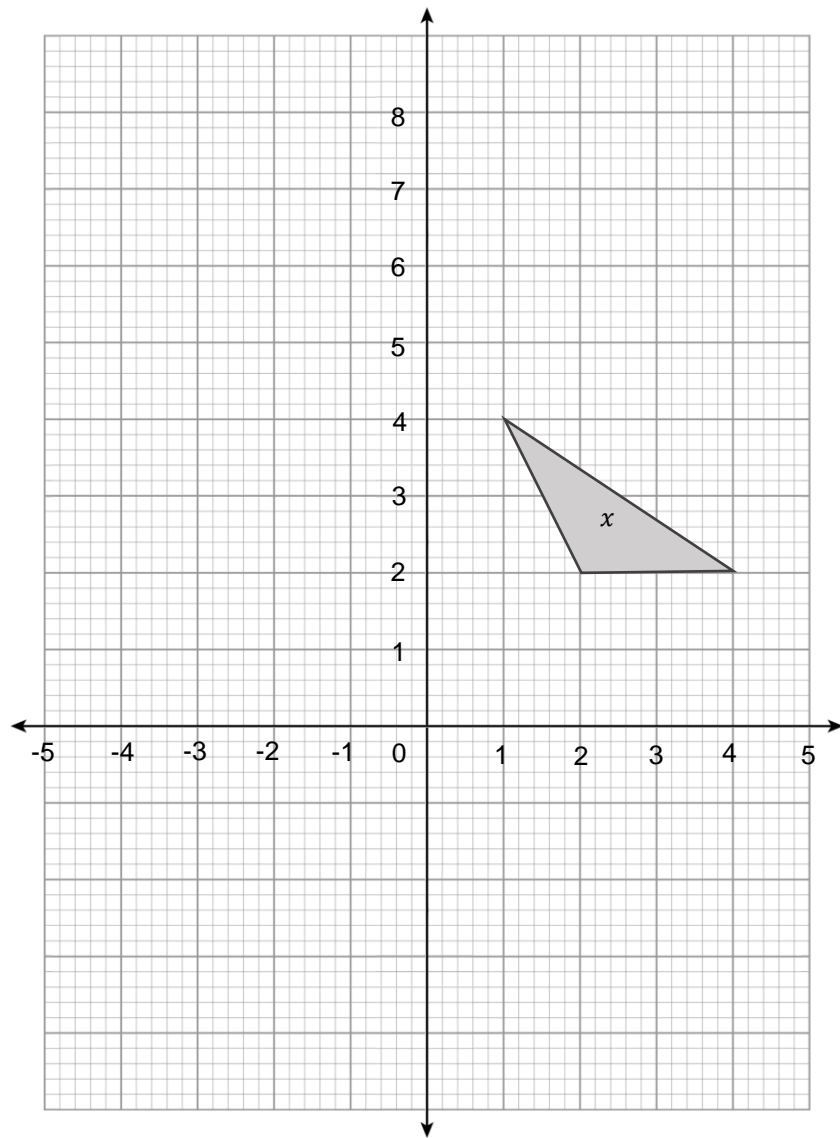
7 Each shape below has undergone a single transformation, starting from shape L. *(Level 5)*

Describe fully each transformation.

7(a) From shape L to shape M:

[1 mark]

Answer _____

7(b) From shape L to shape N:

[1 mark]

Answer _____

Question continues on next page

2

Turn over ▶

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7(c)   Shape L to shape P:

[1 mark]

_____

Answer   _____

7(d)   Shape L to shape Q

[1 mark]

_____

Answer   _____

7(e)   Shape L to shape R

[1 mark]

_____

Answer   _____

GCSE Maths Revision Guide

⊘ GCSE Maths Course 9-1 Revision Guide

⊘ Exam Questions Included

⊘ All exam boards - AQA, OCR, Edexcel, WJEC

⊘ Suitable for higher and foundation tiers

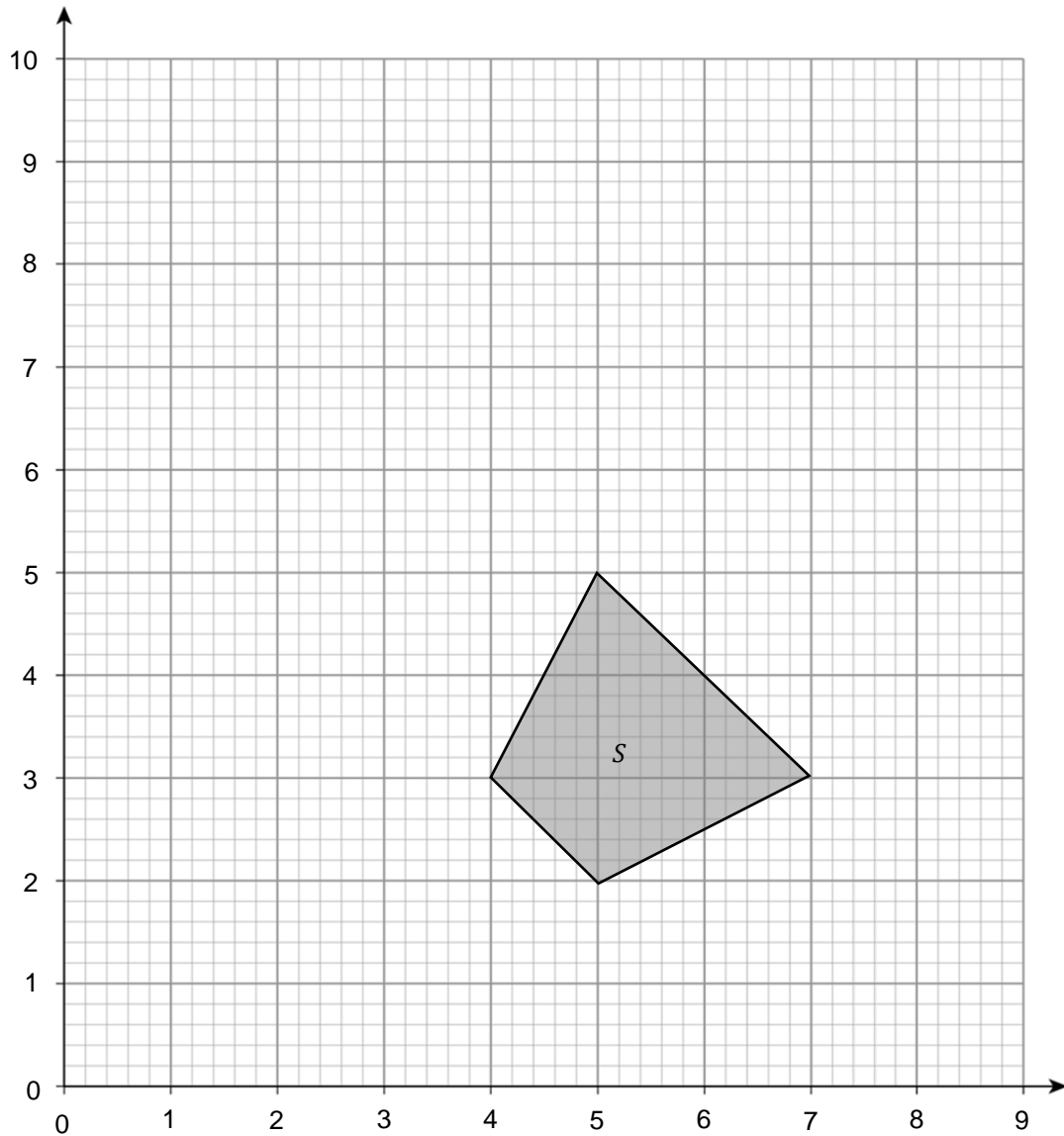Get it at mme.la/guide or scan the barcode

3

Turn over ▶

8   For the following transformations, **write down which points are invariant**.   *(Level 6)*

8(a)   Reflect the shape S in the line $y = 7 - x$.

Label the new shape T.

[2 marks]

8(b)   Translate the shape S by the vector (-3,0). Label the new shape U.

[2 marks]

8(c)   Rotate the shape S by 180° about (5,5). Label the new shape W.

[2 marks]

6

Turn over ▶

9   Enlarge the shape A below as follows   *(Level 6)*
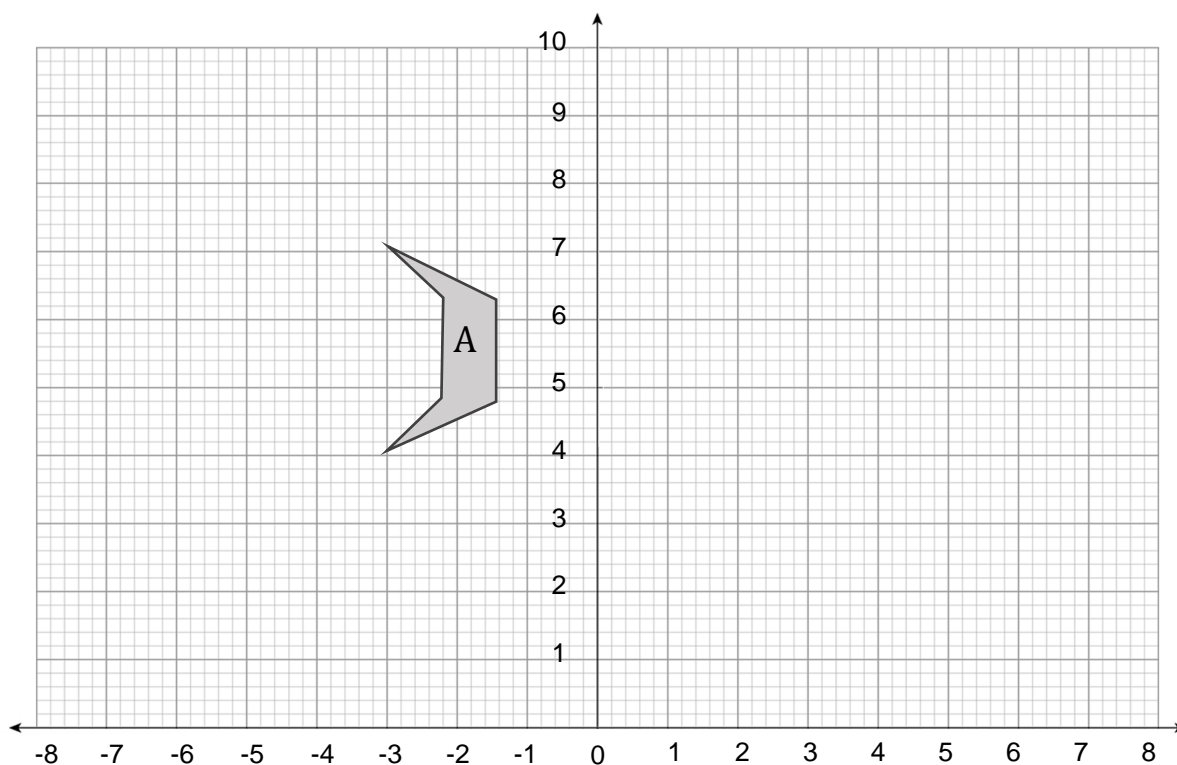
9(a)   Centre of enlargement (-7,5) scale factor 2.5. Label the new shape B

[2 marks]

9(b)   Centre of enlargement (-7,9) scale factor 1.5. Label the new shape C.
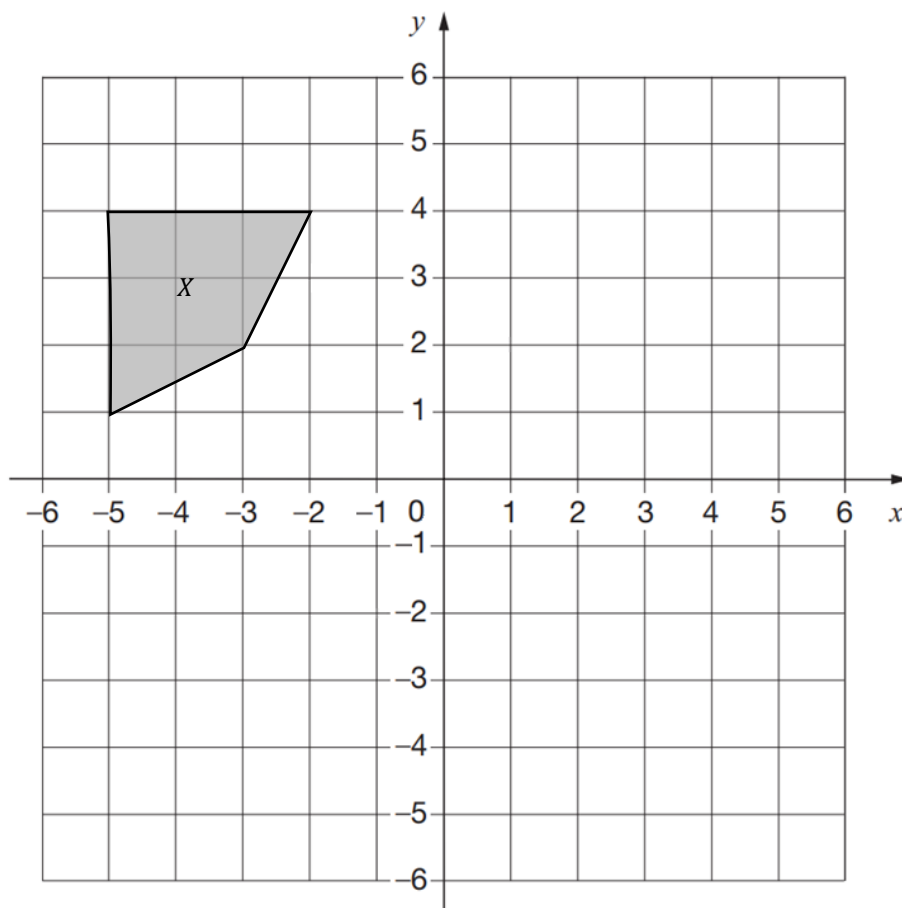
[2 marks]

9(c)   Mark the center of enlargement as X on your diagram for the transformation that maps shape C to shape B?

[2 marks]

6

Turn over ►

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10(a)   Reflect the shape X in the line with gradient 1 such that the point (-3,2) is invariant.   *(Level 6)*

Label the new shape Y.

[2 marks]

10(b)   Rotate shape Y by 270° clockwise such that the point (-1,0) is invariant.

Label the new shape Z.

[2 marks]

_____

10(c)   Can Z be translated such that there are invariant points on Z?

Give your reasoning.

[1 mark]

_____

_____

End of questions

5

END

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