

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Mixed Transformations

INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

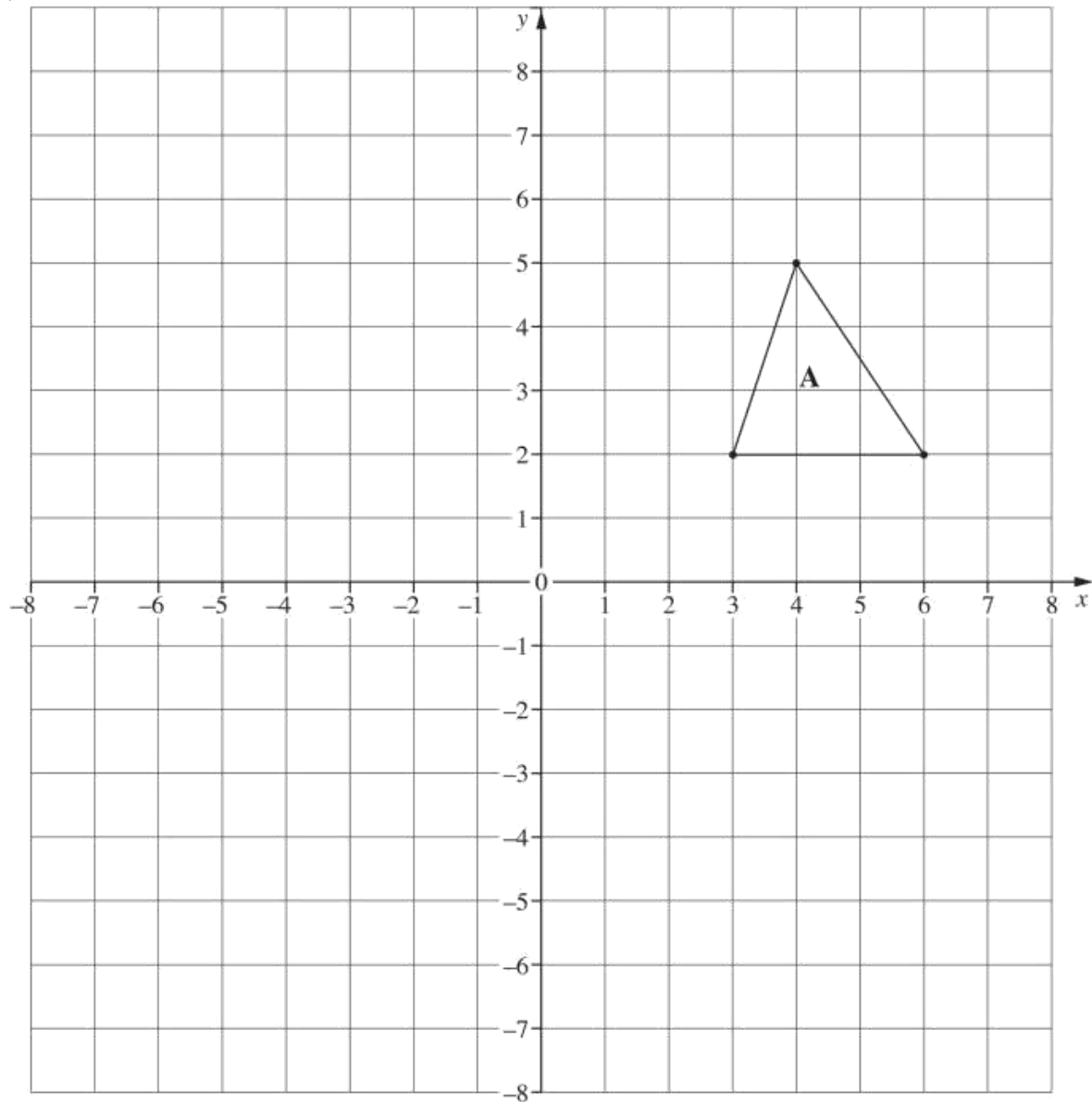
Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

Total Marks :

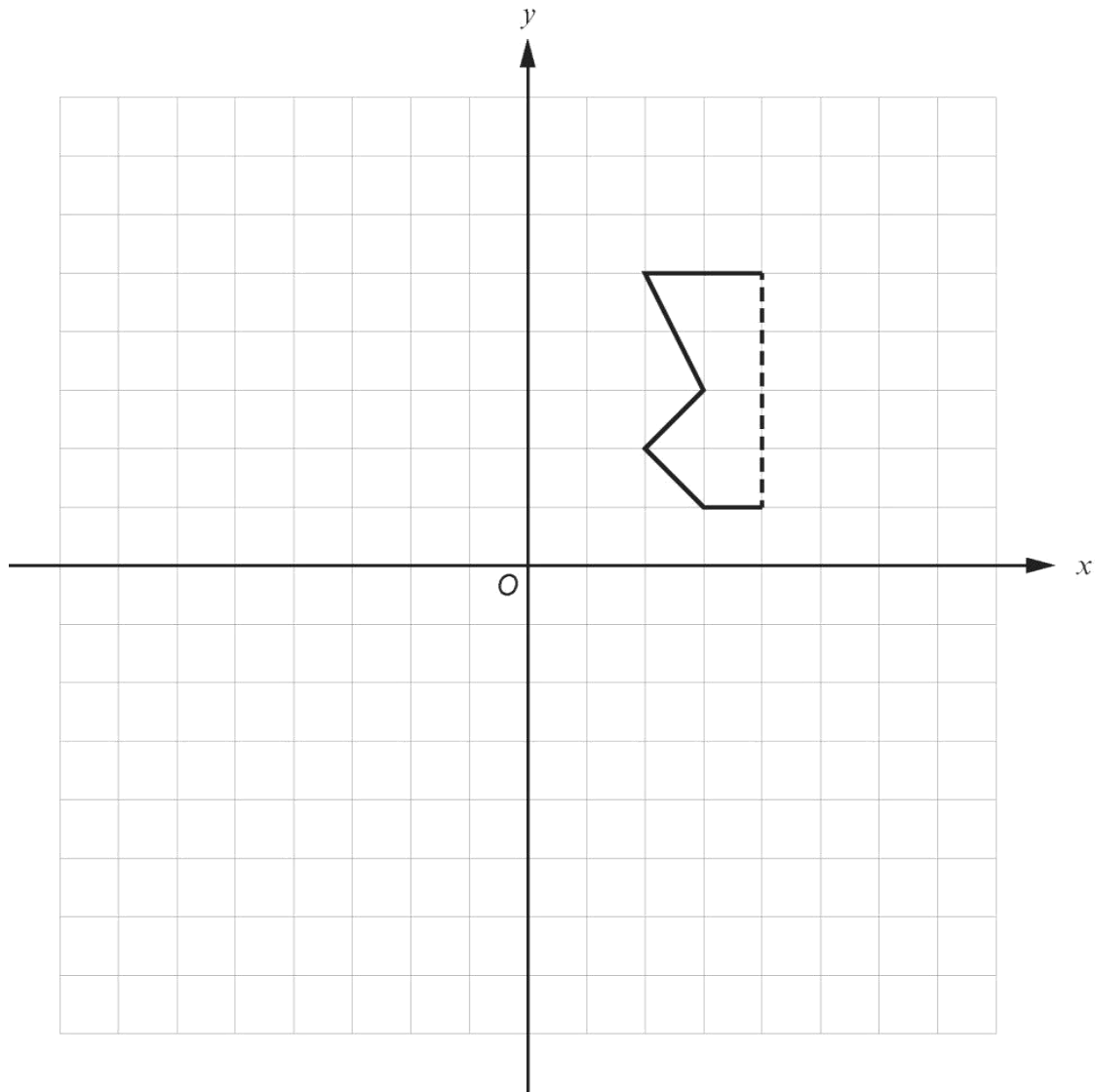
1)



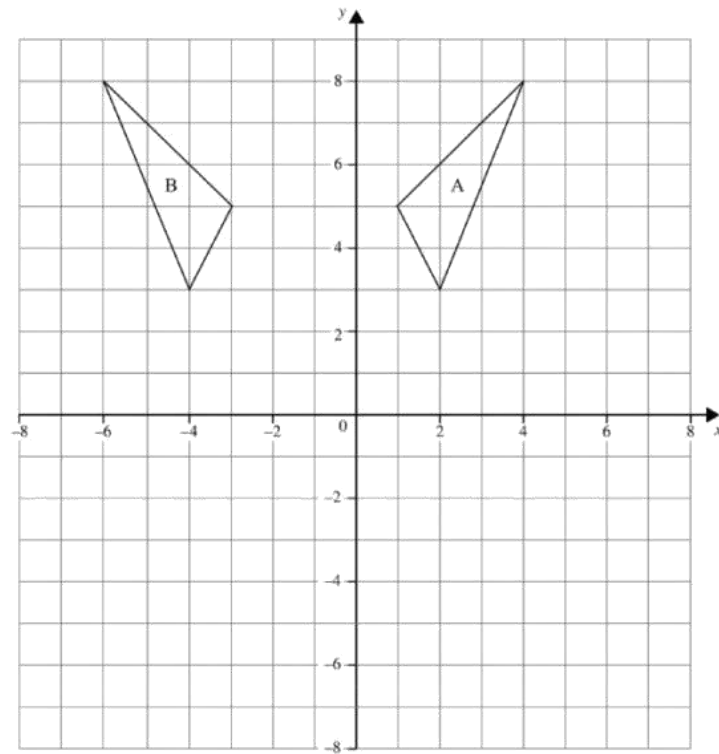
(a) Rotate triangle A 90° clockwise about (0, 2). Label the new triangle B. [2]

(b) Draw the image of A under a translation of $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$. Label the new triangle C. [2]

- 2) Part of a shape is shown on the grid.
 The dotted line is the line of symmetry of the shape.
 Complete the drawing of the shape and then rotate your complete shape through 180°
 about the origin. [3]



3)



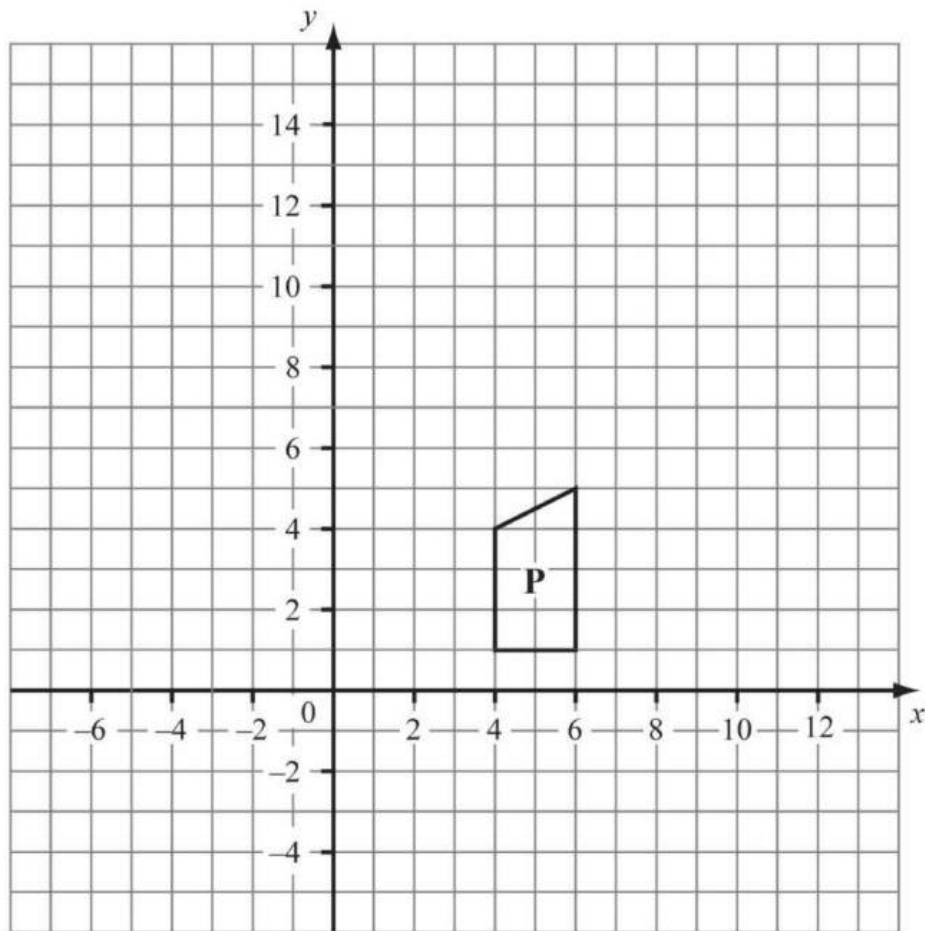
- (a) Describe fully the **single** transformation which maps triangle A to triangle B.

[2]

- (b) Translate triangle A by $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$. Label the new triangle C. [2]

- (c) Rotate triangle A 90° clockwise about the point $(0, 2)$. Label the new triangle D. [2]

4)

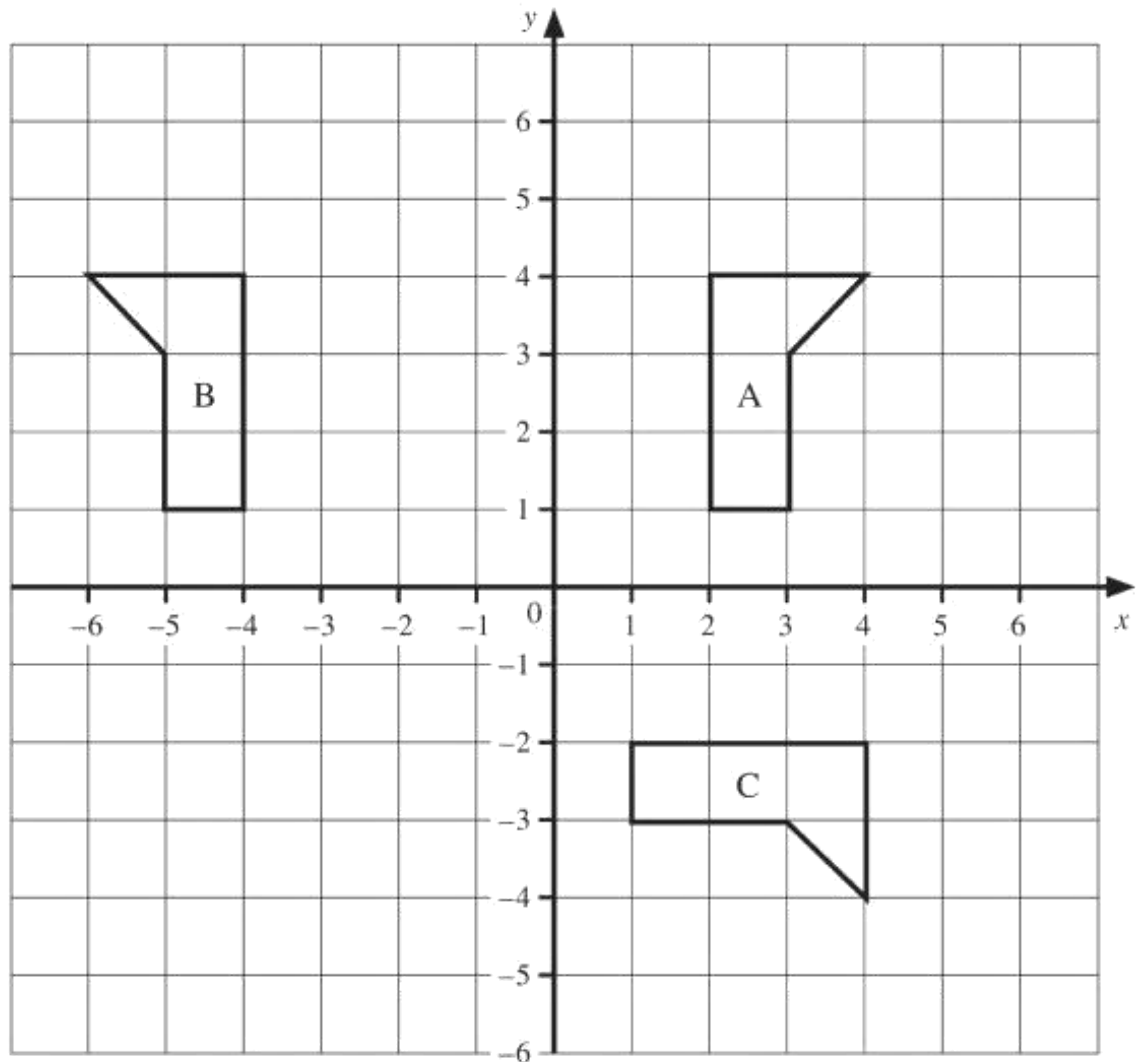


Shape P is shown on the grid.

(a) Reflect P in the y axis. [1]

(b) Draw the image of shape P after a translation $\begin{pmatrix} -3 \\ 5 \end{pmatrix}$. [2]

5)



Describe fully the transformation which maps

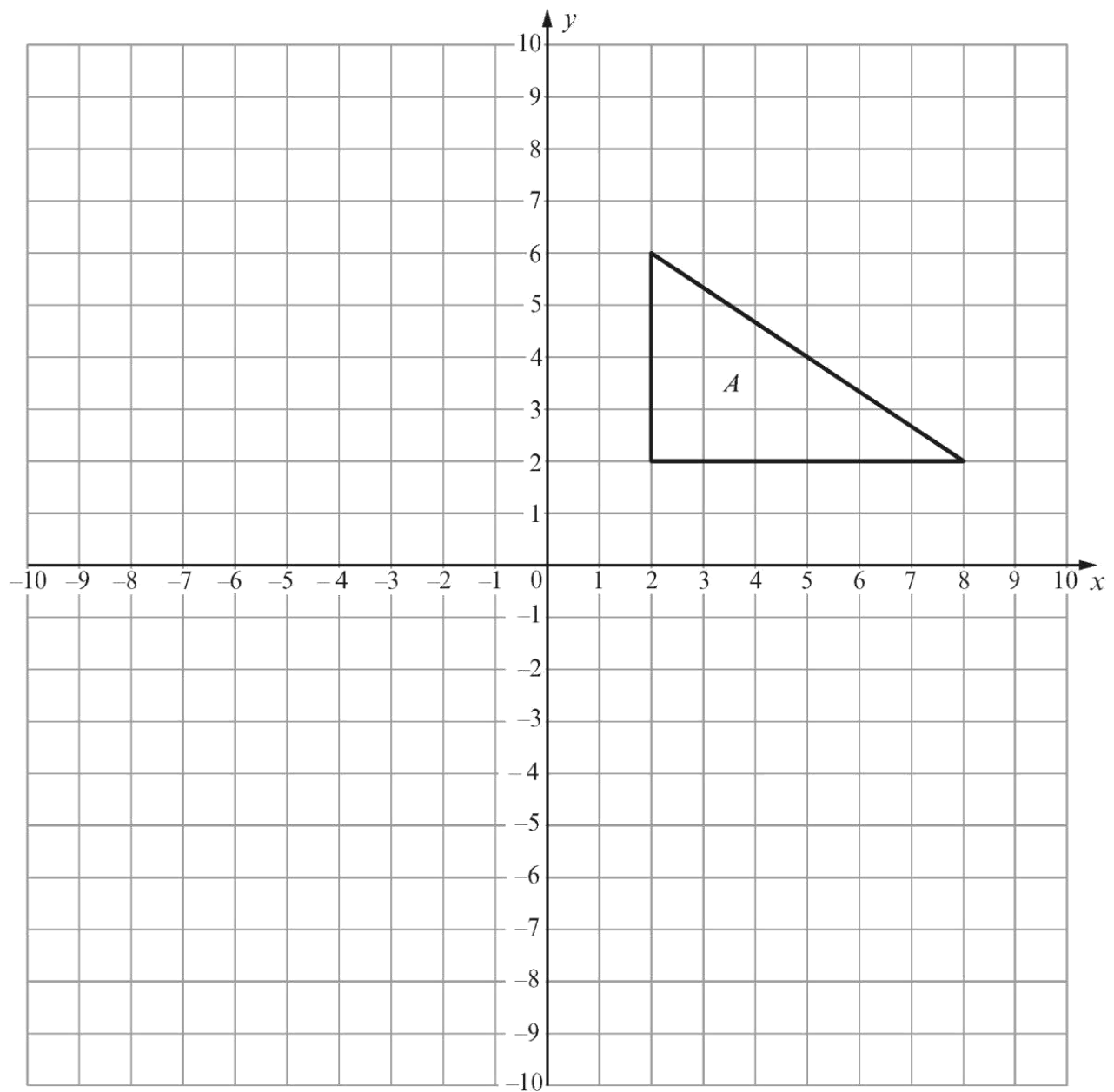
(a) shape A on to shape B,

Answer _____ [2]

(b) shape A on to shape C.

Answer _____
 _____ [3]

- 6) Reflect triangle A in the x -axis and label your answer B .
Then rotate your triangle B by 90° clockwise about the origin.
Label your final answer C .



[4]

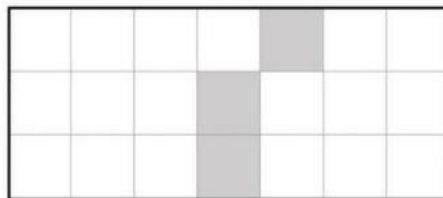
7) (i)



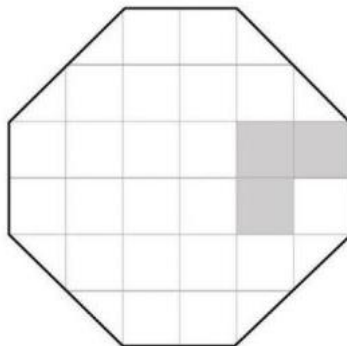
The small rectangle is enlarged to make the bigger one.
What is the scale factor of the enlargement?

Answer _____ [1]

(ii)



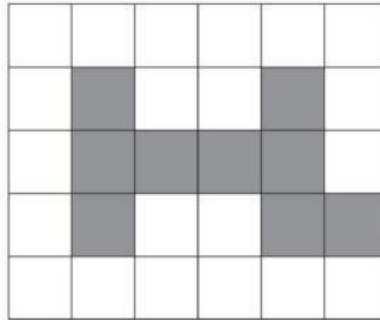
Shade in **one** square to give the shape one line of symmetry. [1]



Shade in **nine** squares to give a shape with order of rotational symmetry 4.

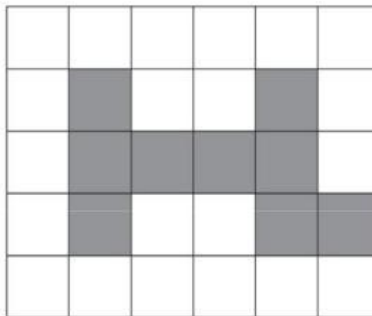
[3]

8) (a)



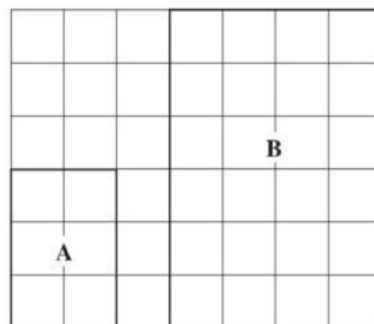
Shade in one square so that the shaded shape has exactly one line of symmetry. [1]

(b)



Shade in one square so that the shaded shape has rotational symmetry of order 2. [1]

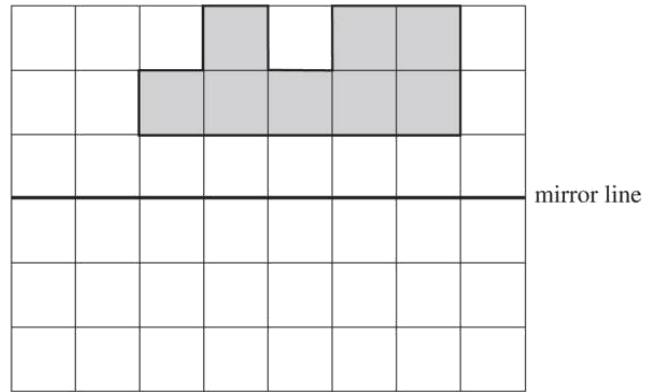
(c)



What is the scale factor of enlargement of shape **A** to shape **B**?

Answer _____ [1]

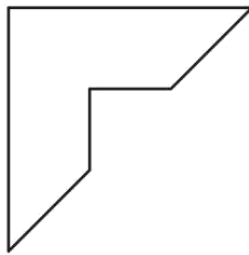
9) (a)



Draw the reflection of the shape in the mirror line.

[3]

(b) Draw the line of symmetry on the shape below.



[1]

(c) Name the 4 sided shape which has rotational symmetry of order 4

Answer _____ [1]