1MA1 Foundation themed papers: Transformations

Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number | Candidate Number

Mathematics

Transformations

Paper Reference **1MA1**

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **22**. There are **10** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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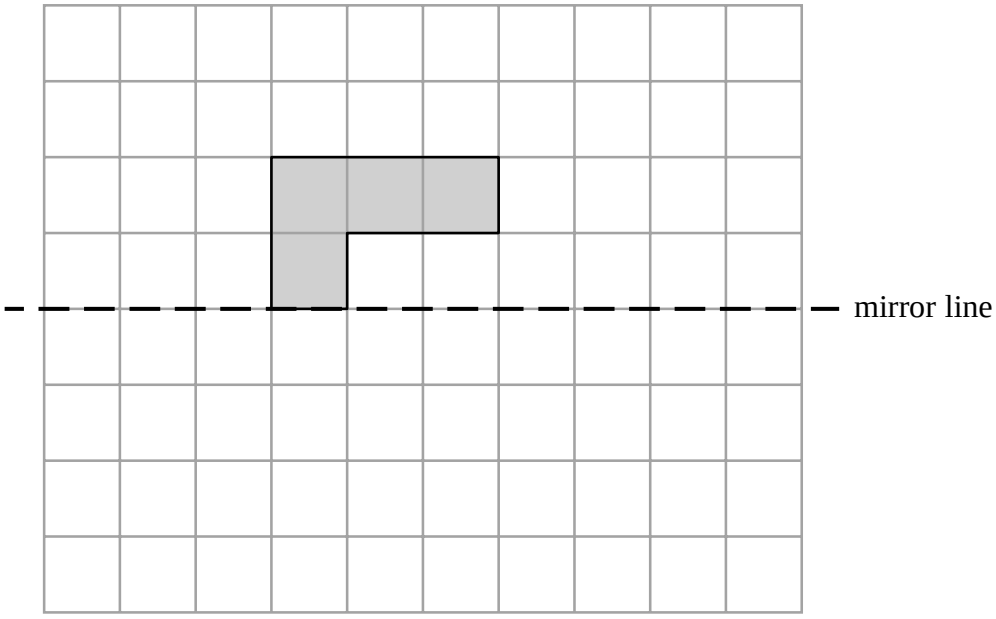
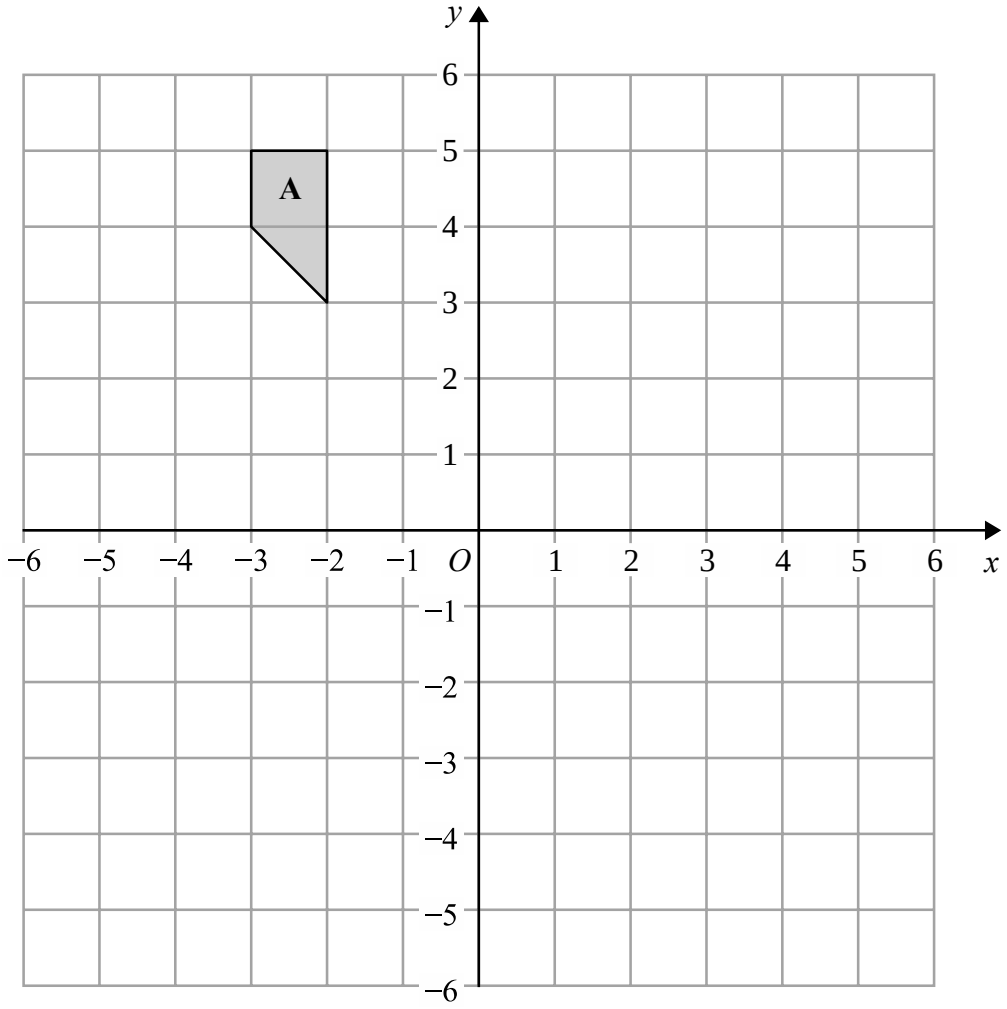
1 On the grid, reflect the shaded shape in the mirror line.



(Total for Question 1 is 1 mark)

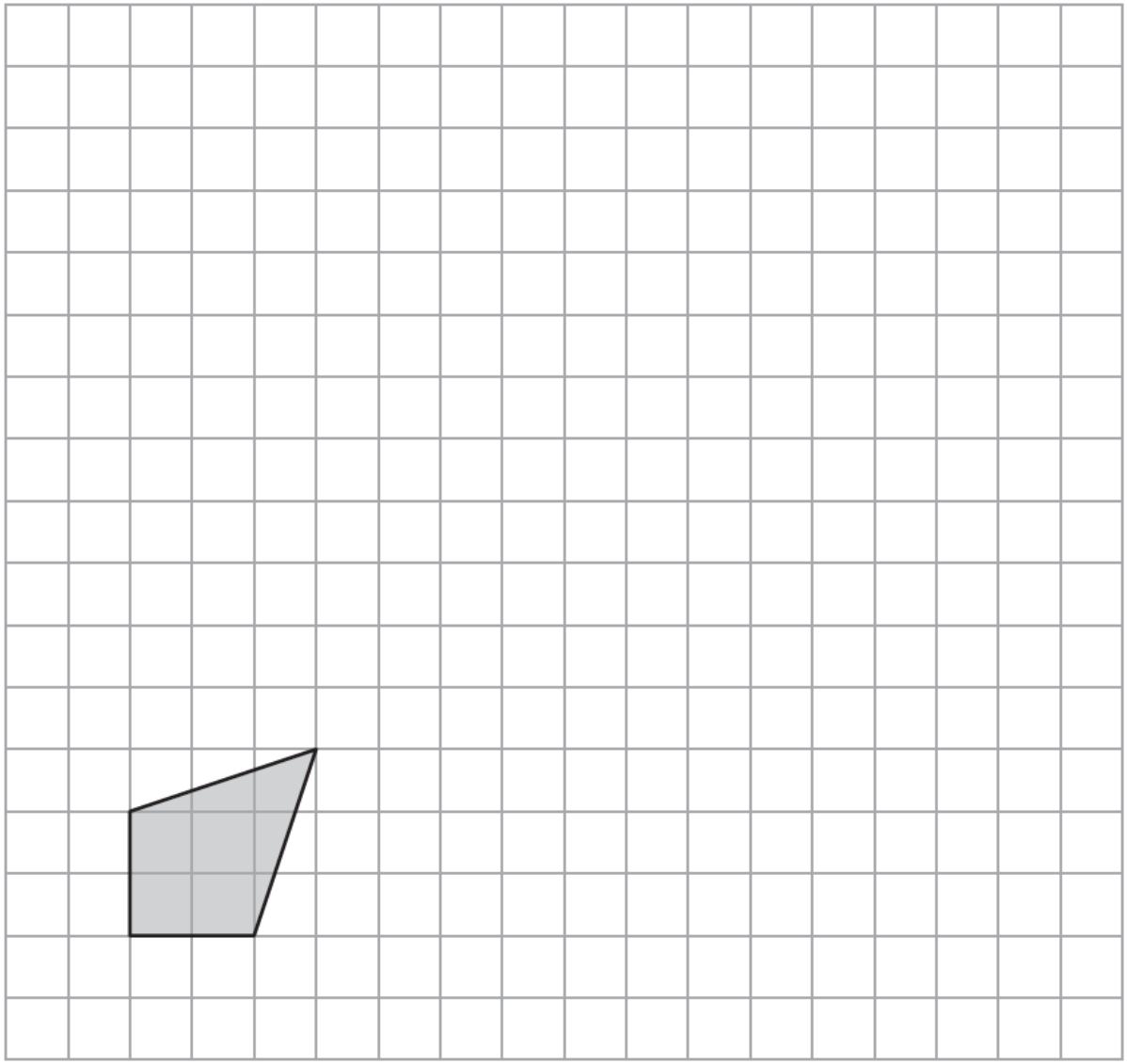
2



Rotate shape **A** 180° about (1, 0)

(Total for Question 2 is 2 marks)

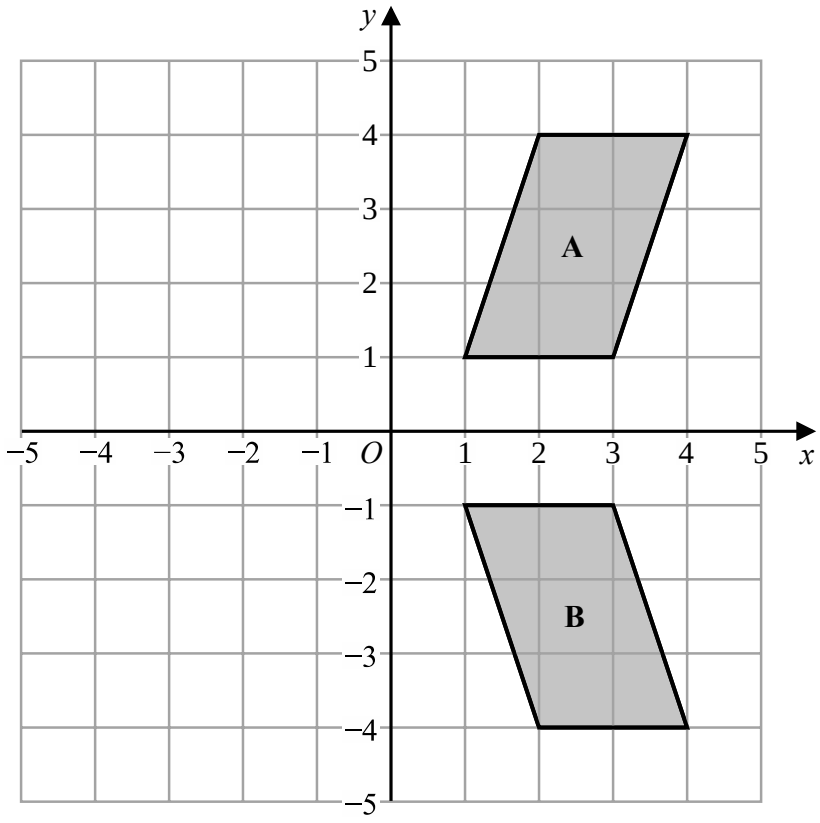
3



On the grid, draw an enlargement of the shaded shape with a scale factor of 3

(Total for Question 3 is 2 marks)

4

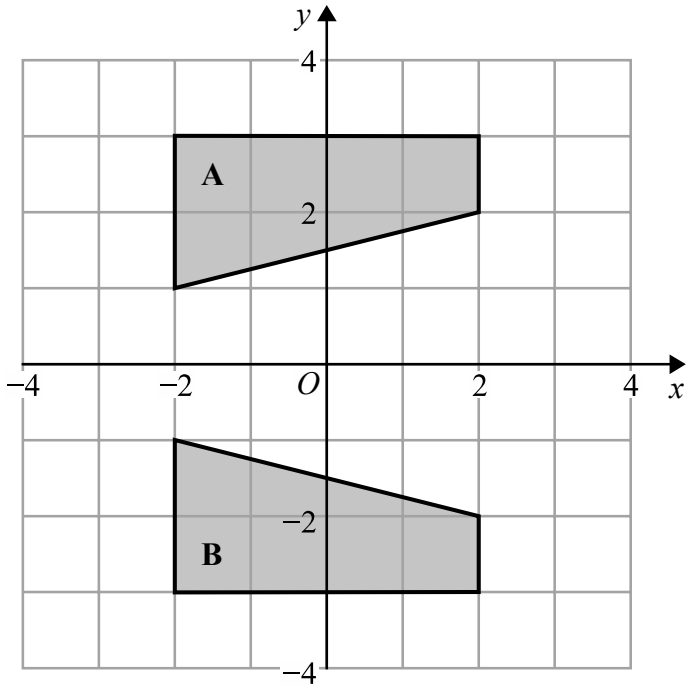


Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

(Total for Question 4 is 2 marks)

5

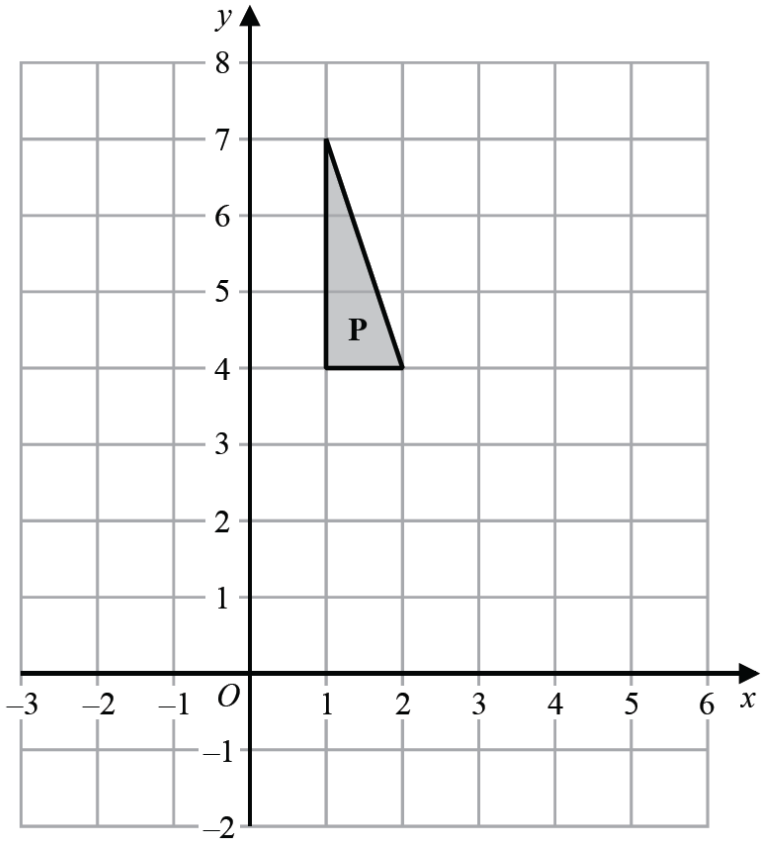


Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

(Total for Question 5 is 2 marks)

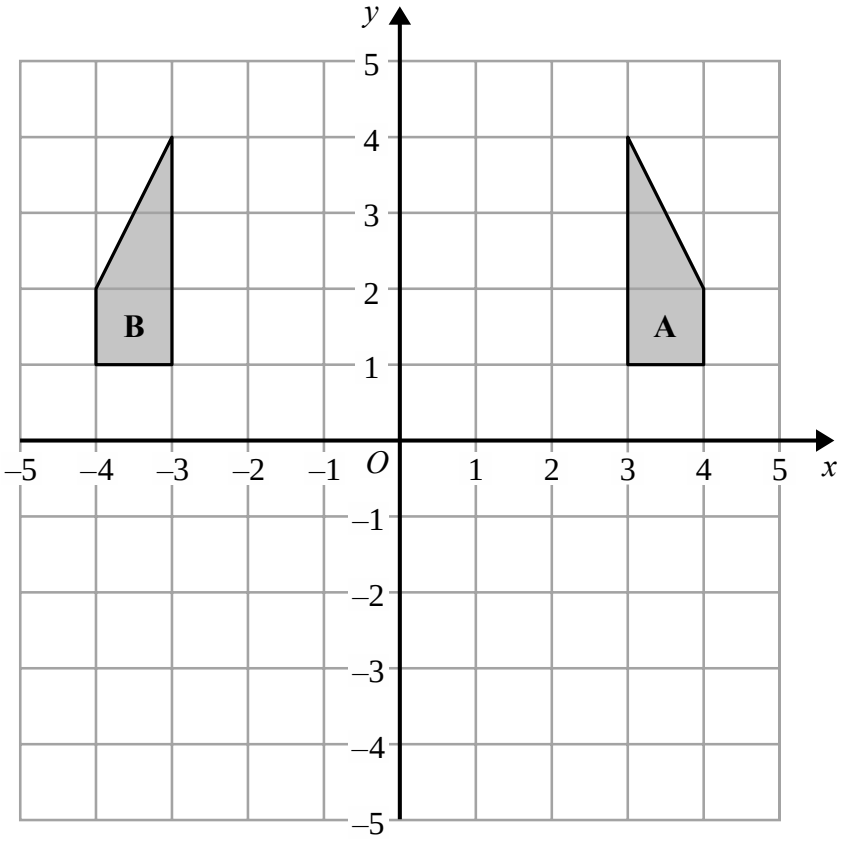
6



Reflect shape **P** in the line $y = 3$

(Total for Question 6 is 2 marks)

7



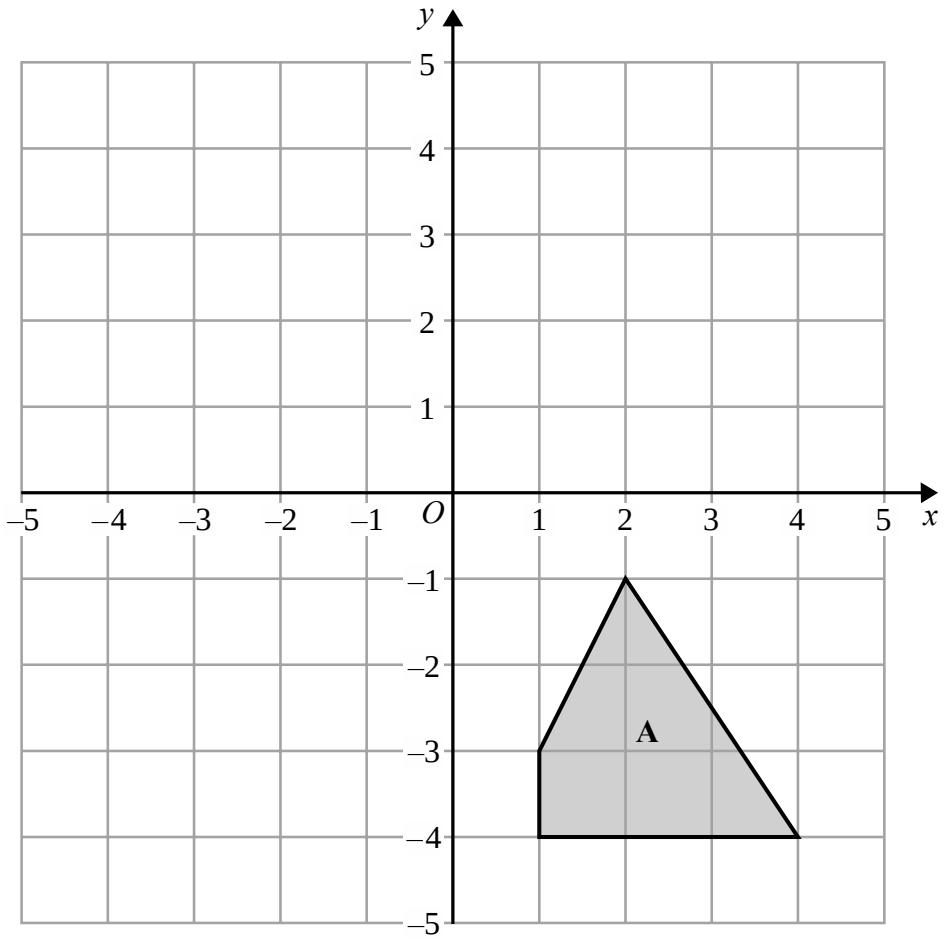
Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

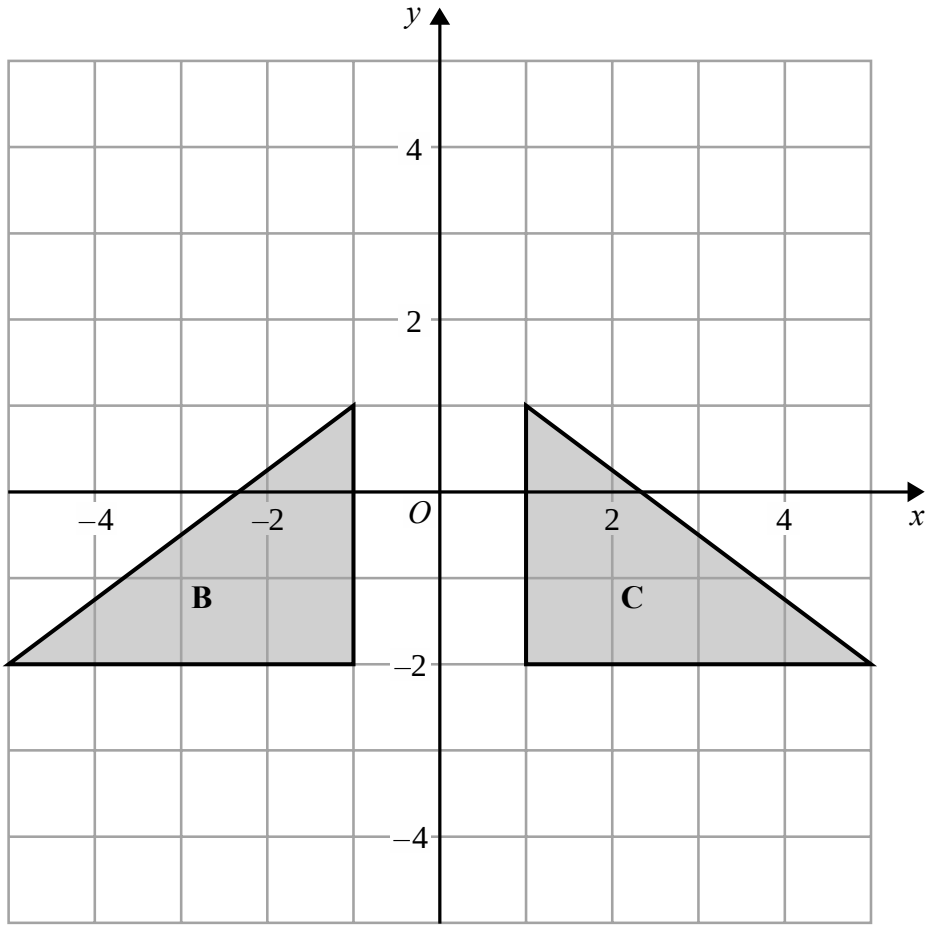
.....

(**Total for Question 8 is 2 marks**)

8



(*a*) Rotate shape **A** 90° clockwise about centre *O*.



(2)

(*b*) Describe fully the single transformation that maps triangle **B** onto triangle **C**.

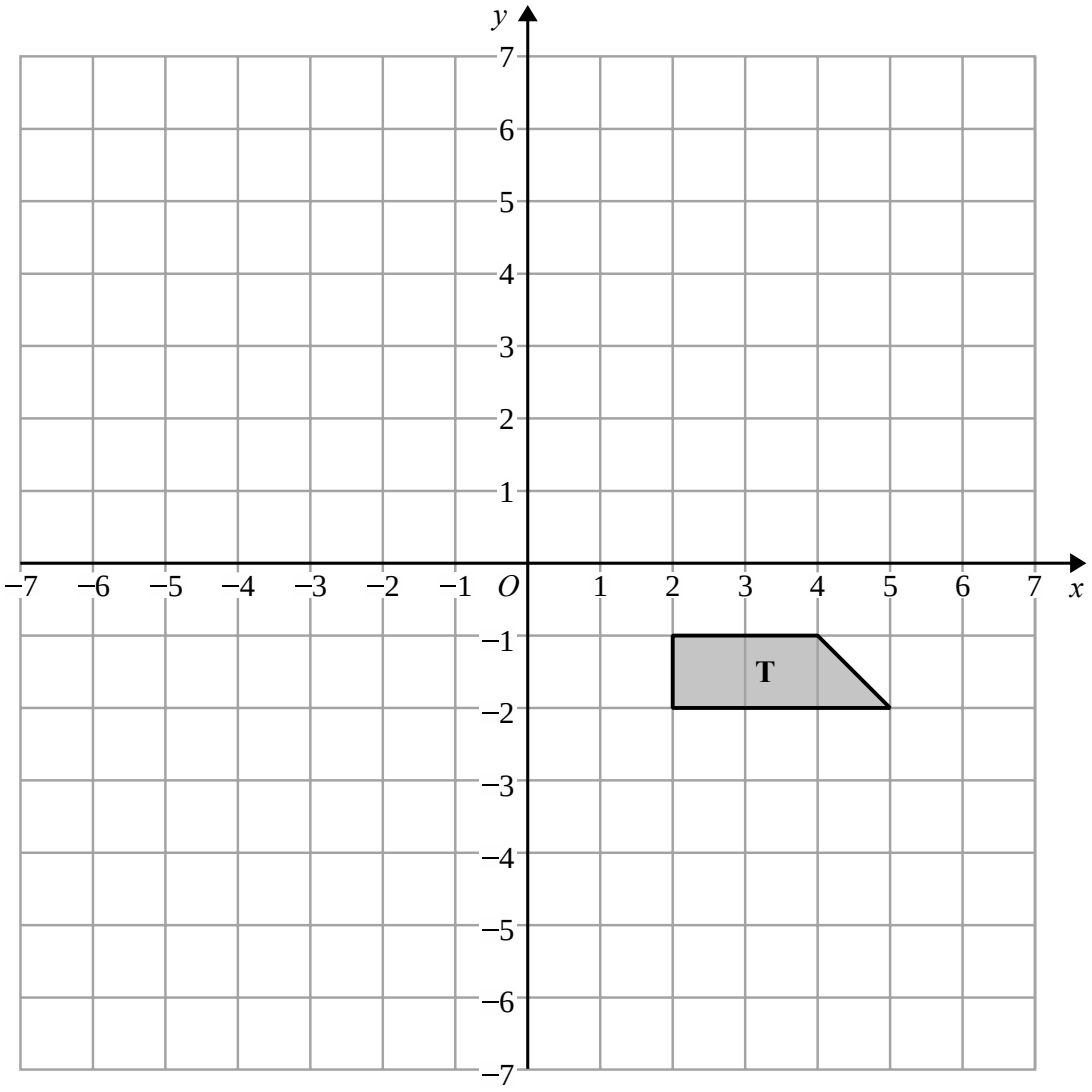
.....

.....

(2)

(Total for Question 7 is 4 marks)

9



(*a*) Rotate trapezium **T** 180° about the origin.
Label the new trapezium **A**.

(1)

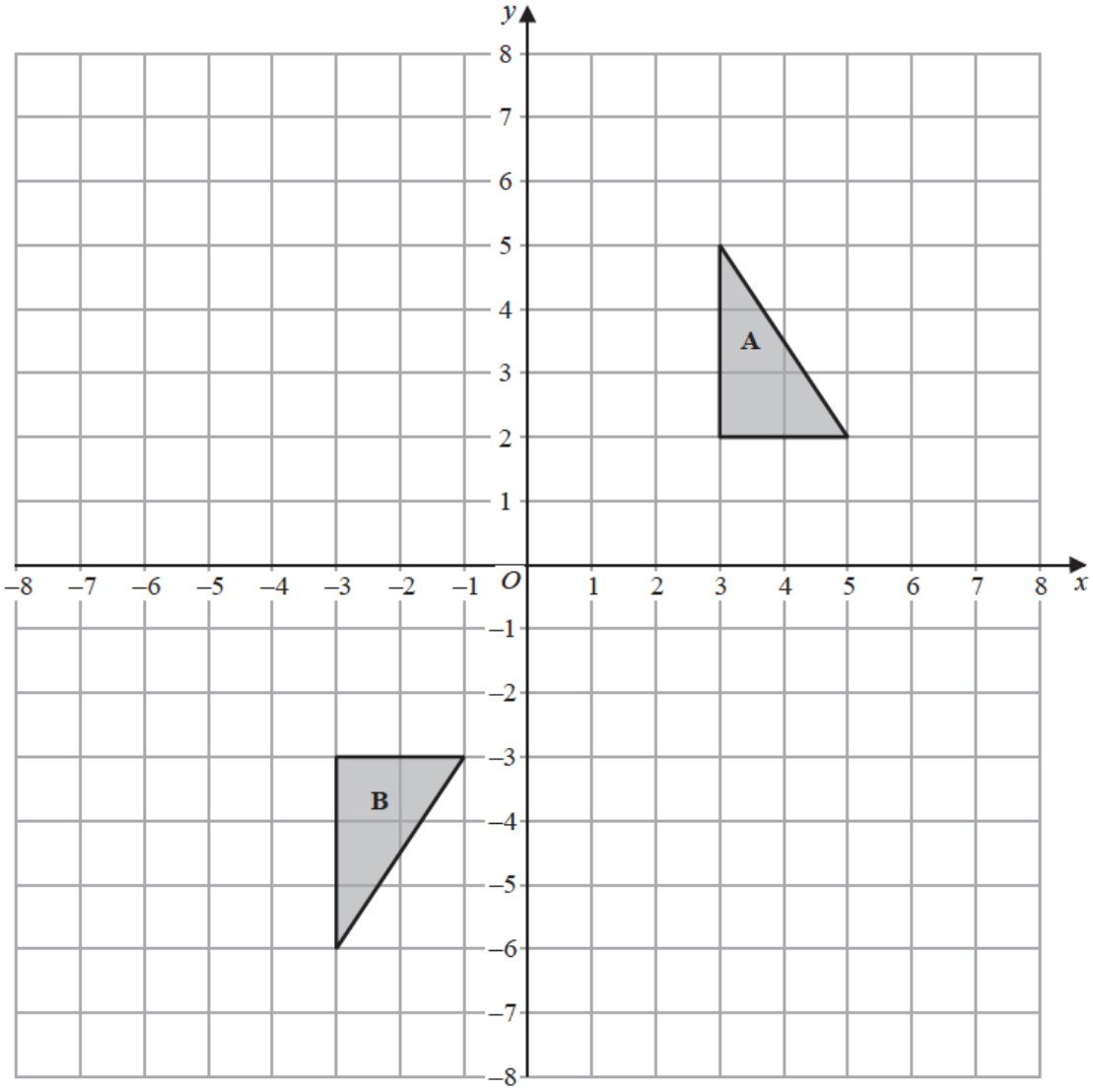
(*b*) Translate trapezium **T** by the vector $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$

Label the new trapezium **B**.

(1)

(Total for Question 9 is 2 marks)

10



Shape **A** can be transformed to shape **B** by a reflection in the *x*-axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of *c* and the value of *d*.

c = ...

d = ...

(Total for Question 10 is 3 marks)

TOTAL MARKS FOR PAPER: 22