

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Geometry

Transformations - Reflection

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

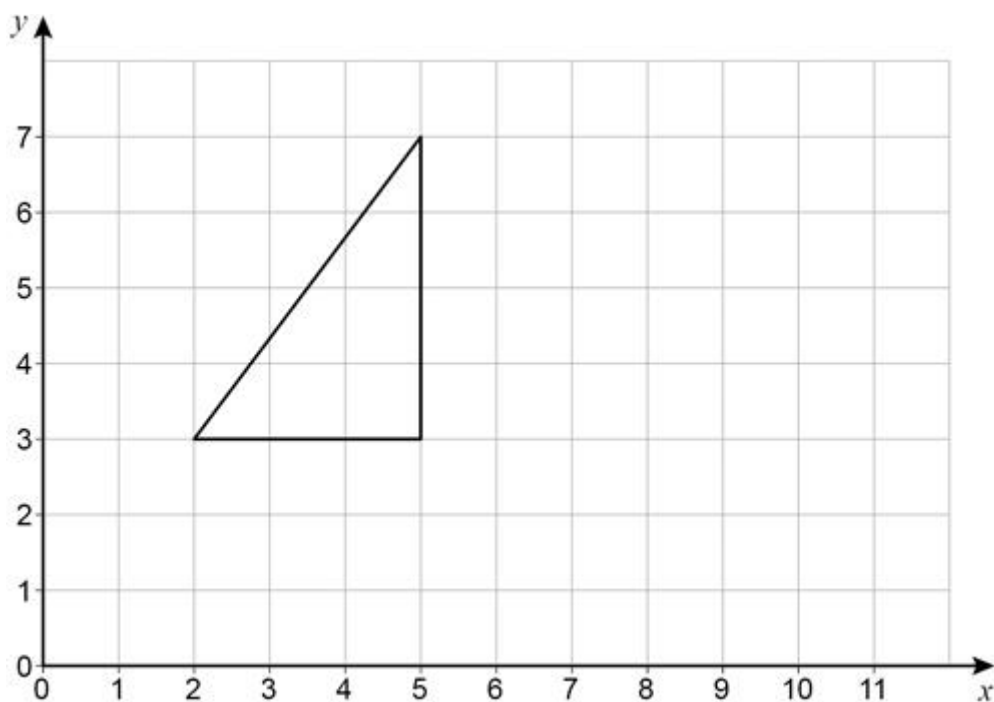
- In all calculations, show clearly how you work out your answer

For questions 1 and 2, you must **NOT** use a calculator.



Q1.

Here is a triangle on a grid.



The triangle is reflected in a vertical line.

Two of the vertices of the reflected triangle are at $(7, 3)$ and $(7, 7)$

(a) What are the coordinates of the other vertex of the reflected triangle?

(1)

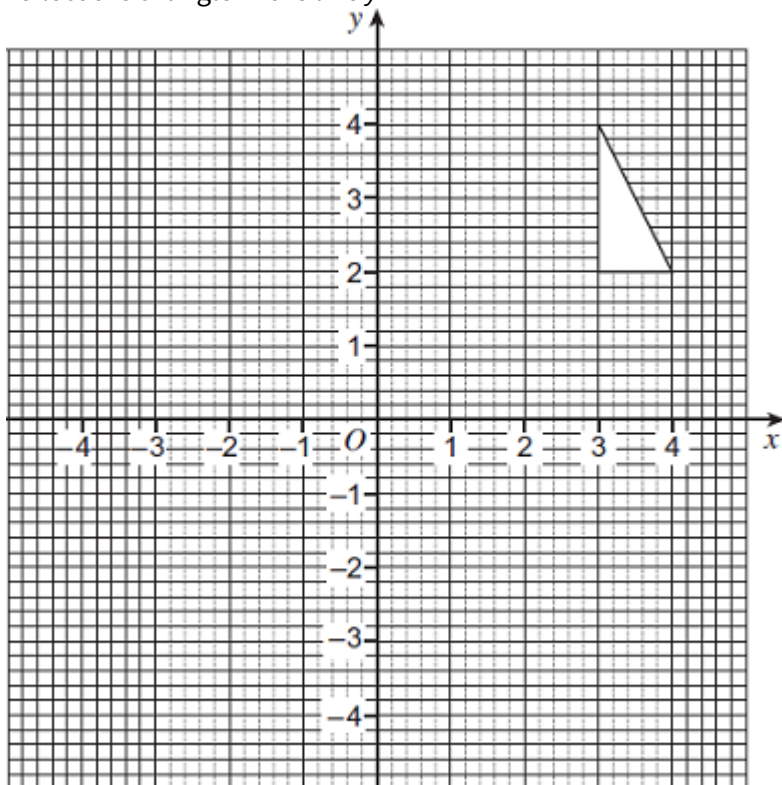
(b) What is the equation of the line of reflection?

(1)

(Total 2 marks)

Q2.

Reflect the triangle in the line $y = 2$



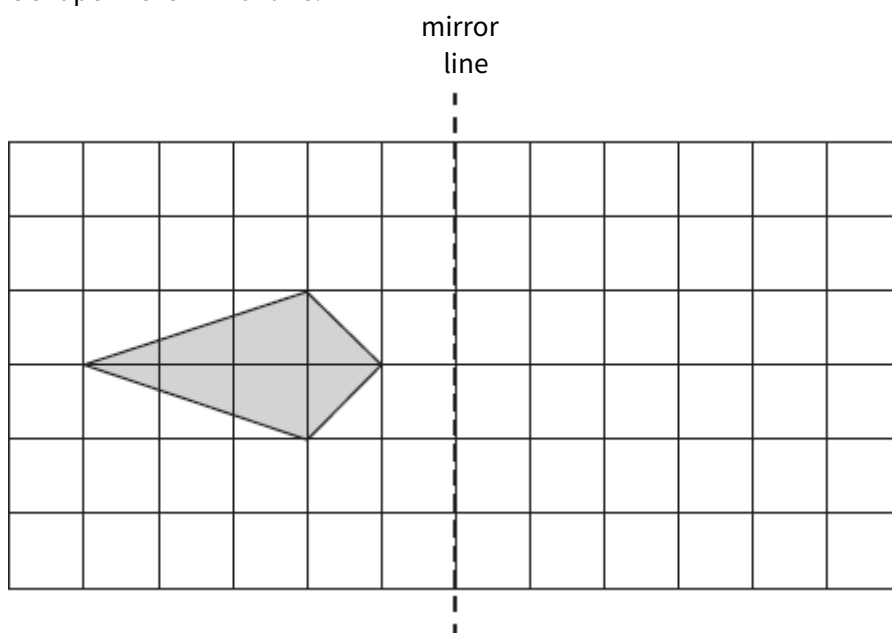
(Total 2 marks)

For questions 3 to 6, you may use a calculator.



Q3.

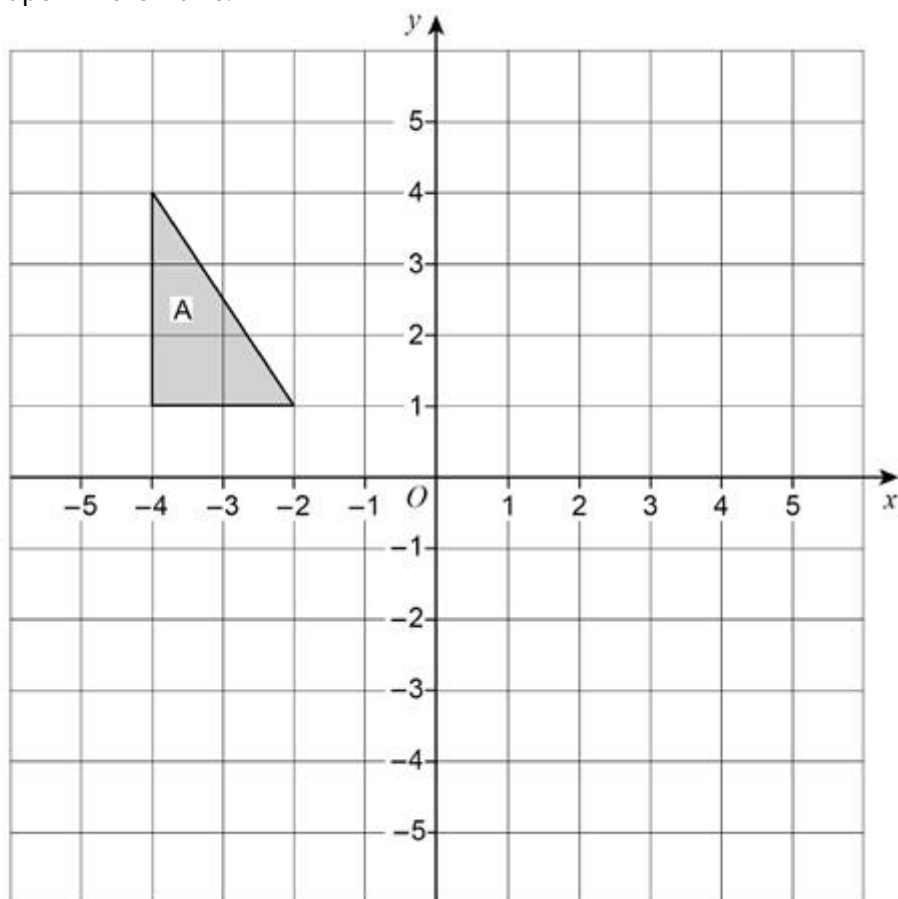
Reflect the shape in the mirror line.



(Total 2 marks)

Q4.

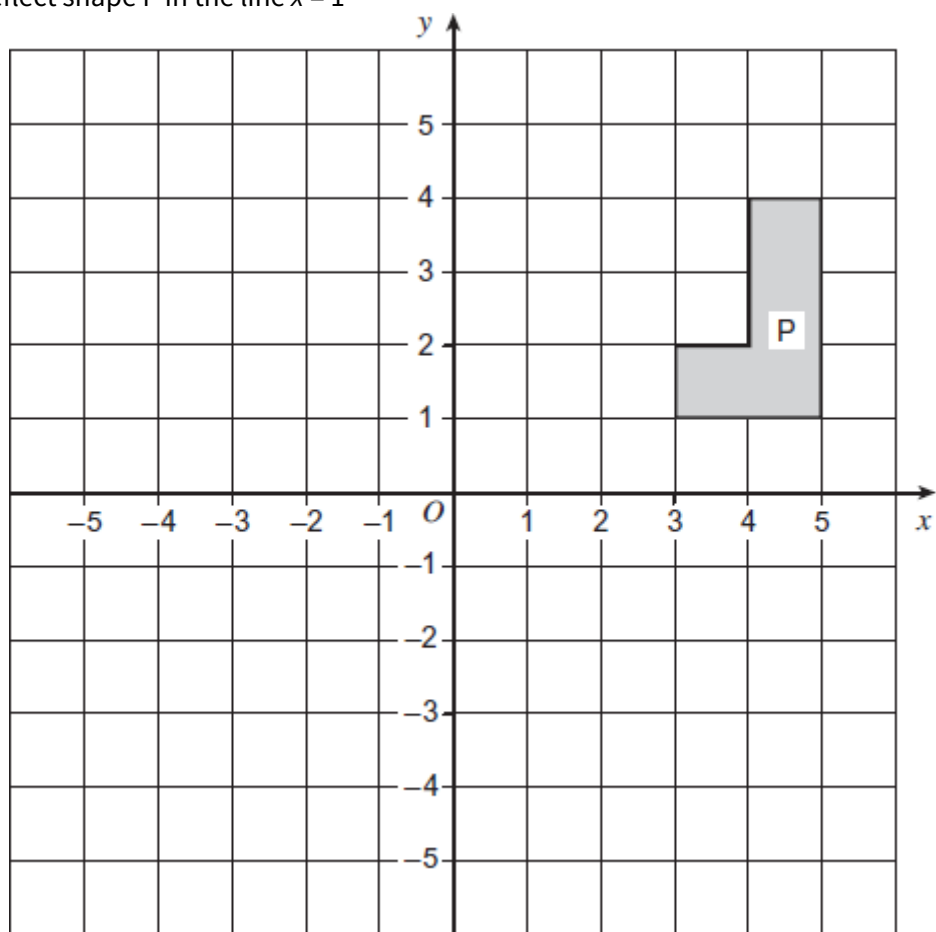
Reflect shape A in the x-axis.



(Total 2 marks)

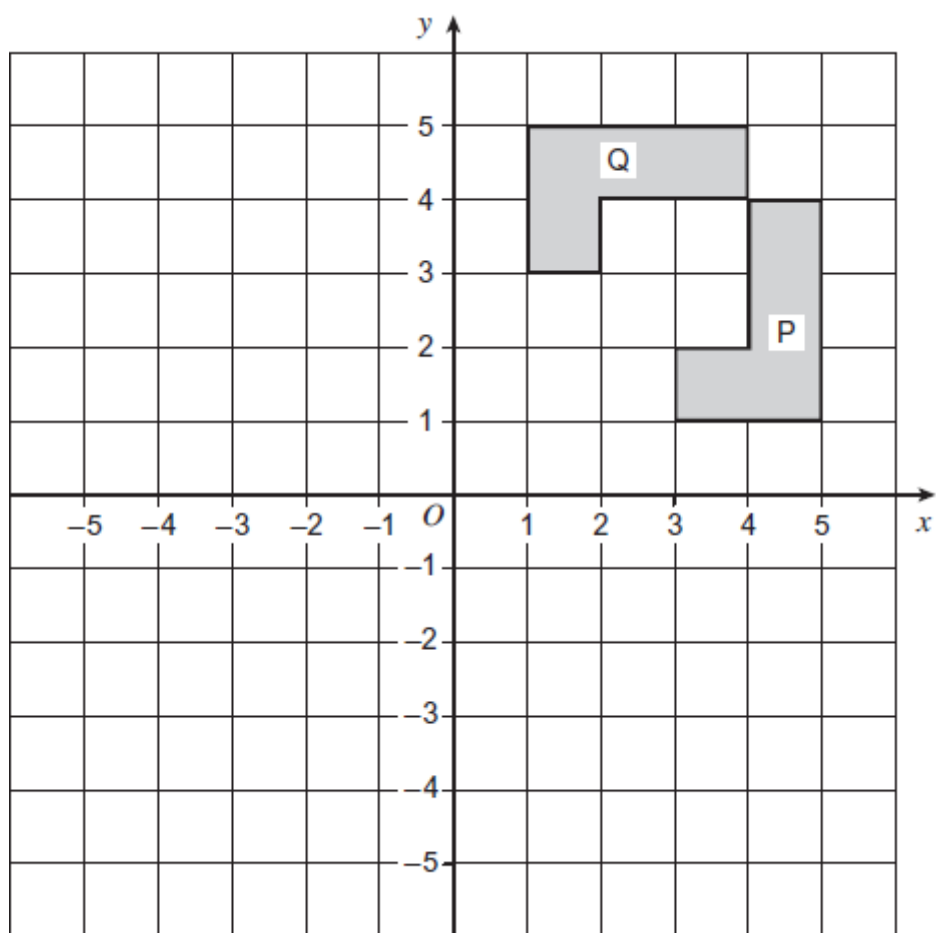
Q5.

(a) Reflect shape P in the line $x = 1$



(2)

(b)

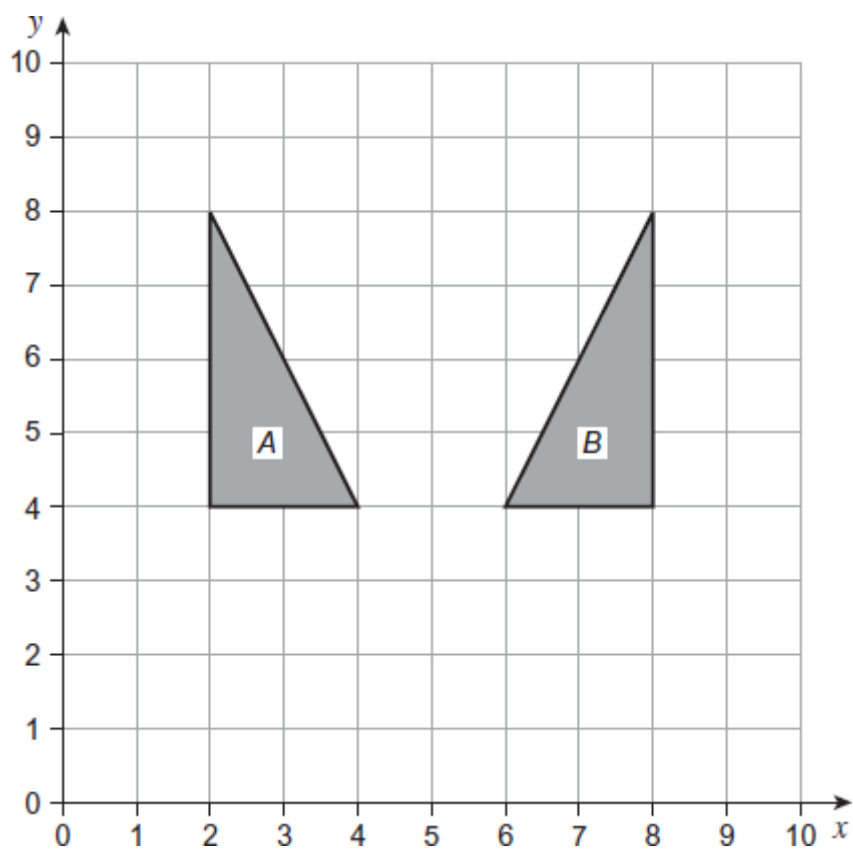


Describe the **single** transformation that takes shape P to shape Q.

(2)

(Total 4 marks)

Q6.



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

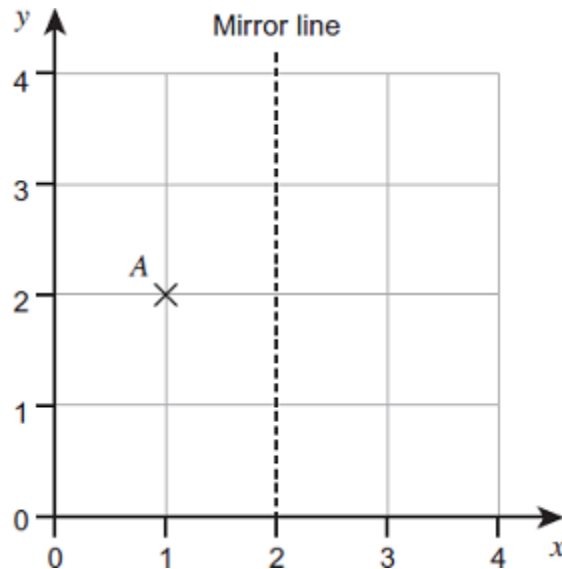
(Total 2 marks)

Transformations – Reflection – Cross topic questions

For questions 7 and 8, you must **NOT** use a calculator.



Q7.



- (a) Write down the coordinates of A.

(1)

- (b) Circle the equation of the mirror line.

$y = 2$ $x + y = 2$ $x = 2$ $y = x + 2$

(1)

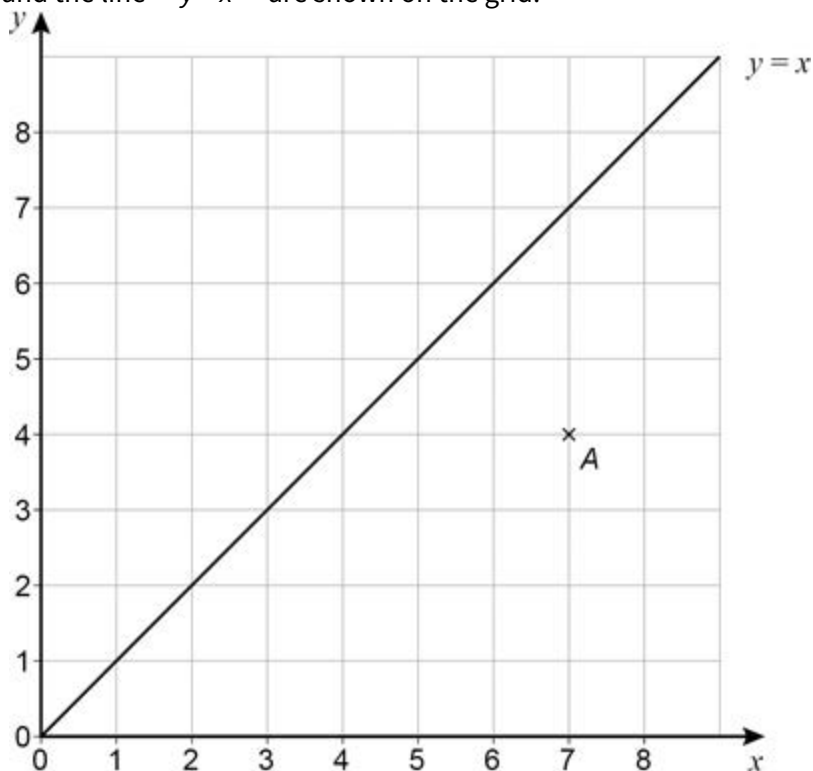
- (c) The point A is **reflected** in the mirror line.
Work out the coordinates of the reflected point.

(1)

(Total 3 marks)

Q8.(H)

Point $A(7, 4)$ and the line $y = x$ are shown on the grid.



B and C are points on the grid, each having positive **integer** coordinates.

BAC is a right-angled triangle.

When BAC is reflected in the line $y = x$ side BC is invariant.

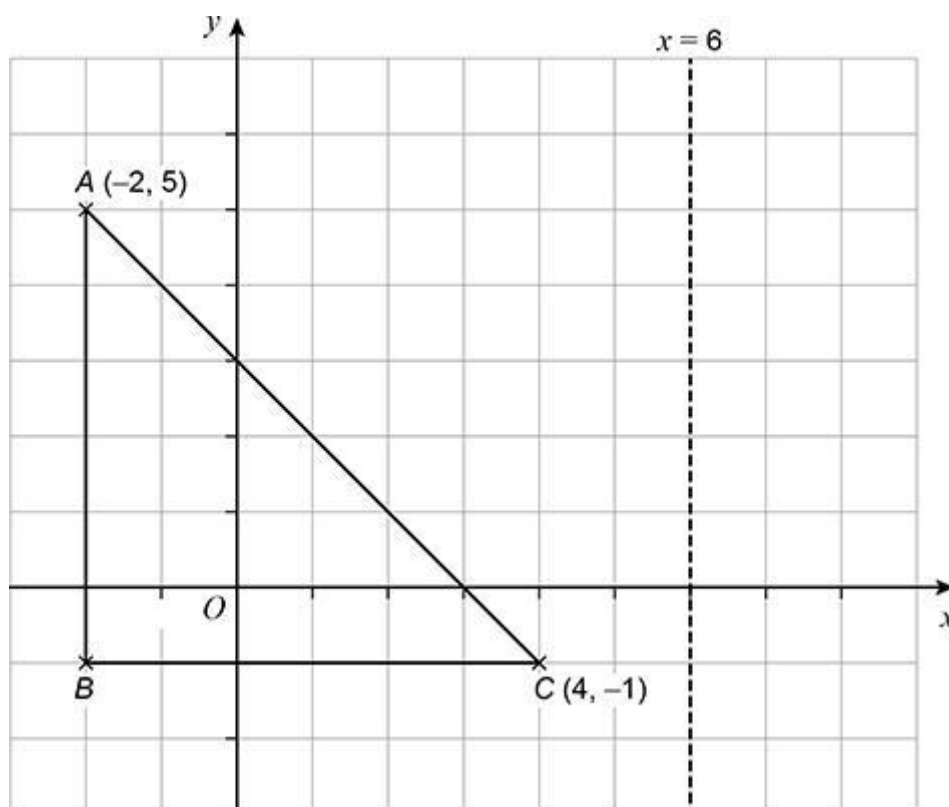
Work out **one** possible set of coordinates for B and C .

(Total 1 mark)

For the rest of the questions, you may use a calculator.



Q9.



(a) Work out the coordinates of *B*.

(1)

(b) Point *C* is reflected in the line $x = 6$ to point *D*.
Work out the coordinates of *D*.

(1)

(Total 2 marks)

Q10.(H)

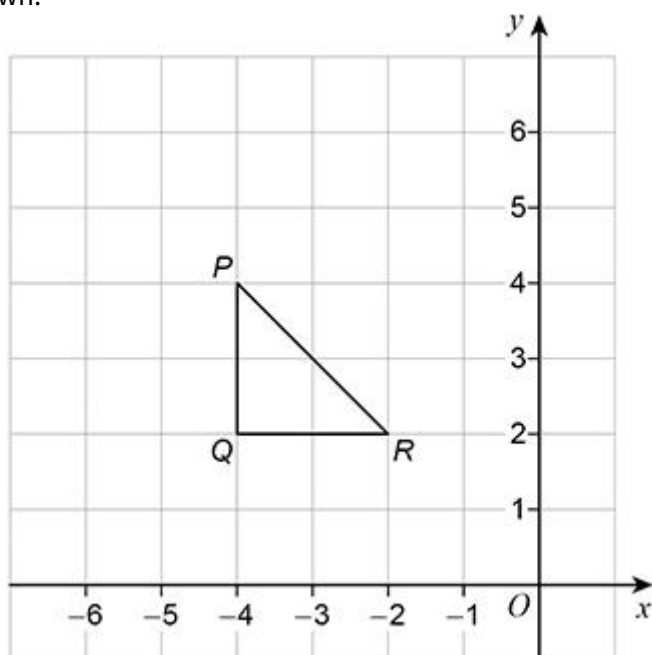
Quadrilateral *ABCD* is reflected in edge *BC*.
How many of the vertices are invariant?
Circle your answer.

1 2 0 4

(Total 1 mark)

Q11.(H)

Triangle PQR is shown.



When PQR is reflected in a line, P **and** R are invariant points.
Circle the equation of the line.

$y = x + 6$

$y = -x$

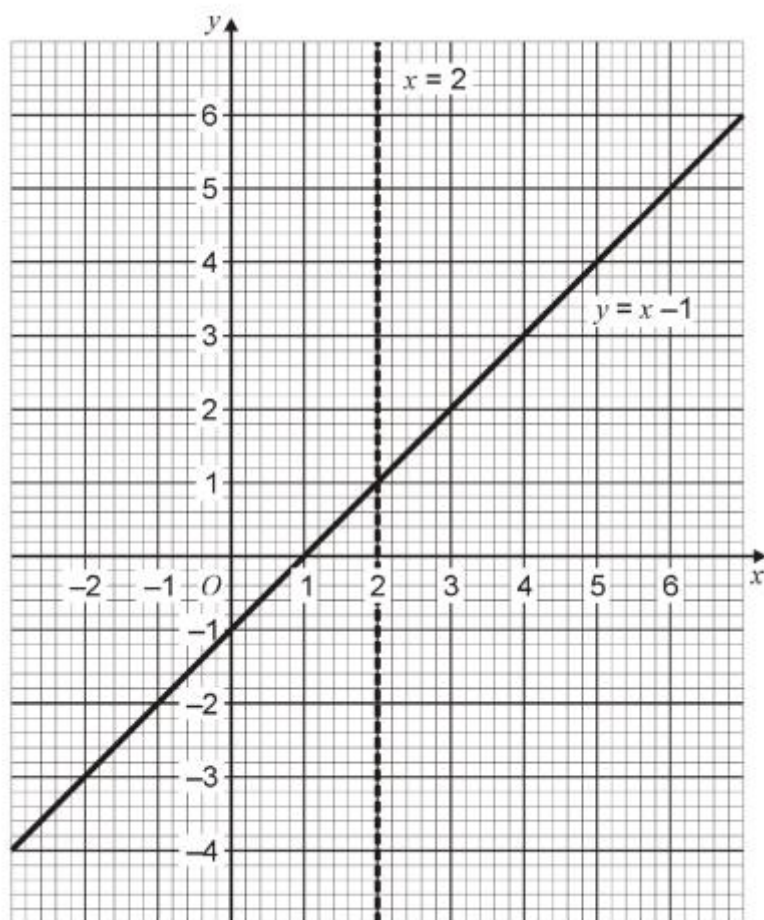
$y = 2$

$x = -4$

(Total 1 mark)

Q12.(H)

- (a) Lines $y = x - 1$ and $x = 2$ are shown on the grid.



Draw the reflection of line $y = x - 1$ in the line $x = 2$

(1)

- (b) Work out the equation of the reflected line.

(2)

(Total 3 marks)