Name:_____

GCSE (1 - 9) Invariant Points	Solutions:

These questions are compiled from released Pearson Edexcel GCSE maths exam papers

They contain exam questions from up until the ***November 2023*** exam series

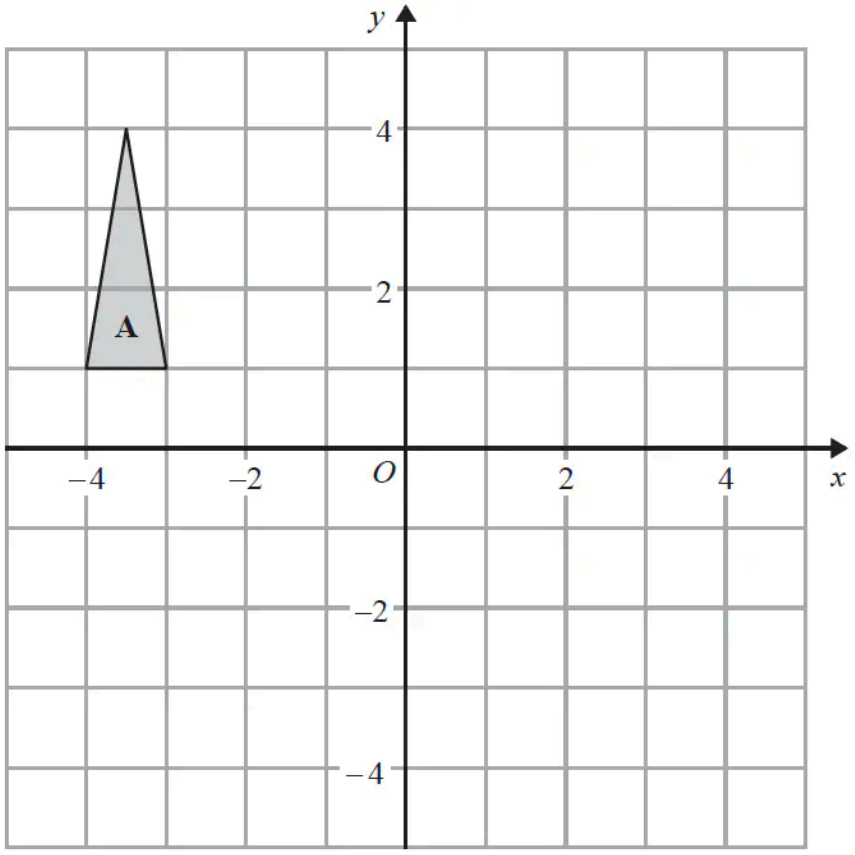
More recent exam papers do exist but are withheld for mock exams

As new exam papers are released these worksheets will gradually be updated

The **most current** version of these worksheets will always be available at: kennethstafford.co.uk

Past Papers:	**Similar Worksheets:**
Solutions:	**This worksheet:**

1



Triangle **A** is transformed by the combined transformation of a rotation of 180° about the point (−2, 0) followed by a translation with vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

One point on triangle **A** is invariant under the combined transformation.

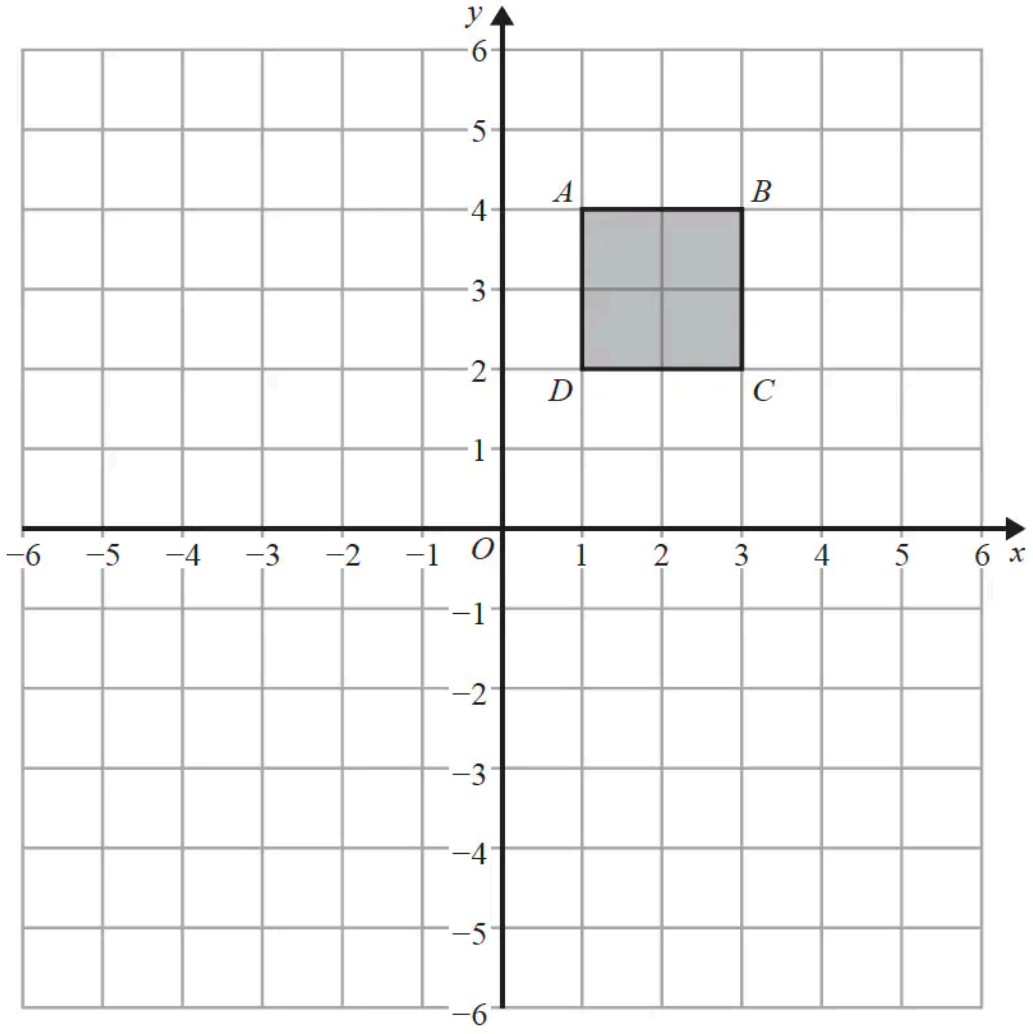
Find the coordinates of this point.

(..... , ...)

(Total for Question 20 is 2 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3H, Q20]

2



Square $ABCD$ is transformed by a combined transformation of a reflection in the line $x = -1$ followed by a rotation.

Under the combined transformation, two vertices of the square $ABCD$ are invariant.

Describe fully one possible rotation.

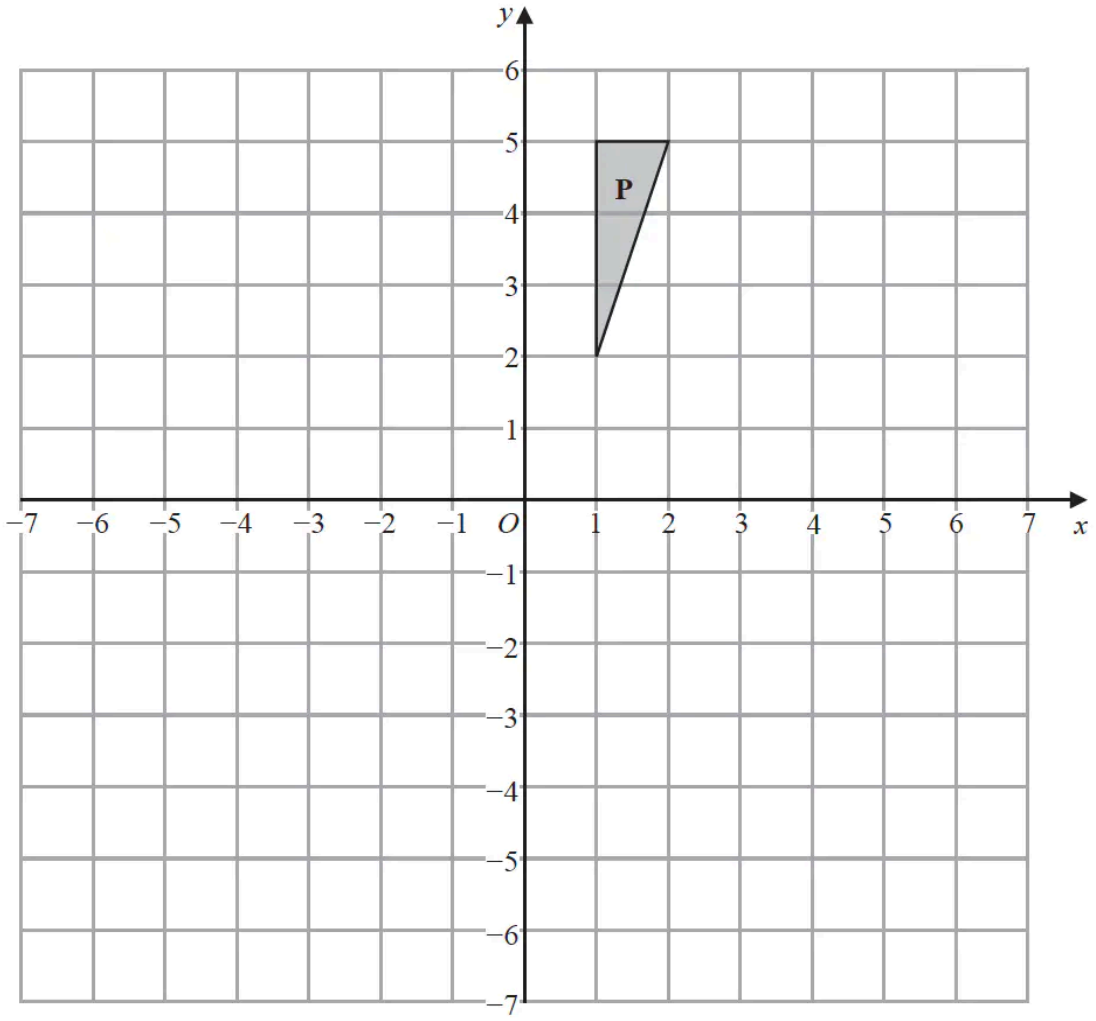
.....

(Total for Question 24 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 2H, Q24]

3

The diagram shows a triangle **P** on a grid.



Triangle **P** is rotated 180° about (0, 0) to give triangle **Q**.

Triangle **Q** is translated by $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$ to give triangle **R**.

(a) Describe fully the single transformation that maps triangle **P** onto triangle **R**.

.....

.....

(3)

Under the transformation that maps triangle **P** onto triangle **R**, the point A is invariant.

(b) Write down the coordinates of point A.

(..... , ...)

(1)

(Total for Question 11 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3H, Q11]