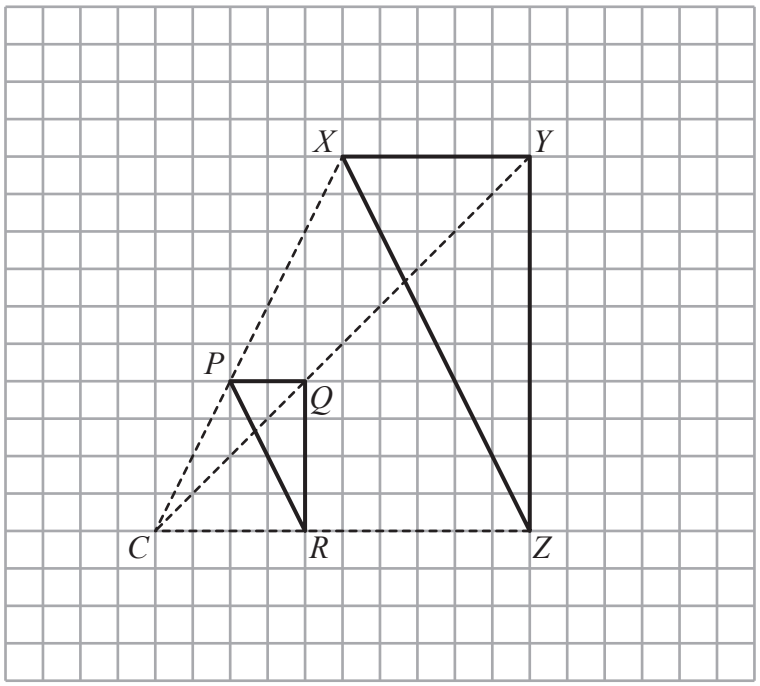

Roy is going to enlarge triangle PQR with centre C and scale factor $1\frac{1}{2}$

He draws triangle XYZ.

(b) Explain why Roy's diagram is **not** correct.

.....

.....

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(1)

(Total for Question 8 is 2 marks)

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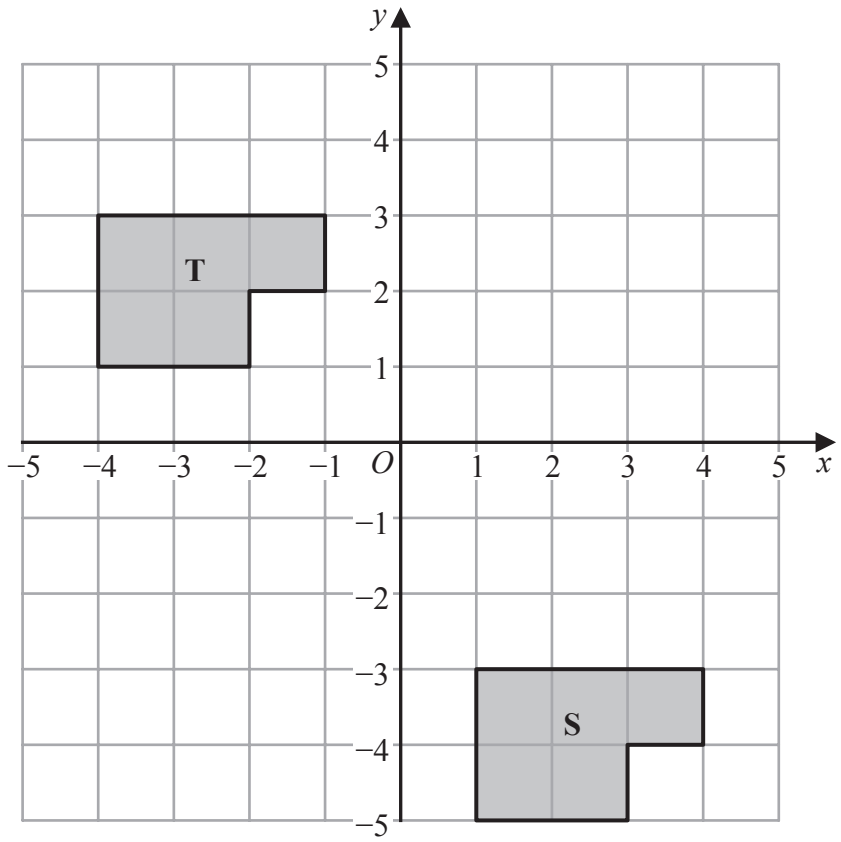
2

PE2A



Describe fully the single transformation that maps shape **S** onto shape **T**.

.....

.....

.....

(Total for Question 2 is 2 marks)

3 The length of a football pitch is 90 metres, correct to the nearest metre.

Complete the error interval for the length of the football pitch.

PE3A

..... m ⩽ length < ..... m

(Total for Question 3 is 2 marks)

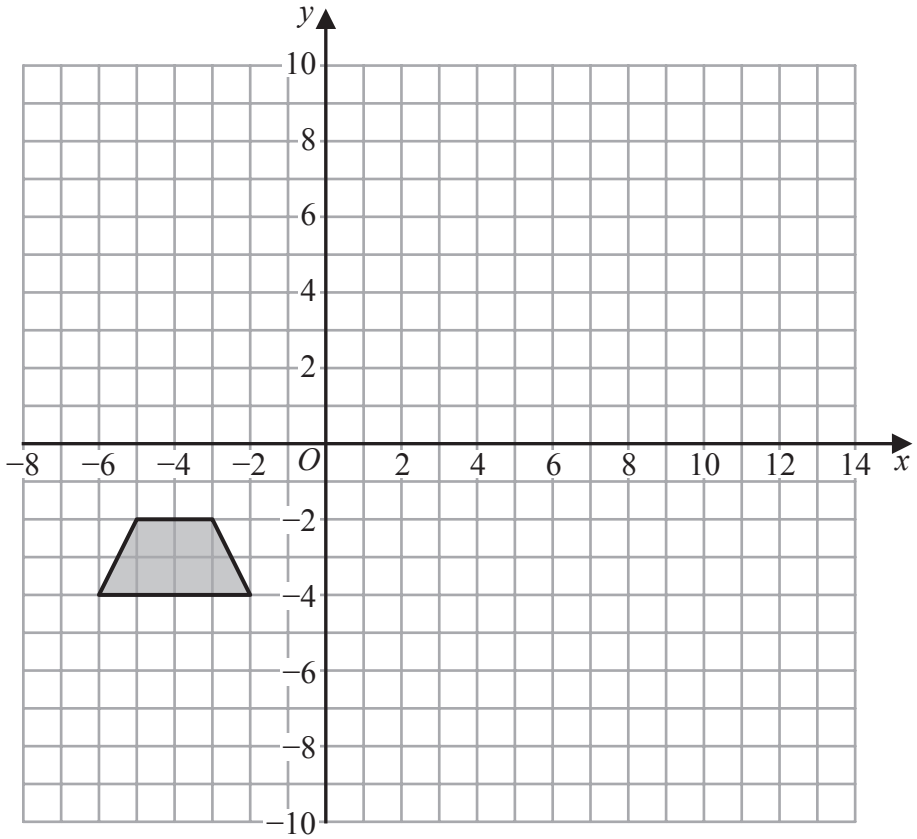
12 The equation of the line $\mathbf{L}_1$ is $y = 2x + 3$
The equation of the line $\mathbf{L}_2$ is $5y - 10x + 4 = 0$

Show that these two lines are parallel.

PE12A

(Total for Question 12 is 2 marks)

13



PE13A

Enlarge the shaded shape by scale factor −2 with centre of enlargement (0, 0)

(Total for Question 13 is 2 marks)

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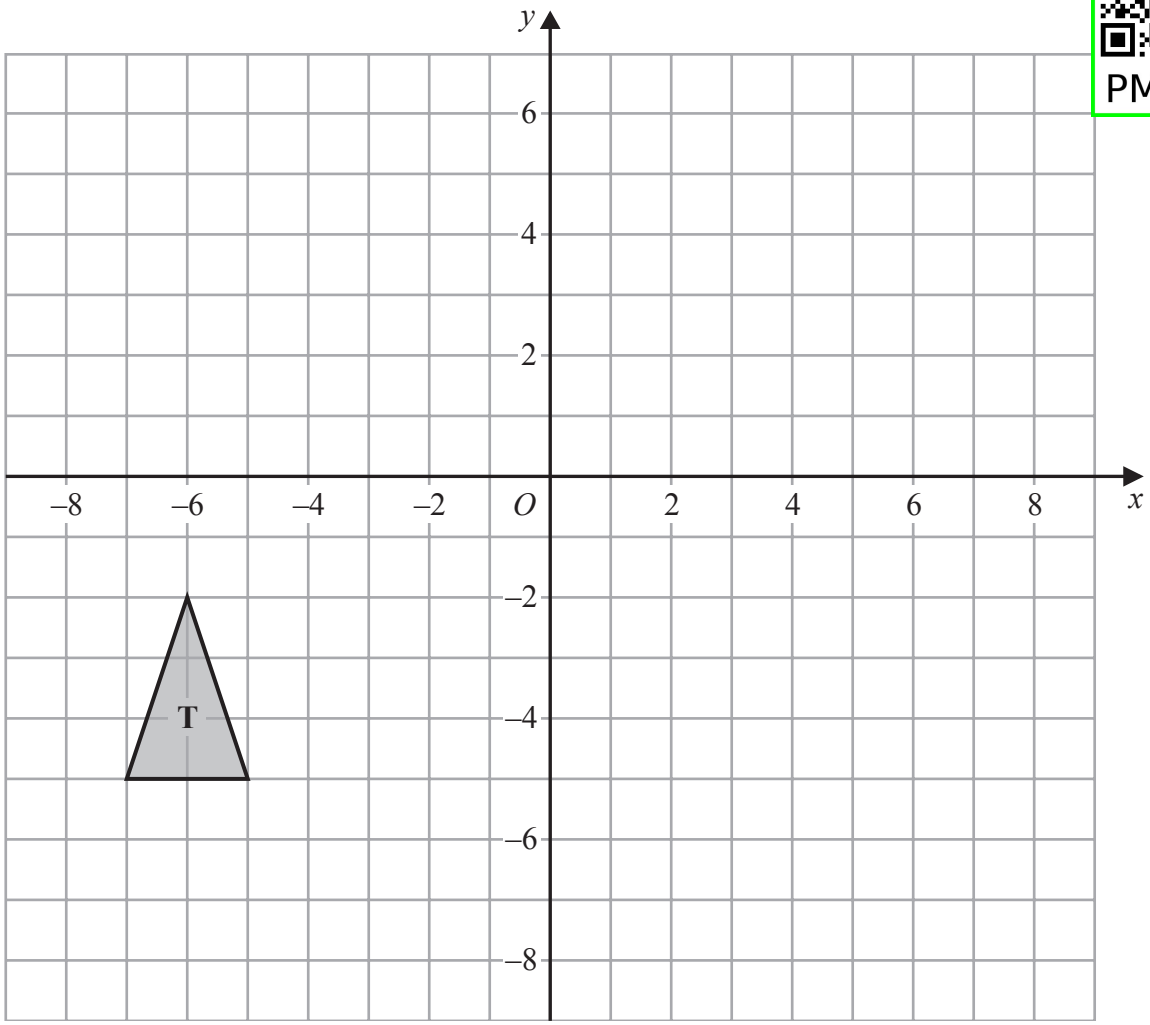
16

PM16A



On the grid, enlarge triangle **T** by scale factor –2 with centre of enlargement (–2, –2)

(Total for Question 16 is 2 marks)

18 Shape **A** is reflected in the line with equation $x = 2$ to give shape **B**.
Shape **B** is reflected in the line with equation $x = 6$ to give shape **C**.

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

PJ18A

.....

.....

.....

(Total for Question 18 is 2 marks)

19 There are only blue counters, red counters and green counters in a box.

The probability that a counter taken at random from the box will be blue is 0.4
The ratio of the number of red counters to the number of green counters is 7 : 8

Sameena takes at random a counter from the box.
She records its colour and puts the counter back in the box.
Sameena does this a total of 50 times.

Work out an estimate for the number of times she takes a green counter.

PJ19A

.....

(Total for Question 19 is 3 marks)

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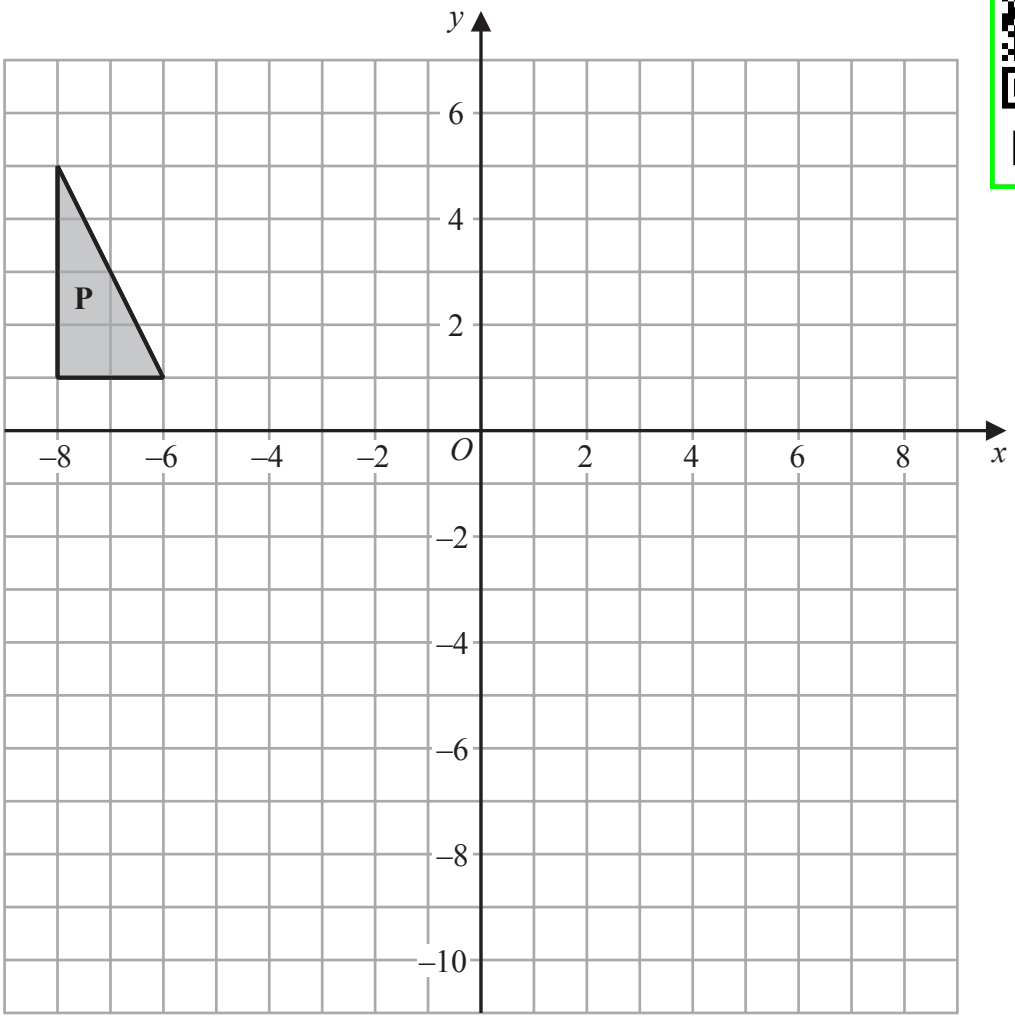
18

PQ18A



(a) Enlarge triangle **P** by scale factor $-1\frac{1}{2}$ with centre of enlargement (–2, –1)

Label your image **Q**.

(2)

Triangle **P** is transformed by a combined transformation of a rotation of 90° anticlockwise about the origin followed by a translation to give triangle **R**.

Exactly one vertex of triangle **P** is invariant under the combined transformation.

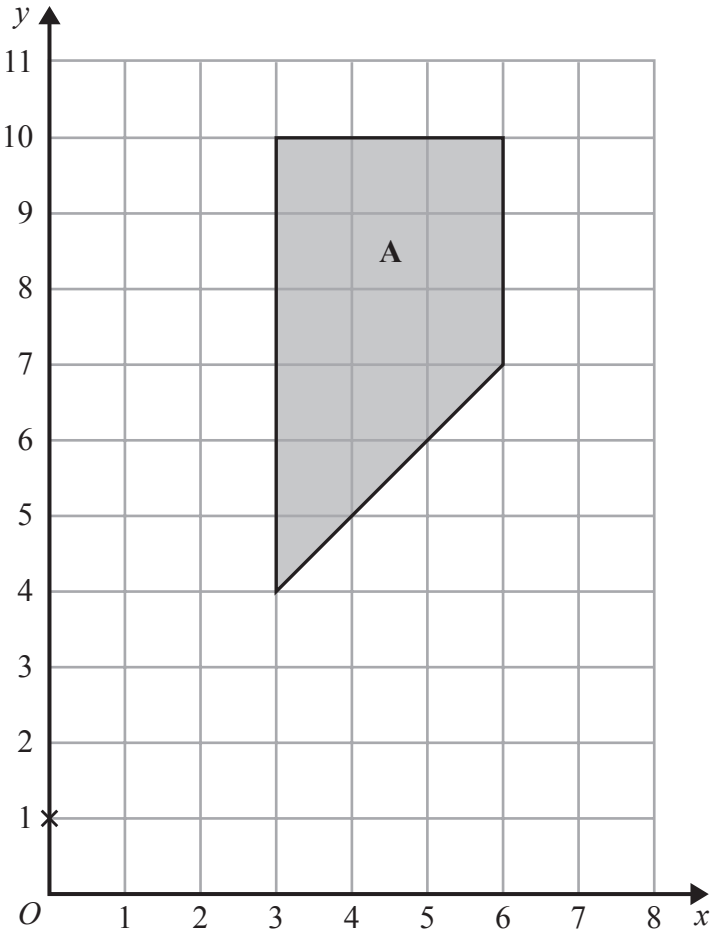
(b) Find one possible column vector for the translation.

(.....)
(.....)

(1)

(Total for Question 18 is 3 marks)

7



Enlarge shape **A** by scale factor $\frac{1}{3}$ centre (0, 1)

(Total for Question 7 is 2 marks)

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7 (a) Write the number 0.000 086 23 in standard form.

.....

(1)

(b) Work out $\dfrac{3.2 \times 10^{3} + 5.1 \times 10^{-2}}{4.3 \times 10^{-4}}$

Give your answer in standard form, correct to 3 significant figures.

BF7A

.....

(2)

(Total for Question 7 is 3 marks)

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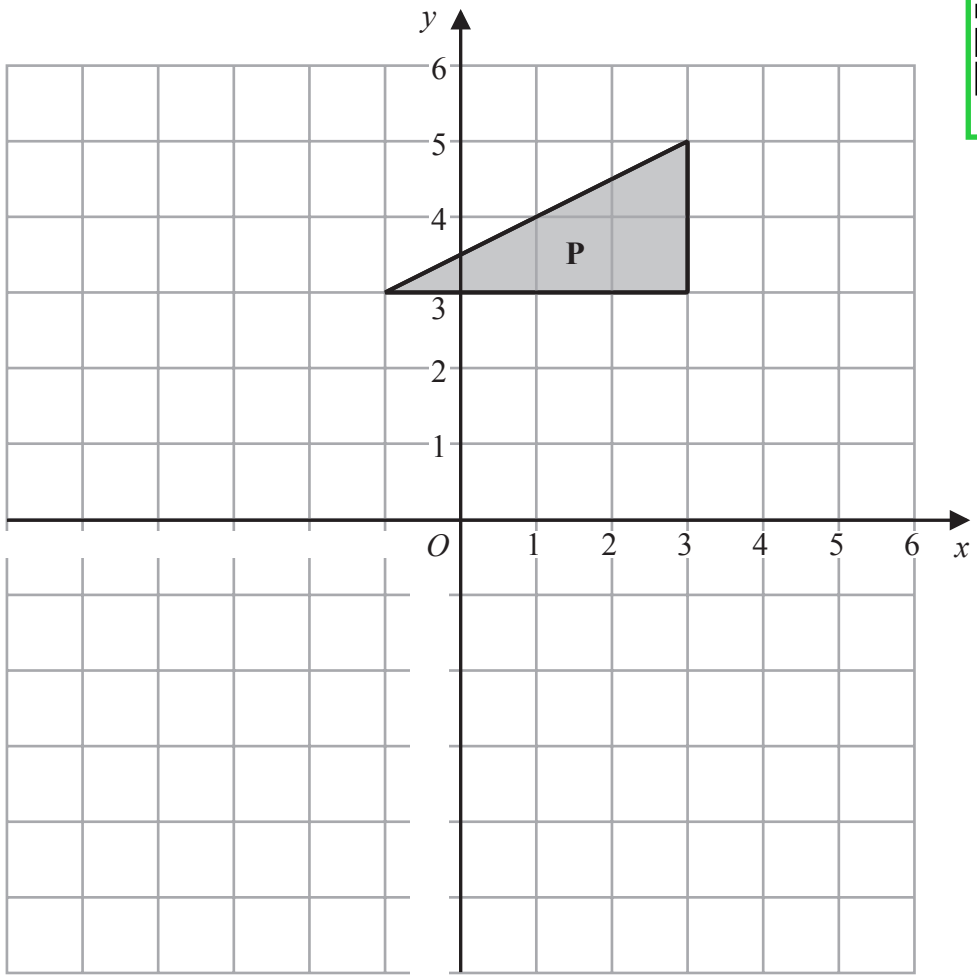
8

BF8A



Triangle **P** is reflected in the line y x to give triangle **Q**.
Triangle **Q** is reflected in the line x **R**.

Describe fully the single transformation that maps triangle **R** to triangle **P**.

.....

(Total for Question 8 is 3 marks)

9 Martin truncates the number N to 1 digit.
The result is 7

BF9A

Write down the error interval for N.

.....

(Total for Question 9 is 2 marks)

19 Solve algebraically the simultaneous equations

$$2x^2 \quad y^2 = 17$$
$$x + 2y = 1$$

BG19A

(Total for Question 19 is 5 marks)

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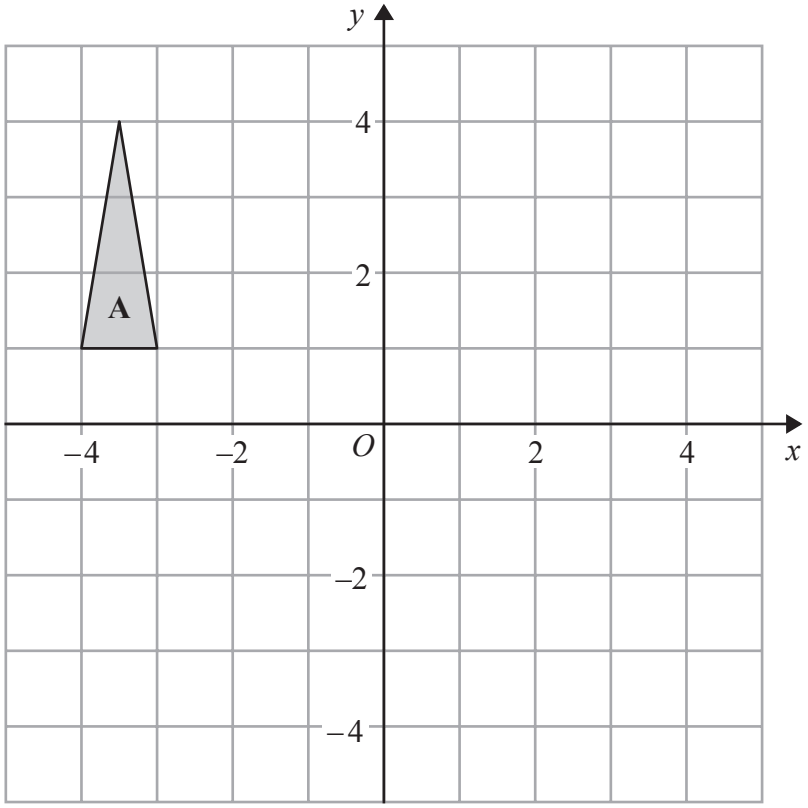
20

BG20A



Triangle **A** is transformed by the combined transformation of a rotation of 180° about the

$$\begin{pmatrix} -3 \\ 2 \end{pmatrix}$$

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

Find the coordinates of this point.

(..... , ...)

(Total for Question 20 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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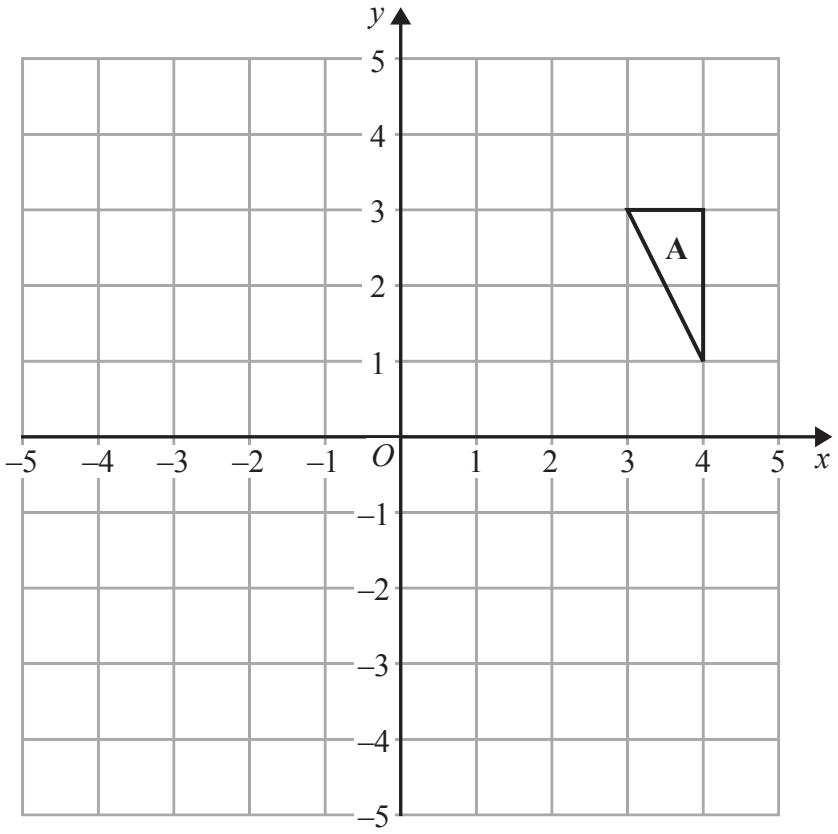
9 The diagram shows triangle **A** drawn on a grid.

BO9A



Kyle reflects triangle **A** in the x-axis to get triangle **B**.
He then reflects triangle **B** in the line $y = x$ to get triangle **C**.

Amy reflects triangle **A** in the line $y = x$ to get triangle **D**.
She is then going to reflect triangle **D** in the x-axis to get triangle **E**.

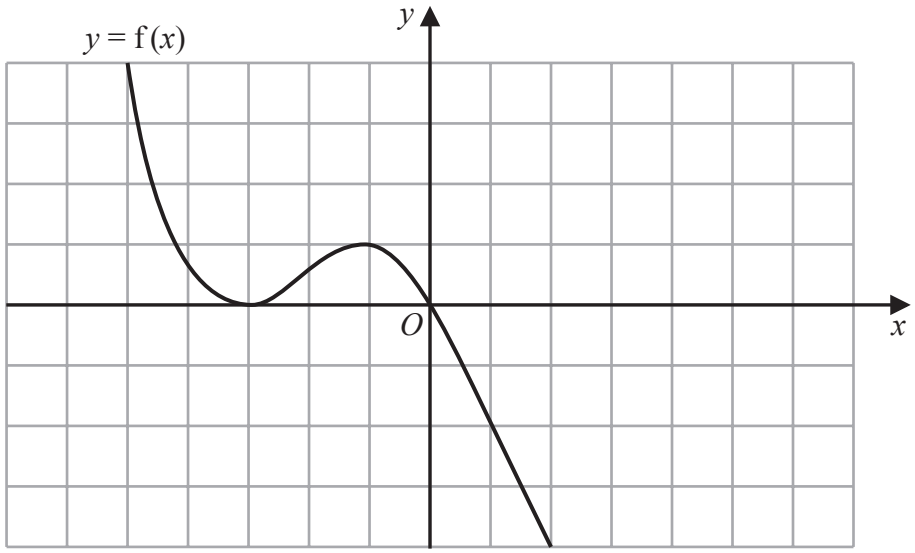
Amy says that triangle **E** should be in the same position as triangle **C**.

Is Amy correct?
You must show how you get your answer.

(Total for Question 9 is 3 marks)

PE21A

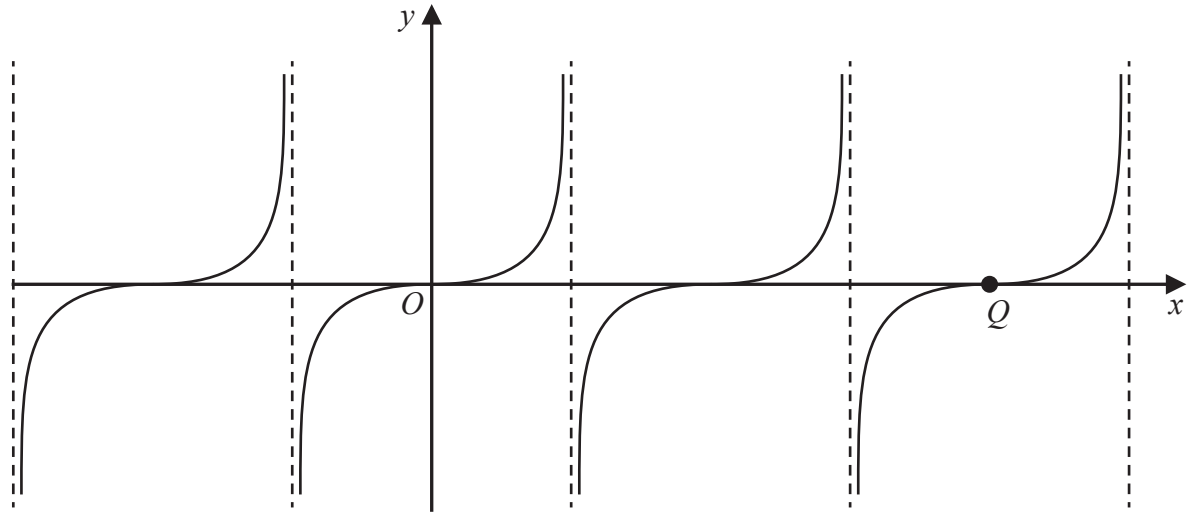
21 The graph of $y = f(x)$ is shown on the grid below.



(a) On the grid above, sketch the graph of $y = f(-x)$

(1)

Here is a sketch of the graph of $y = \tan x°$



The graph of $y = \tan x°$ is translated to give the graph of $y = g(x)$

Following the translation the point Q, shown on the graph above, moves to point R.
Point R has coordinates $(90, -5)$

(b) Find an expression for $g(x)$ in terms of x.

.....

(2)

(Total for Question 21 is 3 marks)

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