

Please check the examination details below before entering your candidate information

Candidate surname	Other names
Centre Number	Candidate Number
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Pearson Edexcel International GCSE

Wednesday 11 June 2025

Morning (Time: 2 hours 30 minutes)	Paper reference	4MB1/02
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Mathematics B

PAPER 2

<p>You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.</p>	Total Marks
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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.*
- **Calculators may be used.**

Information

- The total mark for this paper is 100
- 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.
- Check your answers if you have time at the end.
- Without sufficient working, correct answers may be awarded no marks.

Turn over ▶

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Answer ALL TWELVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Charles asks each of the students in his class which flavour of ice cream they prefer.

There are 30 students in his class.

He uses the information he collects to draw this accurate pie chart.



Find how many of the 30 students prefer chocolate ice cream.

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(Total for Question 1 is 3 marks)

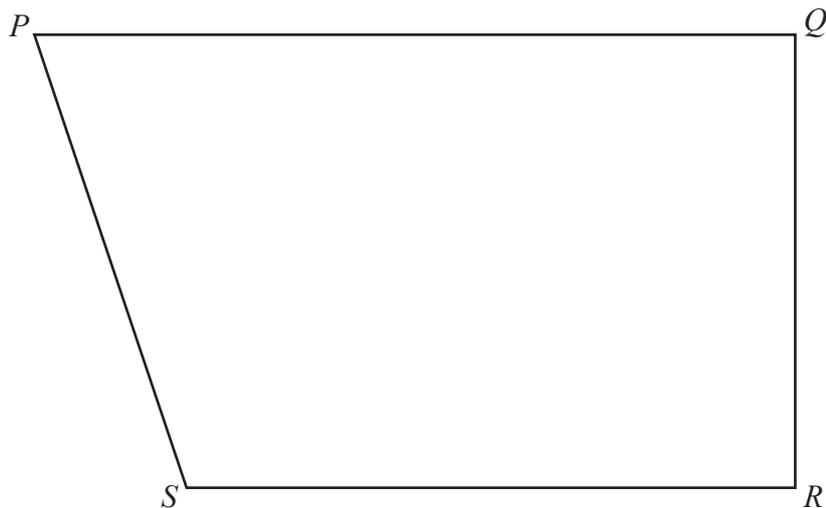


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2



Scale: 1 cm represents 2 metres

The trapezium $PQRS$ is a scale drawing of Abdul's garden.

- (a) Construct the locus of all points inside the trapezium that are 6 metres from P (1)
- (b) Construct the locus of all points inside the trapezium that are 12 metres from QR (1)
- (c) Using ruler and compasses only and **showing all your construction lines**, construct the locus of all points inside the trapezium that are equidistant from PS and RS (2)

Abdul is going to put a fountain in his garden.

The fountain must be

- greater than 6 metres from P
- greater than 12 metres from QR
- closer to PS than to RS

- (d) Show, by shading, the region in which Abdul can place the fountain.
Label the region **R** (1)

(Total for Question 2 is 5 marks)



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Question 3 continued

Area with horizontal dotted lines for writing.

(Total for Question 3 is 6 marks)



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Question 4 continued

Area with horizontal dotted lines for writing answers.

(Total for Question 4 is 6 marks)



Question 5 continued

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Handwriting practice area consisting of 25 horizontal dotted lines.



Question 5 continued

Handwriting practice area consisting of 25 horizontal dotted lines for writing.

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Question 5 continued

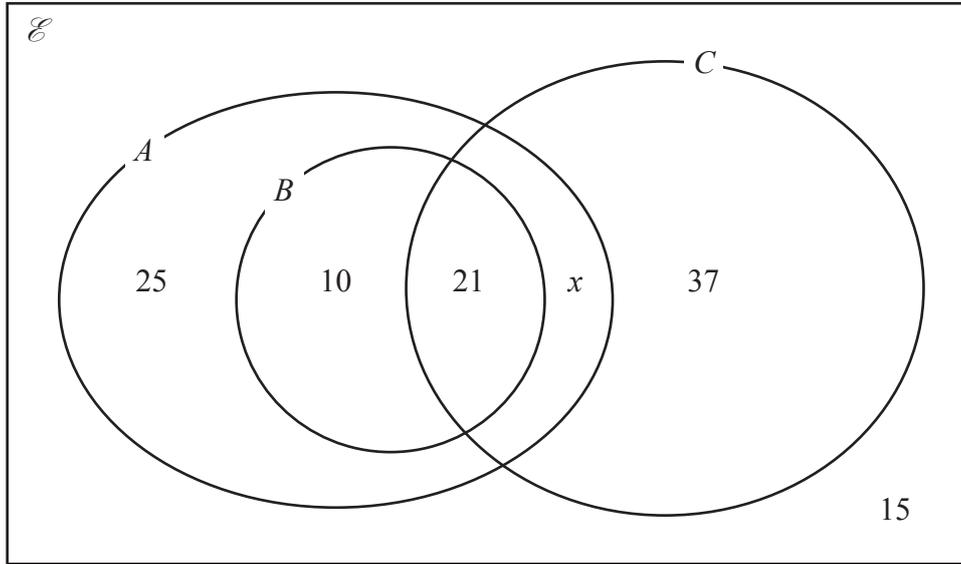
Handwriting practice area with 25 horizontal dotted lines.

(Total for Question 5 is 9 marks)



6 The Venn diagram shows information about the number of students in a school who are members of the Athletics Club (A), the Brass Band (B) and the Chess Club (C)

15 students are not members of any of these clubs.



There are twice as many members of the Chess Club than there are members of the Brass Band.

- (a) Find the value of x (2)
- (b) Find the number of these students who are **not** members of the Chess Club. (1)
- (c) Find the number of these students who are members of all three clubs. (1)
- (d) Find $n(B \cup C')$ (1)

At the start of 2022, the Drama Club had 80 members.
 From the start of 2022 until the start of 2023, the number of members of the Drama Club increased by 12.5%
 From the start of 2023 until the start of 2024, the number of members of the Drama Club increased by 30%

- (e) Calculate the number of students who were members of the Drama Club in 2024 (2)

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Question 6 continued

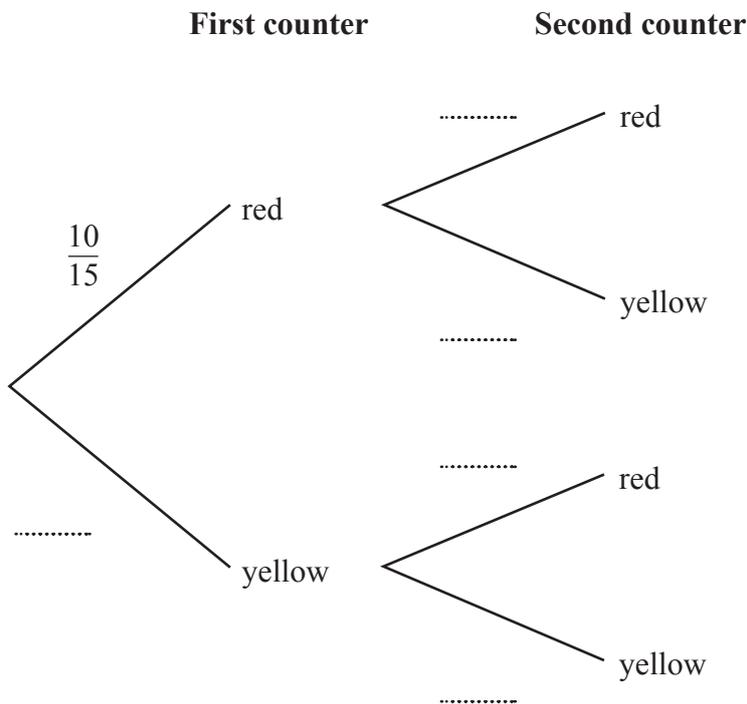
Area with horizontal dotted lines for writing.

(Total for Question 6 is 7 marks)



7 Bag A contains 10 red counters and 5 yellow counters.
Two counters are taken at random from bag A.

(a) Complete the tree diagram below.



(2)

(b) Calculate the probability that the two counters taken are the same colour.

(2)

Bag B contains 4 red counters and 3 yellow counters.

The two counters that have been taken from bag A are both placed into bag B so that there are a total of 9 counters in bag B.

A counter is then taken at random from bag B.

Given that each of the two counters taken from bag A and the one counter taken from bag B are all the same colour,

(c) calculate the probability that the three counters are all red.

(3)

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Question 7 continued

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Question 7 continued

Handwriting practice area consisting of 25 horizontal dotted lines.

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Question 7 continued

Area with horizontal dotted lines for writing.

(Total for Question 7 is 7 marks)



Question 8 continued

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Area with horizontal dotted lines for writing.



Question 8 continued

Handwriting practice area consisting of 25 horizontal dotted lines.

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Question 8 continued

Area with horizontal dotted lines for writing answers.

(Total for Question 8 is 9 marks)



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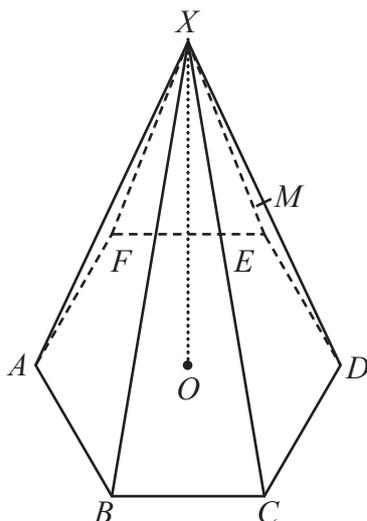


Diagram **NOT** accurately drawn

Figure 3

Figure 3 shows a solid right pyramid $ABCDEFX$

The base $ABCDEF$ of the pyramid is horizontal and is a regular hexagon of side 3 cm

O is the midpoint of the base.

The vertex X of the pyramid is vertically above point O such that $OX = 5$ cm

M is the midpoint of XD

(a) Find the area, in cm^2 to one decimal place, of the hexagonal base.

(3)

(b) Calculate the size, in degrees to 3 significant figures, of $\angle AMX$

Show all your working.

(6)

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$$\left[\begin{array}{l} \text{Area of triangle} = \frac{1}{2} ab \sin C \\ \text{Cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A \end{array} \right]$$



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Question 9 continued

Area for writing the answer to Question 9, featuring horizontal dotted lines.



Question 9 continued

Handwriting practice area consisting of 25 horizontal dotted lines for writing.

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Question 9 continued

Area with horizontal dotted lines for writing.

(Total for Question 9 is 9 marks)

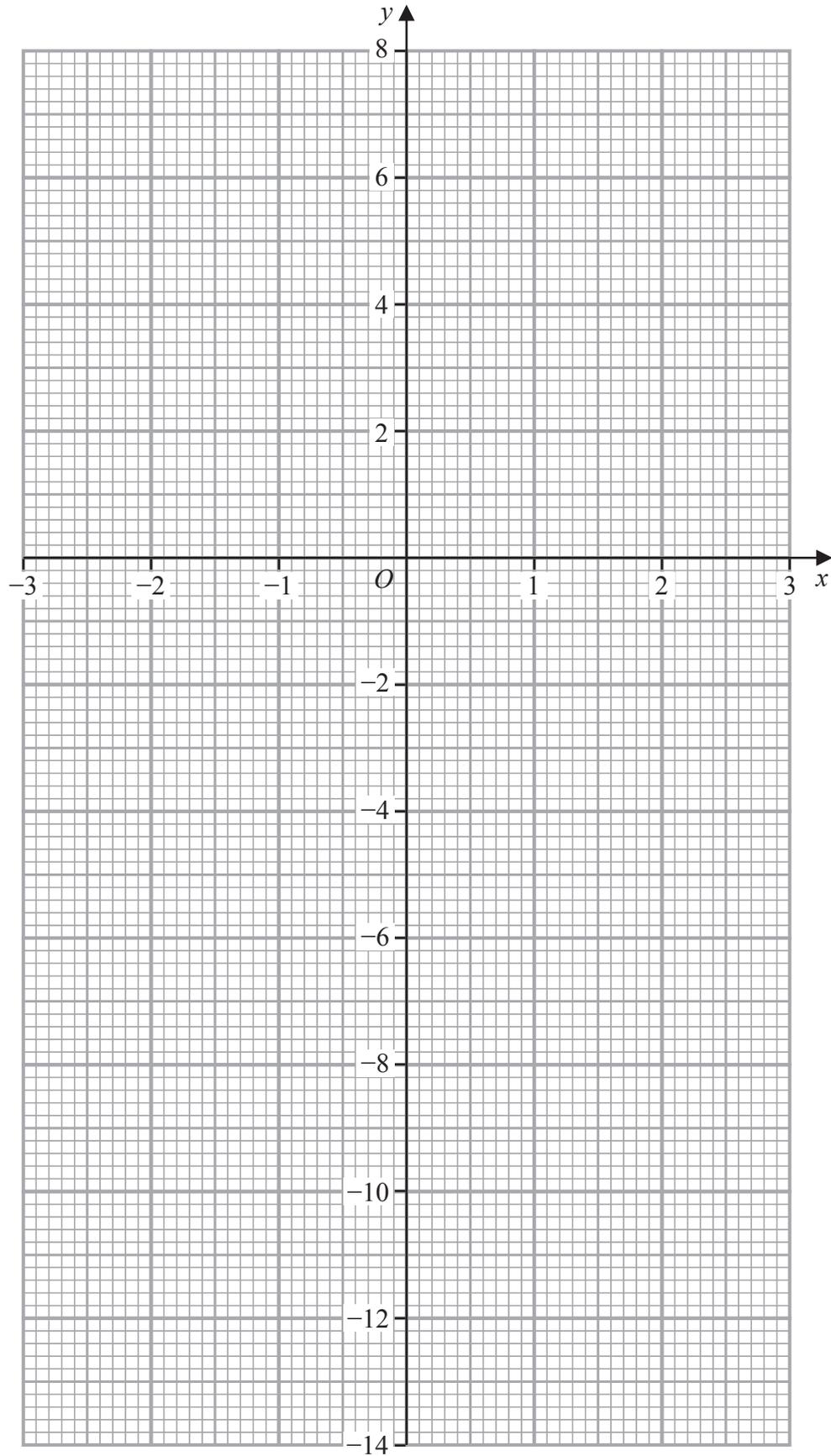


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Question 10 continued



Turn over for a spare grid if you need to redraw your curve.



Question 10 continued

Handwriting practice area consisting of 20 horizontal dotted lines for writing.

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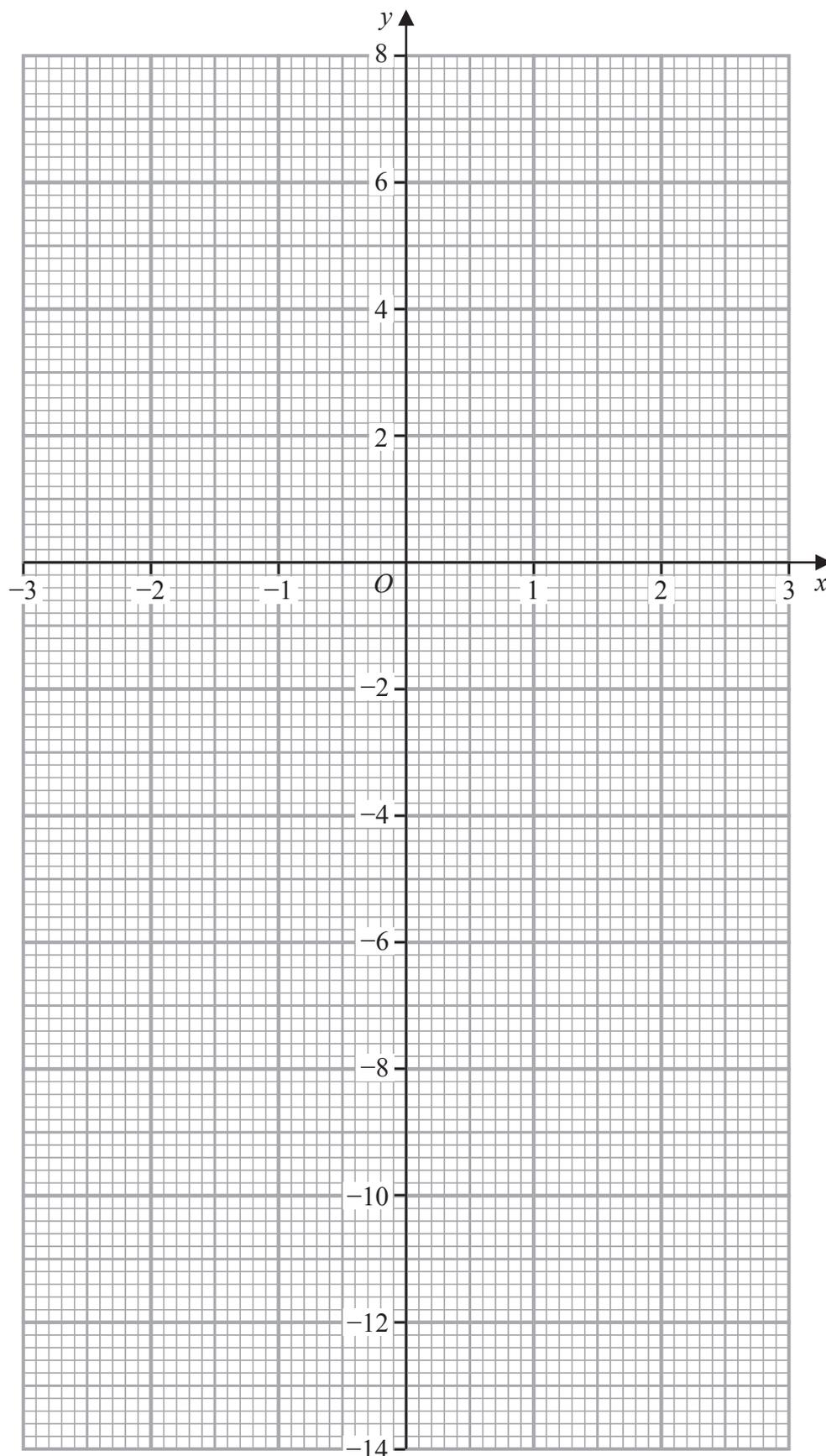
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Question 10 continued

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(Total for Question 10 is 13 marks)

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Question 11 continued

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Handwriting practice area with horizontal dotted lines.



Question 11 continued

Handwriting practice area consisting of 25 horizontal dotted lines for writing.

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Question 11 continued

Area with horizontal dotted lines for writing answers.

(Total for Question 11 is 12 marks)

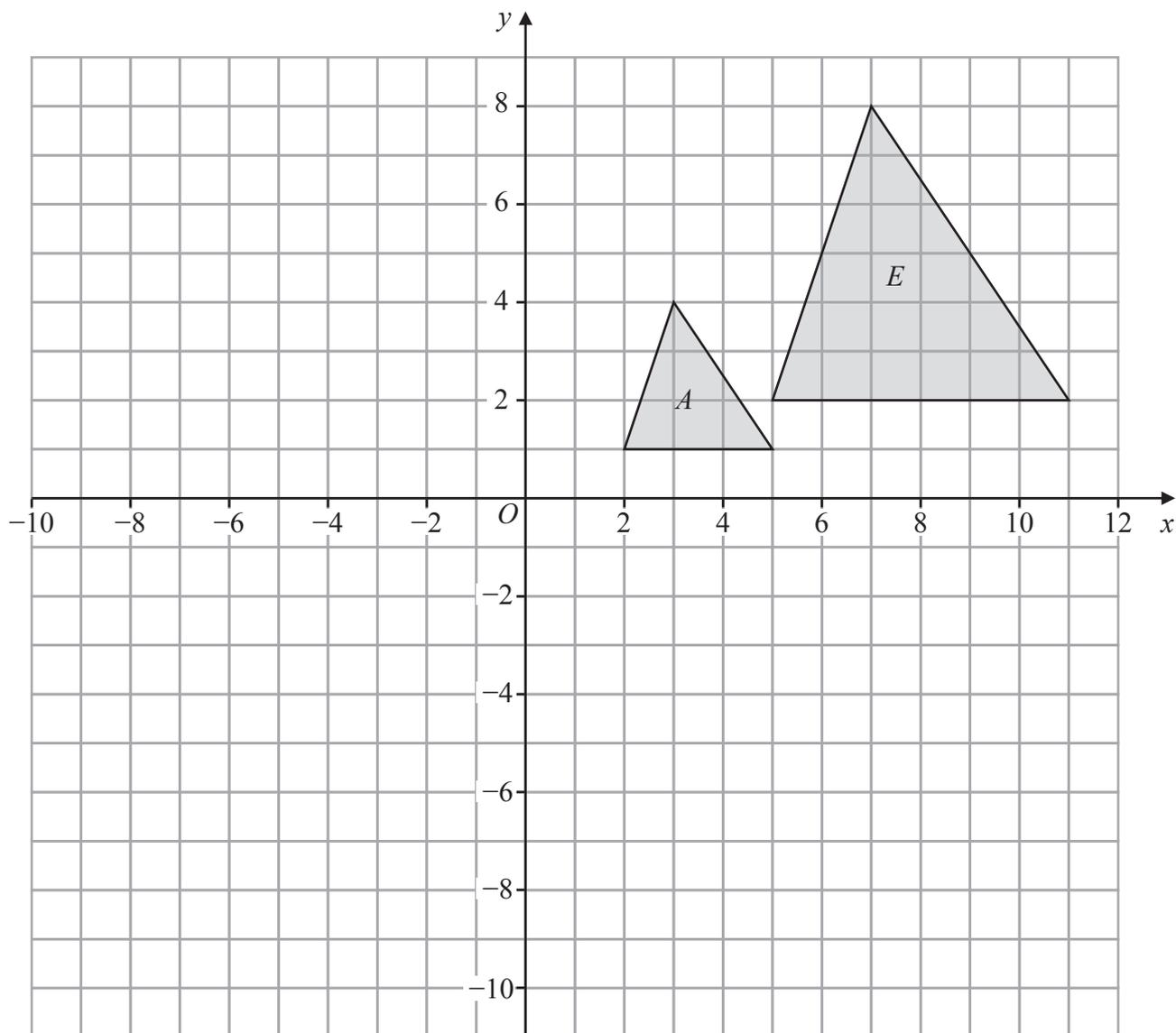


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Question 12 continued



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Turn over for a spare grid if you need to redraw your triangles.



Question 12 continued

Handwriting practice area consisting of 25 horizontal dotted lines.

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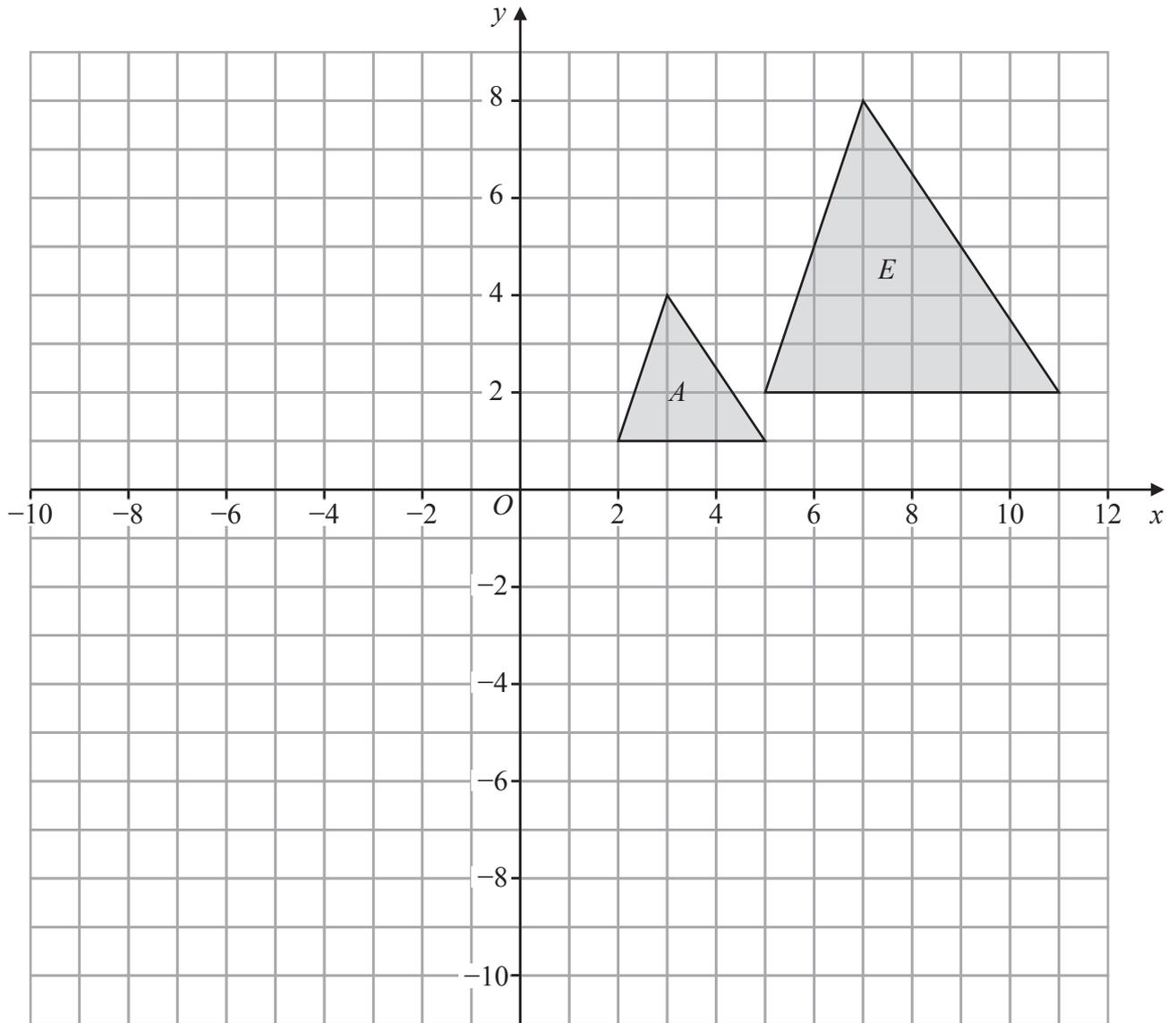
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Question 12 continued

Only use this grid if you need to redraw your triangles.



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(Total for Question 12 is 14 marks)

TOTAL FOR PAPER IS 100 MARKS



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