

Please check the examination details below before entering your candidate information

Candidatesurname	Othernames
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Centre Number	Candidate Number
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Pearson Edexcel International GCSE

Time 2 hours 30 minutes	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">Paper reference</td> <td style="font-size: 24px; font-weight: bold; padding: 2px 5px;">4MB1/02R</td> </tr> </table>	Paper reference	4MB1/02R
Paper reference	4MB1/02R		

Mathematics B

PAPER 2R

<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>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">TotalMarks</td> </tr> </table>	TotalMarks
TotalMarks		

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 ►

P72480A

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J:1/1/1/1/



Answer ALL TWELVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Rory buys and sells jewellery.

Rory buys a necklace for \$180

He sells the necklace for \$230

(a) Calculate, to 3 significant figures, Rory's percentage profit. (2)

Rory sells a bracelet for \$203

This price represents a 16% profit on his cost price.

(b) Calculate the cost price of the bracelet. (2)

Rory travelled by plane from New York to Dubai to buy some jewellery.

The total flight time for the journey was 12 hours 48 minutes.

The average speed for the journey was 860 km/h

(c) Calculate the total distance, in kilometres, travelled by the plane. (3)

Rory bought some earrings for a total cost of 91 750 dirhams.

Using the exchange rate,

$1 \text{ dollar} = 3.67 \text{ dirhams}$

(d) calculate the total cost of the earrings in dollars. (2)

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Question 1 continued

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Area with horizontal dotted lines for writing.

(Total for Question 1 is 9 marks)



- 2 (a) Write 76 000 000 in standard form. (1)
- (b) Write 8.3×10^{-4} as an ordinary number. (1)
- (c) Calculate $(3 \times 10^{147}) \div (6 \times 10^{122})$
Give your answer in standard form. (2)
- (d) Write 1.6×10^{41} as a product of its prime factors.
Show your working clearly. (3)

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Question 2 continued

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(Total for Question 2 is 7 marks)



Question 3 continued

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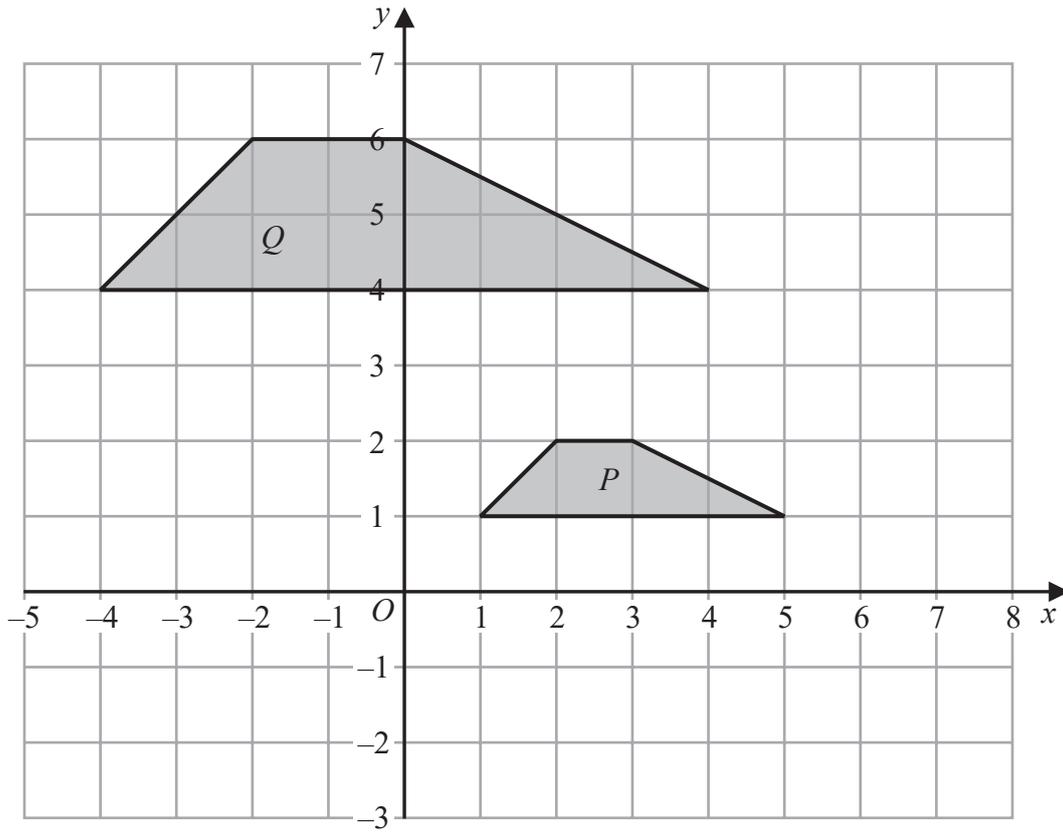
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(Total for Question 3 is 5 marks)



Question 4 continued



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



Question 4 continued

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

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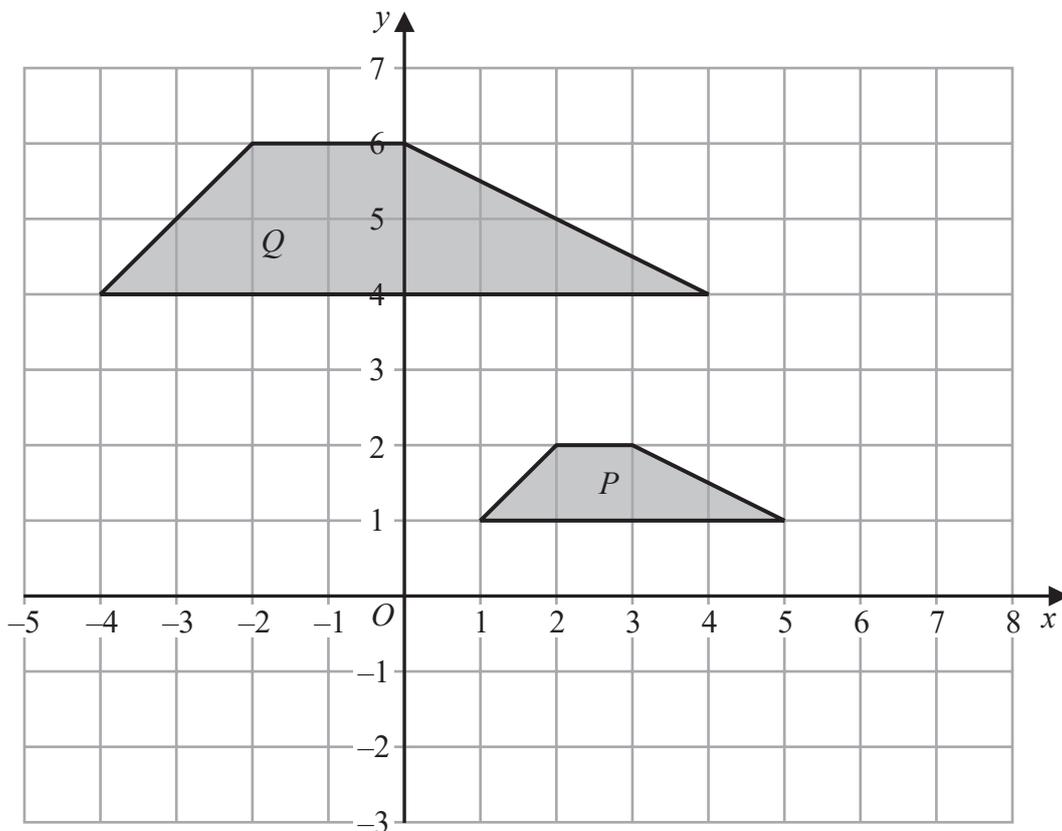
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Question 4 continued

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



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DO NOT WRITE IN THIS AREA

(Total for Question 4 is 10 marks)



5

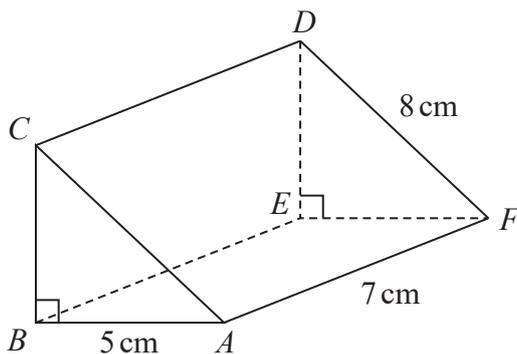


Diagram NOT accurately drawn

Figure 2

Figure 2 shows right triangular prism $ABCDEF$

$AB = 5 \text{ cm}$ $DF = 8 \text{ cm}$ $AF = 7 \text{ cm}$ $\angle CBA = 90^\circ$

(a) Calculate the volume, in cm^3 to the nearest whole number, of the triangular prism.

(4)

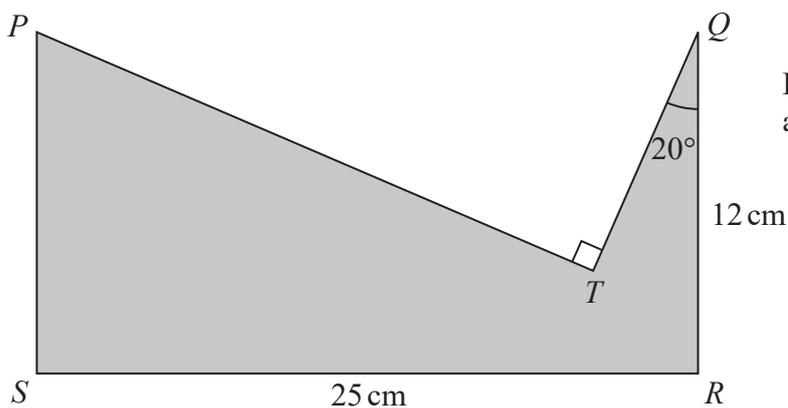


Diagram NOT accurately drawn

Figure 3

Figure 3 shows a shaded shape made by removing triangle PTQ from rectangle $PQRS$

$QR = 12 \text{ cm}$ $SR = 25 \text{ cm}$ $\angle PTQ = 90^\circ$ $\angle TQR = 20^\circ$

(b) Calculate the perimeter, in cm to the nearest whole number, of the shaded shape.

(4)

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Question 5 continued

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DO NOT WRITE IN THIS AREA

Area with horizontal dotted lines for writing.



Question 5 continued

Handwriting practice area consisting of 25 horizontal dotted lines.

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Question 5 continued

DO NOT WRITE IN THIS AREA

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Area with horizontal dotted lines for writing.

(Total for Question 5 is 8 marks)



6 Ted has two boxes of buttons, Box A and Box B

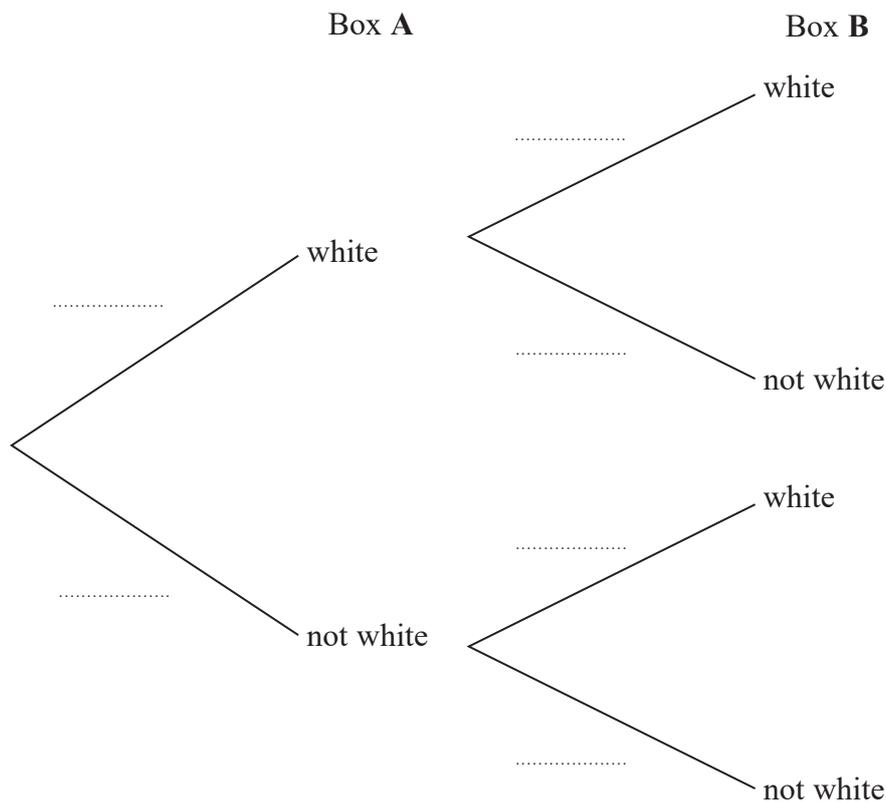
There are 20 buttons in Box A and 20 buttons in Box B

There are 13 white buttons in Box A

There are 9 white buttons in Box B

Ted takes at random a button from Box A and a button from Box B

(a) Complete the probability tree diagram.



(2)

(b) Calculate the probability that Ted takes at least one white button.

(3)

Ted also has a bag of buttons.

There are 30 buttons in the bag.

There are x white buttons in the bag.

Ted takes at random a button from Box A, a button from Box B and a button from the bag.

The probability that of the 3 buttons Ted has, 2 of the buttons are white is $\frac{337}{1000}$

(c) Work out the value of x
Show clear algebraic working.

(4)

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Question 6 continued

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Area with horizontal dotted lines for writing.



Question 6 continued

Handwriting practice area consisting of 25 horizontal dotted lines.

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Question 6 continued

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(Total for Question 6 is 9 marks)



Question 7 continued

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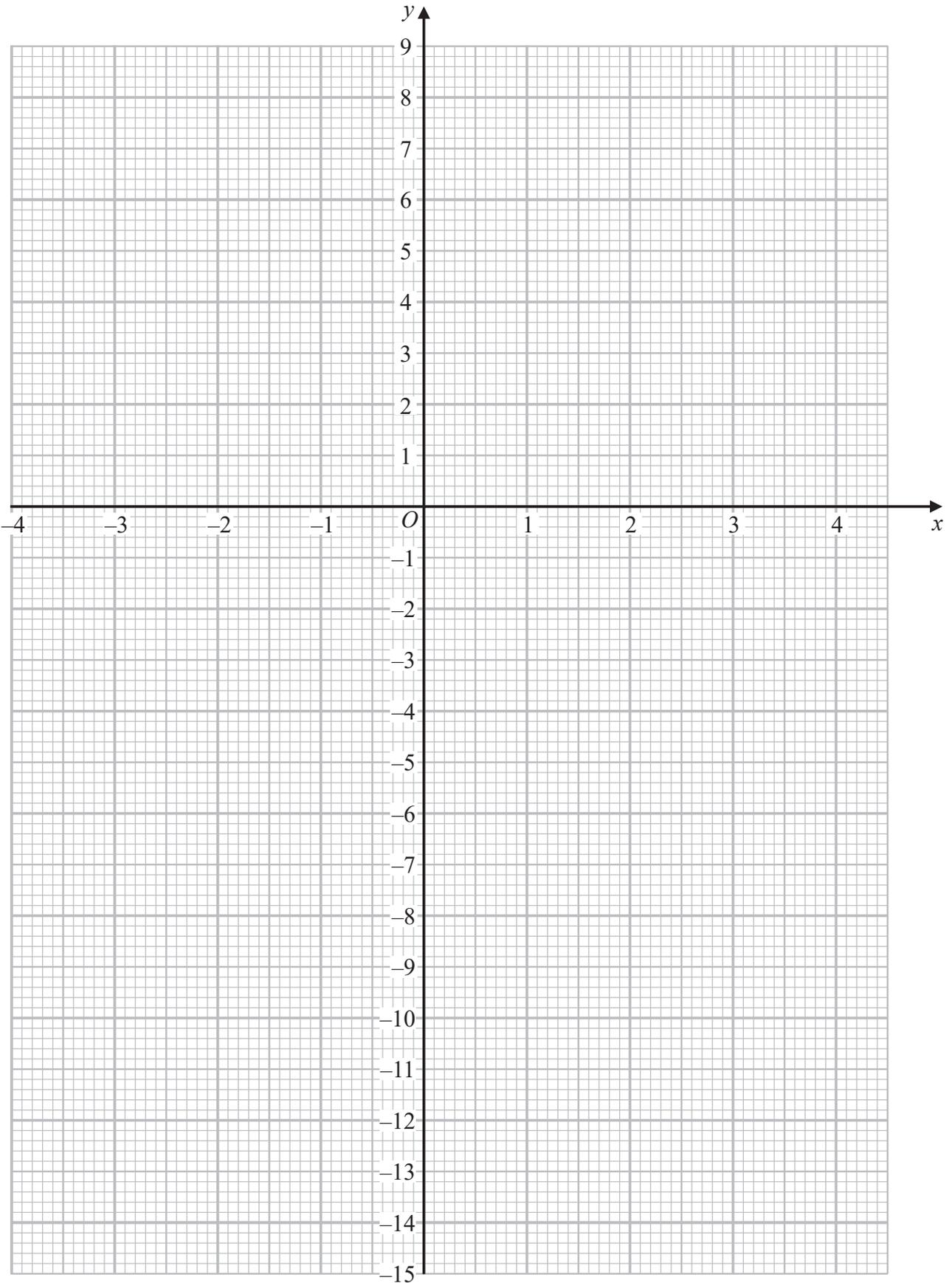
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Area with horizontal dotted lines for writing.

(Total for Question 7 is 10 marks)



Question 8 continued



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



Question 8 continued

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

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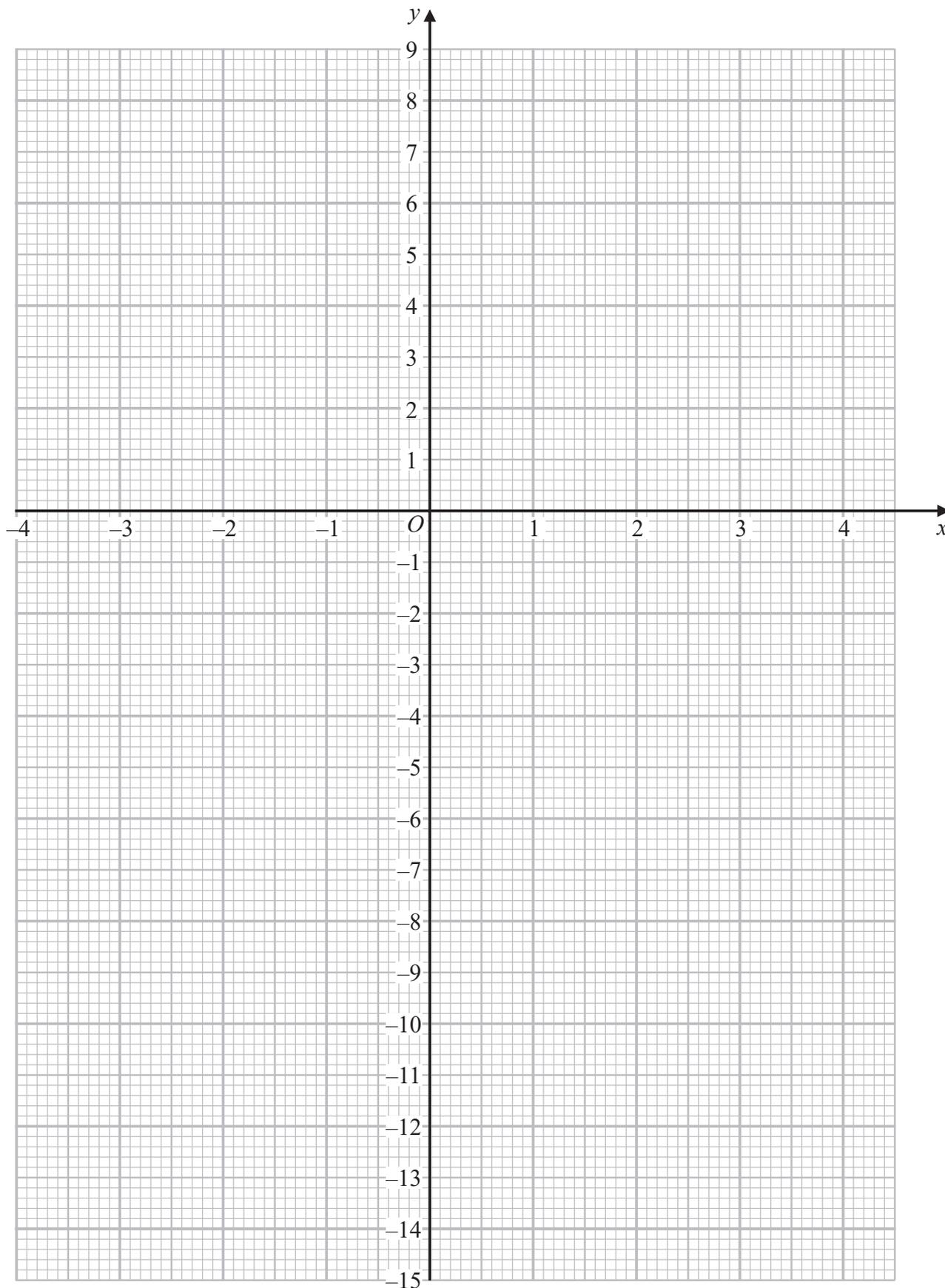
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Question 8 continued

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



(Total for Question 8 is 9 marks)

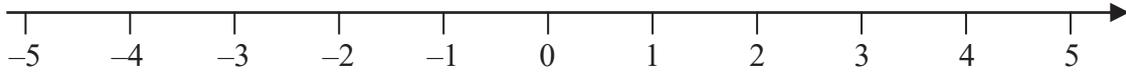
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Question 9 continued



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Area with horizontal dotted lines for writing answers.

(Total for Question 9 is 7 marks)



Question 10 continued

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Area with horizontal dotted lines for writing.

(Total for Question 10 is 6 marks)



Question 11 continued

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Area with horizontal dotted lines for writing answers.

(Total for Question 11 is 10 marks)



12

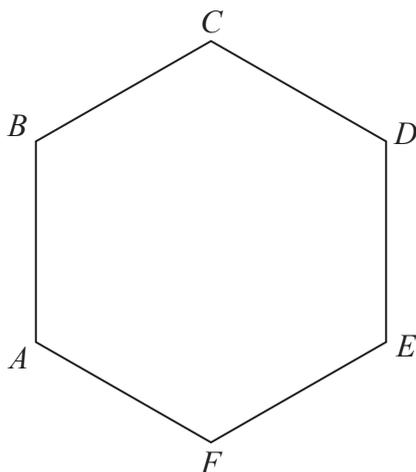


Diagram **NOT** accurately drawn

Figure 4

Figure 4 shows a regular hexagon $ABCDEF$

Given that the area of hexagon $ABCDEF = 150\sqrt{3} \text{ cm}^2$

(a) find the perimeter, in cm, of the hexagon.

(4)

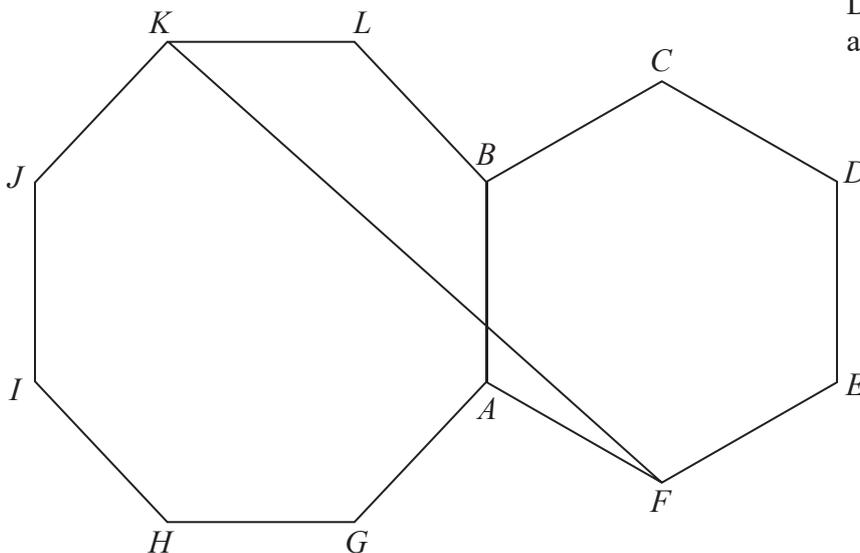


Diagram **NOT** accurately drawn

Figure 5

Figure 5 shows a shape $AGHIJKLBCDEF$ made from a regular octagon $GHIJKLBA$ and the regular hexagon $ABCDEF$ from part (a).

(b) Work out the length, in cm to one decimal place, of the straight line KF

(6)

$$\left[\begin{array}{l} \text{Area of triangle} = \frac{1}{2} ab \sin C \\ \text{Sum of interior angles of polygon is } (2n - 4) \text{ right angles} \end{array} \right]$$

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Question 12 continued

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