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Forename(s)			
Candidate signature			
I declare this is my own work.			

GCSE MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

Shadow paper based on November 2023 question paper

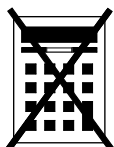
Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments

You must **not** use a calculator.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

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

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
TOTAL	

Answer **all** questions in the spaces provided.

- 1 (a) Write down the value of 7^2

[1 mark]

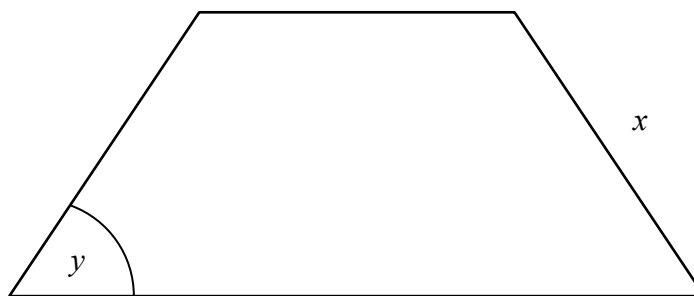
Answer _____

- 1 (b) Work out $5.22 + 1.09 - 2.1$

[2 marks]

Answer _____

- 2 Here is a quadrilateral.



- 2 (a) Measure the length of side x .
Give your answer in millimetres.

[1 mark]

$x =$ _____ mm

- 2 (b) Measure angle y .

[1 mark]

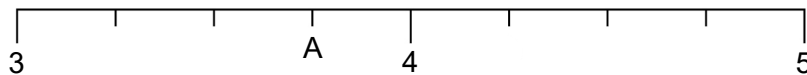
$y =$ _____ °

- 3 Write a number in the box to make the statement correct.

[1 mark]

12.1 >

- 4 (a) Here is a number line.

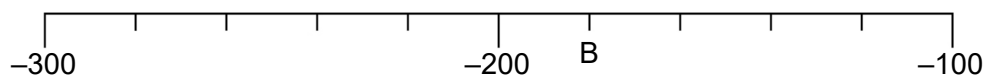


Which number is at A?

[1 mark]

Answer _____

- 4 (b) Here is another number line.



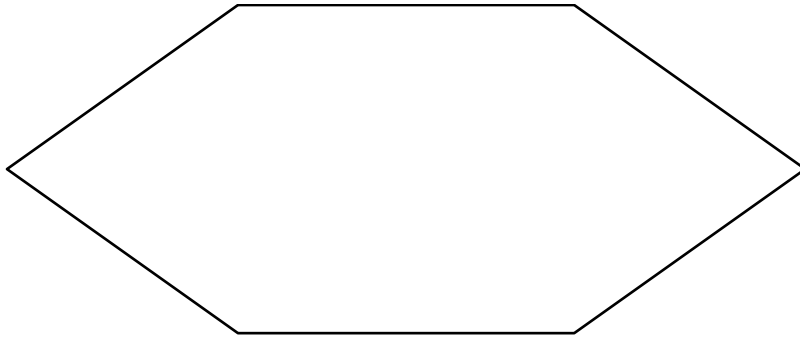
Which number is at B?

[1 mark]

Answer _____

Turn over ►

5 Here is a shape.



Write down the order of rotational symmetry of the shape.

[1 mark]

Answer _____

6 (a) Simplify fully $b + b + b$

[1 mark]

Answer _____

6 (b) Factorise $6f + 9$

[1 mark]

Answer _____

6 (c) Multiply out $3(7 - x)$

[2 marks]

Answer _____

7 Annette and Pete are travelling to London.

7 (a) Annette leaves Manchester at 10.45 am

She takes $4\frac{1}{4}$ hours to travel to London.

At what time does she arrive in London?

[2 marks]

Answer _____

7 (b) Pete has a target of 3 hours 40 minutes to travel from Nantwich to London.

He has been driving for 117 minutes.

To meet his target, how many minutes longer does he have left to drive?

[3 marks]

Answer _____ minutes

- 8 Nikola uses a tally chart to record the flavour of sweets in a bag.
Here is her chart with the tallies.
Each 5-bar gate (||||) represents 5 sweets.

Flavour	Tally	Frequency
Orange	/ / /	
Lime	/	
Strawberry		
Blackcurrent	/	

- 8 (a) Nikola says,
“The number of orange sweets is more than the **total** of the other sweets
because orange have three 5-bar gates and the others only have two 5-bar gates.”

Is she correct?

Tick a box.

Yes

☐

No

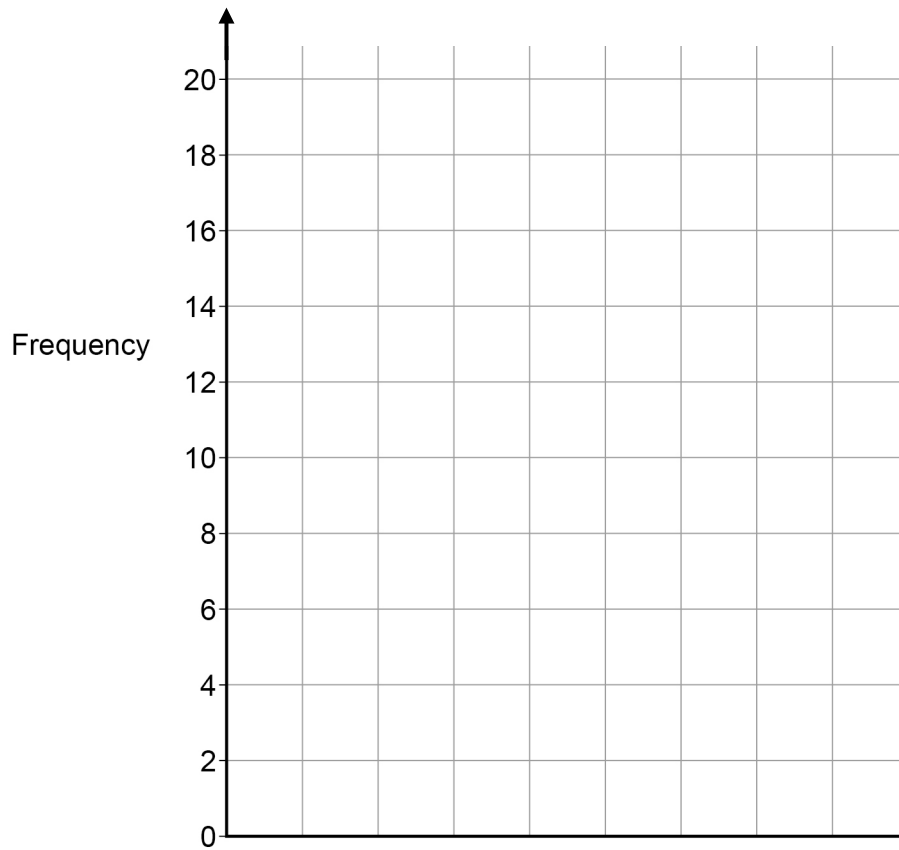
☐

Show working to support your answer.

[2 marks]

- 8 (b)** On the grid, draw a bar chart to represent the data in the tally chart.

[3 marks]



Turn over for the next question

Turn over ►

9

Put the whole numbers 1 to 12 into the boxes to make the calculations correct.

Only use each number **once**.**[3 marks]**

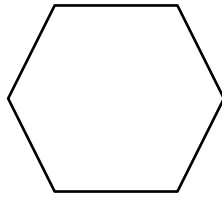
$$\square + \square + \square = \square 6$$

$$\square + \square + \square = \square 33$$

$$\square + \square + \square = \square 19$$

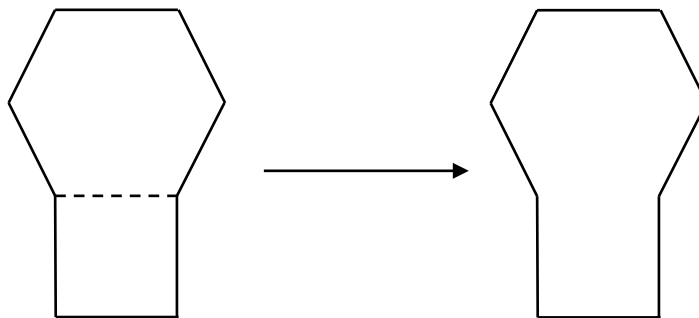
$$\square + \square + \square = \square 20$$

- 10 A **regular** hexagon has perimeter 180 mm



Not drawn
accurately

A shape is made by joining a square to the hexagon.



Work out the perimeter of the shape.

[3 marks]

Answer _____ mm

11 Last week, Emily worked for 9 hours.
She paid no tax and received £72

11 (a) This week, Emily works for 12 hours.
She assumes she will be paid at the same rate and pay no tax.
How much does she expect to receive this week?

[3 marks]

Answer £ _____

- 11 (b)** In fact, **this week**, Emily
is paid an extra 50p per hour
pays £5.70 tax.

What does this tell you about the amount she receives?

Tick **one** box.

☐

It is less than she expected.

☐

It is the same as she expected.

☐

It is more than she expected.

Show working to support your answer.

[2 marks]

Turn over for the next question

12

Complete the list of six numbers so that

the mode is 10

the median is 12

the range is 9

[3 marks]

	10			18	
--	----	--	--	----	--

13

A shape has

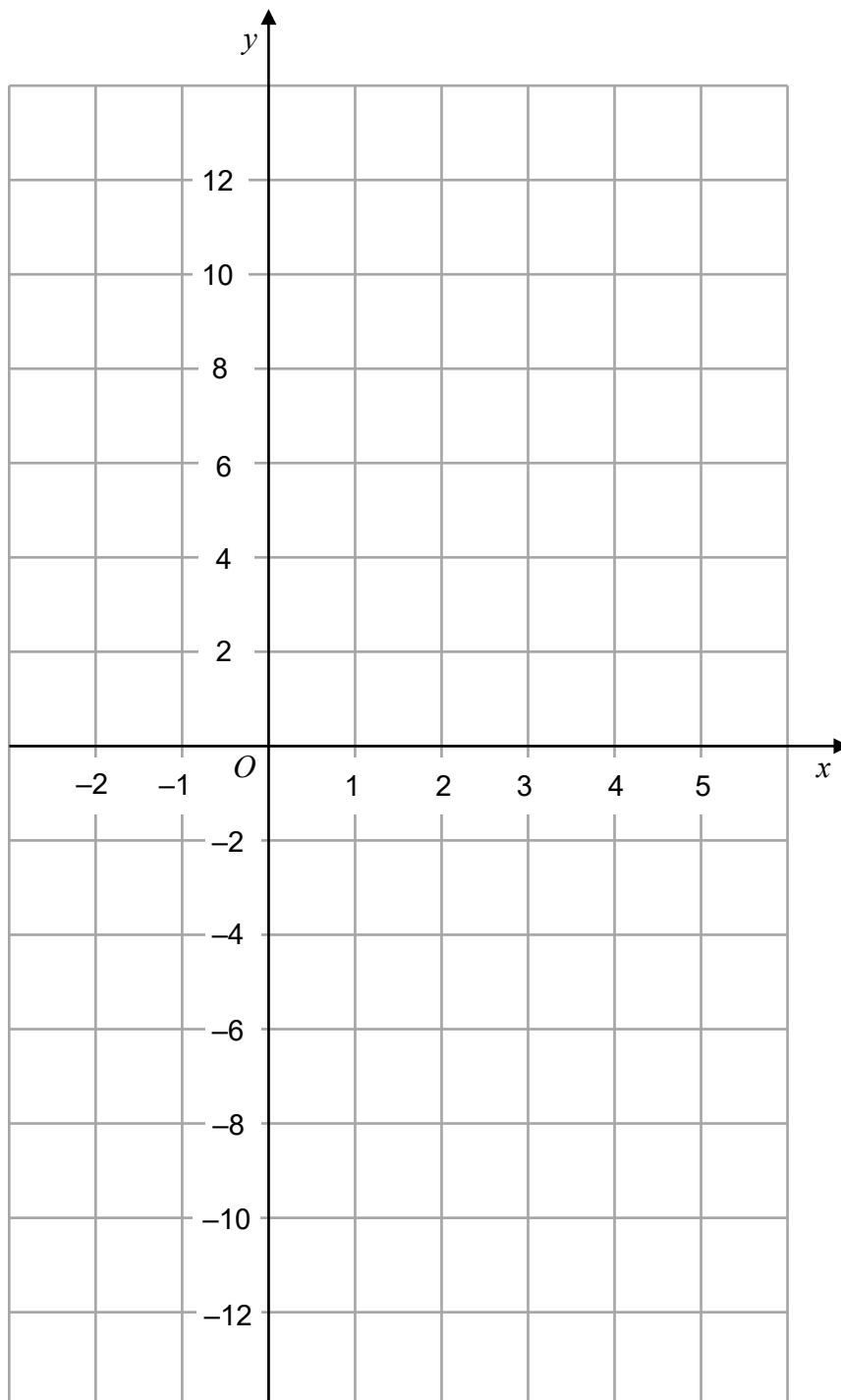
- an odd number of sides
- more sides than a triangle
- fewer sides than a hexagon

Write down the name of this shape.

[1 mark]

Answer _____

14

On the grid, draw the graph of $y = 4 - 2x$ for values of x from -2 to 5 **[3 marks]****Turn over for the next question****Turn over ►**

15

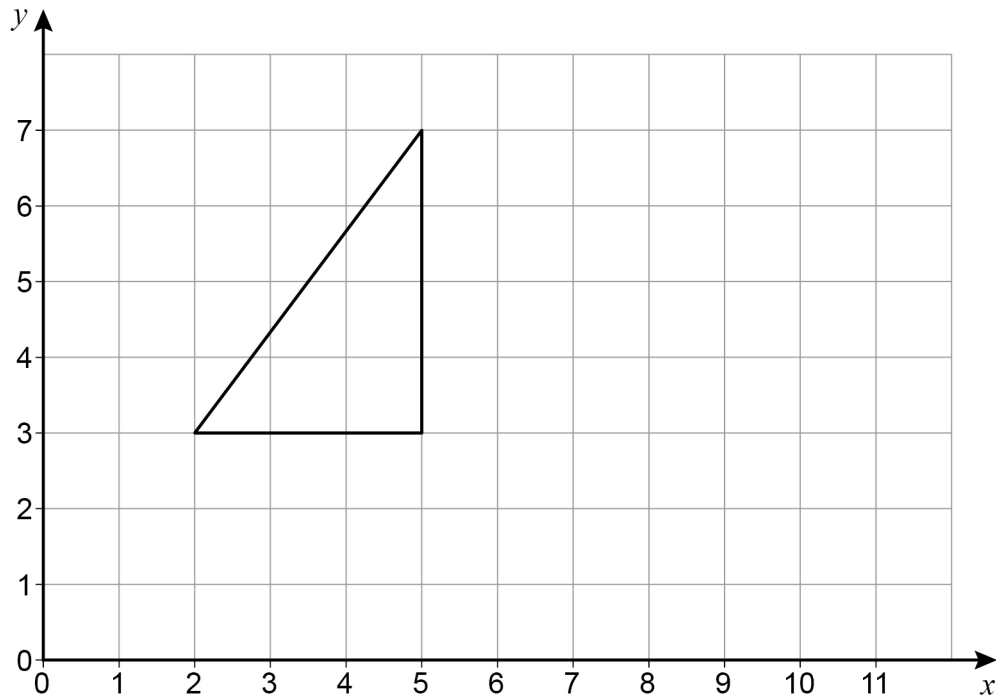
Work out $\frac{7}{10} + \frac{13}{15}$

Give your answer as a mixed number.

[3 marks]

Answer _____

- 16** 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 (8, 3) and (8, 7)

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

[1 mark]

Answer (_____ , _____)

- 16 (b)** What is the equation of the line of reflection?

[1 mark]

Answer _____

Aliza makes 60 necklaces.

At the market she sells $\frac{2}{3}$ of these necklaces.

Give your answer in its simplest form.

[4 marks]

Answer _____

18

Work out $\sqrt{86 - 5(3^2 + 1)}$ **[3 marks]**

Answer _____

19

What does $(A \cap B)$ represent in $P(A \cap B)$?

Circle your answer.

[1 mark]

A or B or both

A and B

not A and not B

A but not B

20

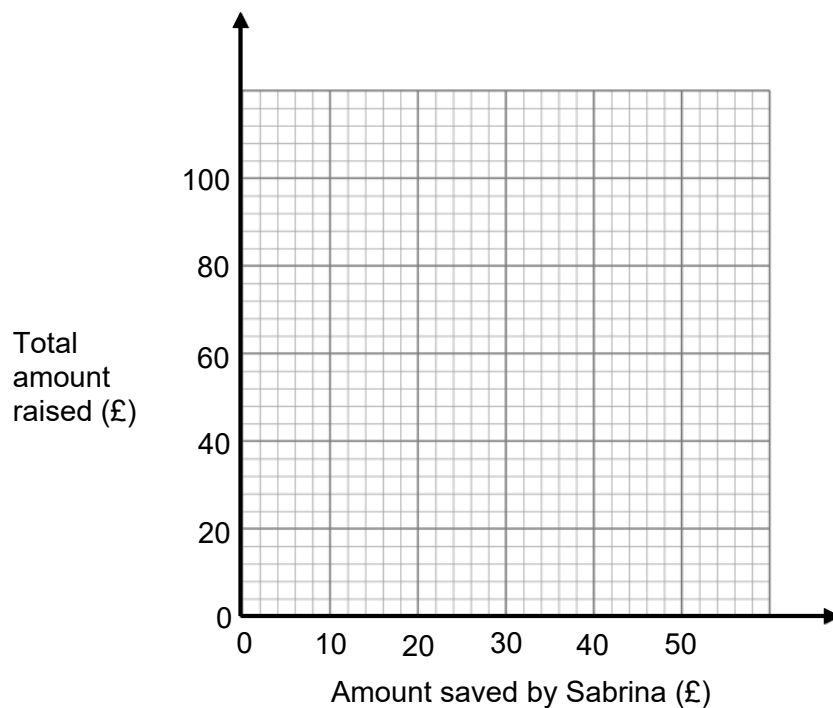
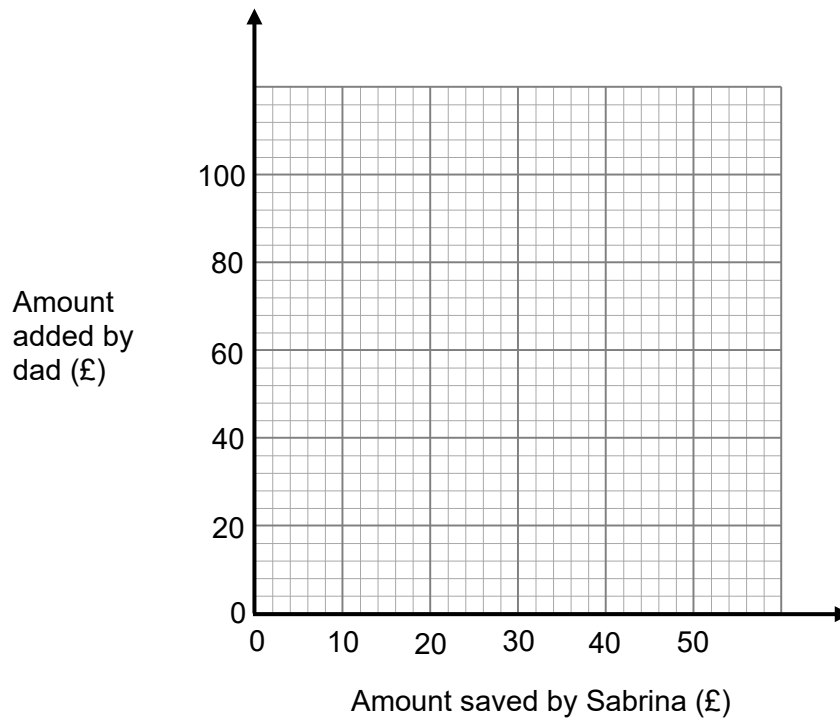
Sabrina is raising money for a car.

Her dad says,

“Whatever amount you raise, I will **add** the same amount.”

Show this information by drawing a graph on **each** grid below.

[2 marks]



- 21 Write down the value of $\tan 60^\circ$

[1 mark]

Answer _____

- 22 Work out the value of $(2^3 \times 2^4) \div (2^{10} \div 2)$
Give your answer as a decimal.

[3 marks]

Answer _____

- 23 Write down the equation of a line parallel to $y = 5 - 3x$

[1 mark]

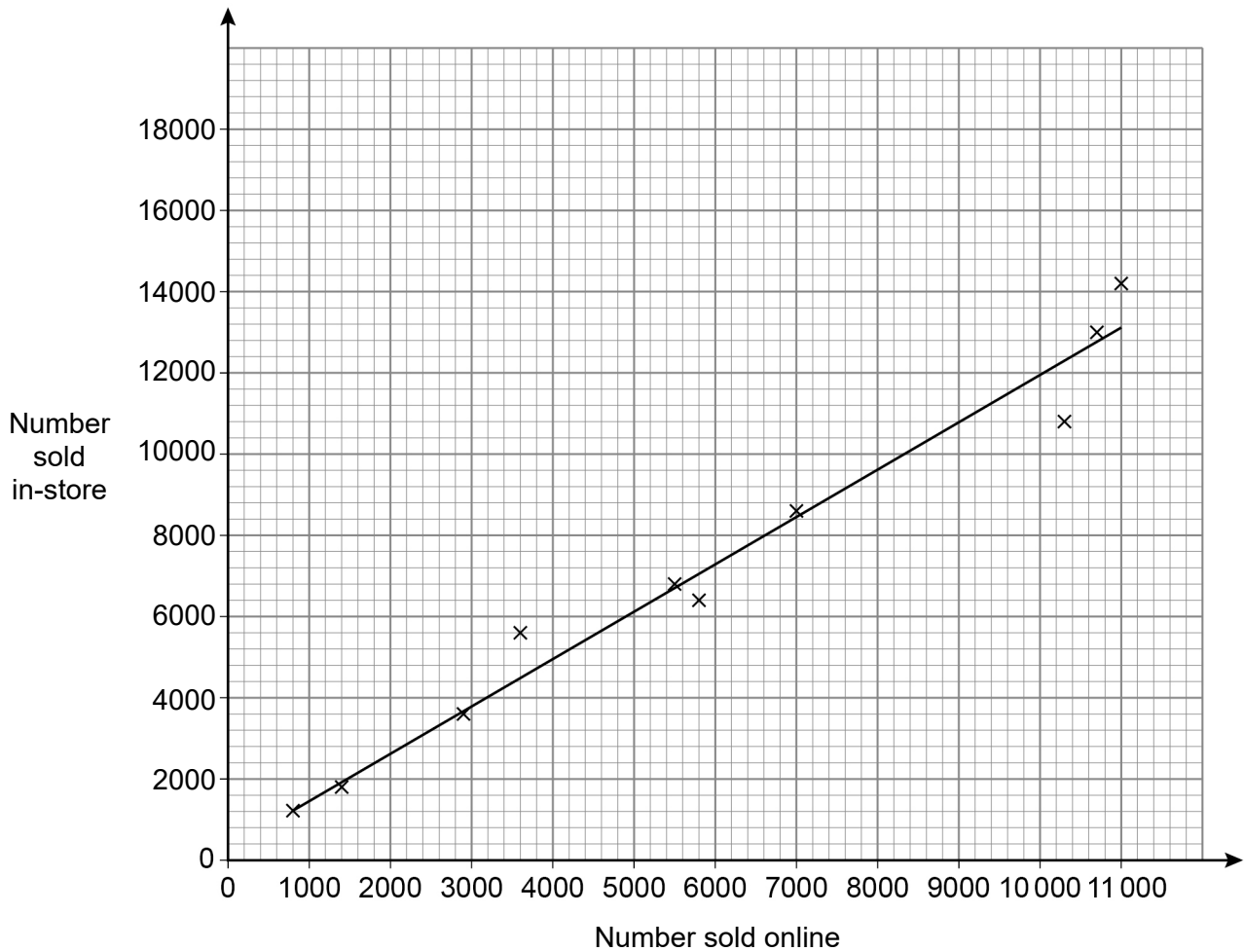
Answer _____

24

A company sells 10 new products.

The scatter graph shows, for each product,
the number sold online in the first week
and
the number sold in-store in the first week.

A line of best fit has been drawn on the scatter graph.



24 (a) The scatter graph shows positive correlation.

Describe the relationship between number of products sold online and in-store.

[1 mark]

24 (b) The company earns
£2 for each product sold online
and
£1.50 for each product sold in-store.

The company releases another product.

In the first week it has 8000 sales online.

Estimate the **total** amount the company earns from sales online and in-store in the first week.

[3 marks]

Answer £ _____

25

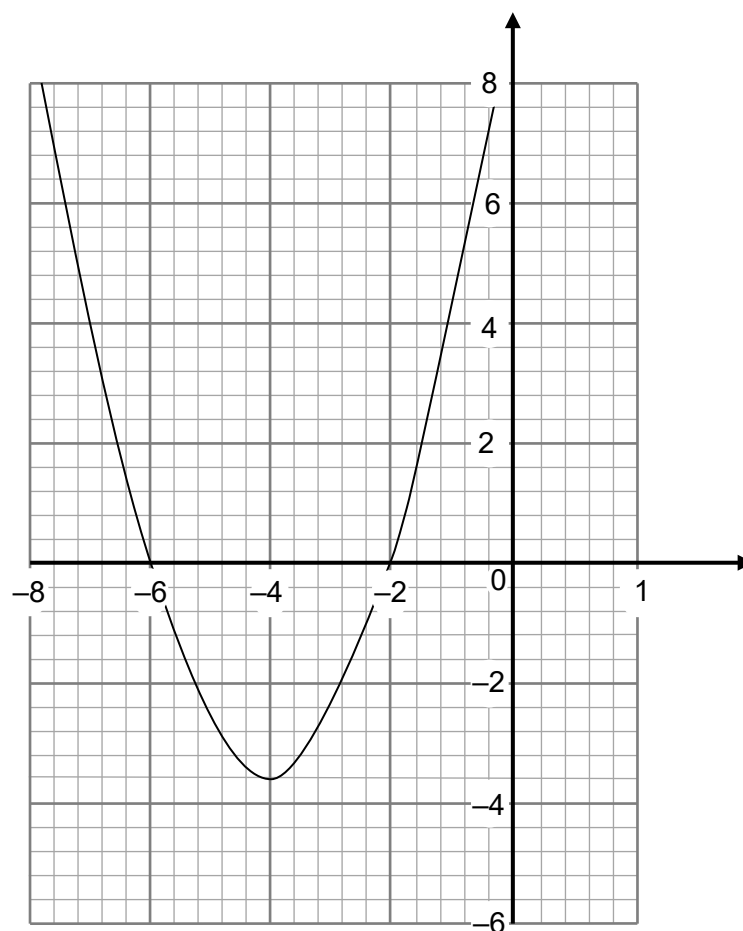
40% of a number is 120

Work out 130% of the number.

[3 marks]

Answer _____

26

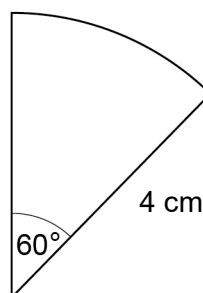
Here is the graph of $y = x^2 + 8x + 12$ Use the graph to estimate the solutions of $x^2 + 8x + 12$ **[2 marks]**

Answer _____

Shape A is a circle with radius $\frac{\sqrt{11}}{2}$ cm

Not drawn
accurately

Shape B



You **must** show your working.

[5 marks]

Answer

28 Factorise $x^2 - 7x + 12$

[2 marks]

Answer _____

29 (a) Write 1.2×10^4 as an ordinary number.

[1 mark]

Answer _____

29 (b) Simplify $(1.2 \times 10^4) : (2.5 \times 10^{-1})$

Give your answer in the form $n : 1$

[2 marks]

Answer _____ : 1

END OF QUESTIONS

There are no questions printed on this page

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outside the
box*

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ANSWER IN THE SPACES PROVIDED**

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