

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

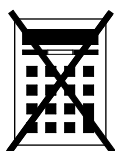
Wednesday 8 November 2023 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- the Formulae Sheet (enclosed).

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.

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	
26–27	
TOTAL	

Advice

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



N 0 V 2 3 8 3 0 0 1 F 0 1

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

*Do not write
outside the
box*

1 (a) Write down the value of 2^3

[1 mark]

Answer _____

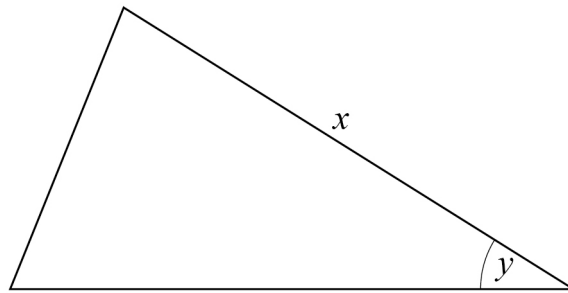
1 (b) Work out $3.45 + 2.07 - 1.3$

[2 marks]

Answer _____



- 2 Here is a triangle.



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

[1 mark]

$x =$ _____ mm

- 2 (b) Measure angle y .

[1 mark]

$y =$ _____ °

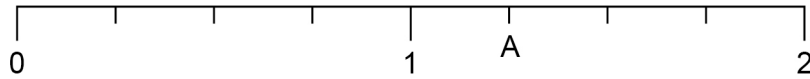
- 3 Write a number in the box to make the statement correct.

[1 mark]

3.7 <



- 4 (a) Here is a number line.

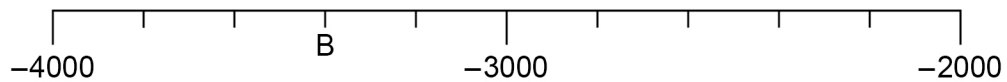


Which number is at A?

[1 mark]

Answer _____

- 4 (b) Here is another number line.



Which number is at B?

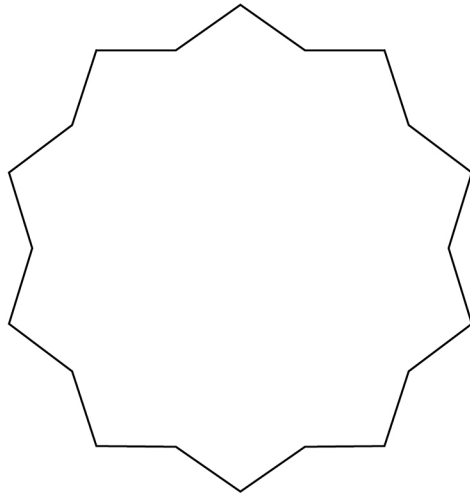
[1 mark]

Answer _____



5

Here is a shape.



Write down the order of rotational symmetry of the shape.

[1 mark]

Answer _____

Turn over for the next question

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

[1 mark]

Answer _____

6 (b) Factorise $5a + 10$

[1 mark]

Answer _____

6 (c) Multiply out $4(10 - x)$

[2 marks]

Answer _____



7 Ollie and Rachel run a marathon race.

7 (a) Ollie starts the race at 9.15 am

He takes $3\frac{3}{4}$ hours to finish the race.

At what time does he finish?

[2 marks]

Answer _____

7 (b) Rachel has a target time of 4 hours 10 minutes.

She has been running for 186 minutes.

To meet her target, how many minutes does she have left to finish the race?

[3 marks]

Answer _____ minutes



- 8** Shamira uses a tally chart to record the vehicles passing her school.
Here is her chart with the tallies.
Each 5-bar gate (||||) represents 5 vehicles.

Vehicle	Tally	Frequency
Car		
Bus		
Van		
Lorry		

- 8 (a)** Shamira says,
“The number of cars is more than the **total** of the other vehicles
because cars have four 5-bar gates and the others only have three 5-bar gates.”

Is she correct?

Tick a box.

Yes

☐

No

☐

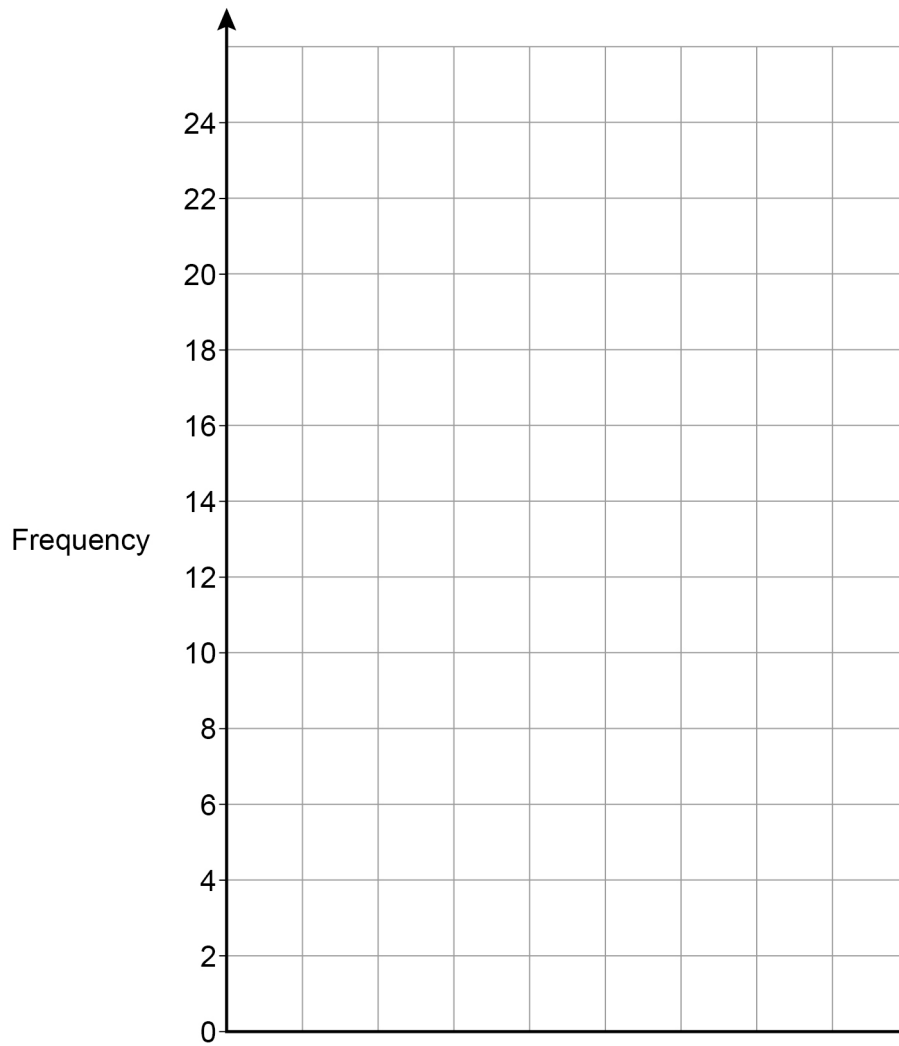
Show working to support your answer.

[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]**

$$\square + \square + \square = \square 7$$

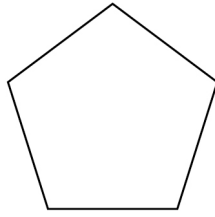
$$\square + \square + \square = \square 32$$

$$\square + \square + \square = \square 15$$

$$\square + \square + \square = \square 24$$

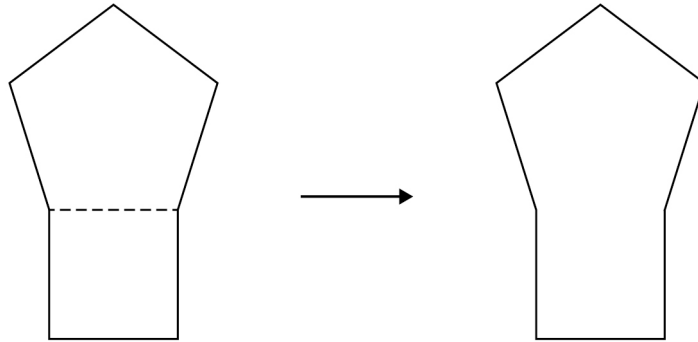


- 10 A **regular** pentagon has perimeter 100 mm



Not drawn
accurately

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



Work out the perimeter of the shape.

[3 marks]

Answer _____ mm



11 Last week, Erik worked for 10 hours.
He paid no tax and received £90

11 (a) This week, Erik works for 15 hours.
He assumes he will be paid at the same rate and pay no tax.
How much does he expect to receive this week?

[3 marks]

Answer £ _____



- 11 (b)** In fact, **this week**, Erik
is paid an extra 50p per hour
pays £8.90 tax.

What does this tell you about the amount he receives?

Tick **one** box.

☐

It is less than he expected

☐

It is the same as he expected

☐

It is more than he 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 9
 - the median is 13
 - the range is 11

[3 marks]

	9			17	
--	---	--	--	----	--

- 13** A shape has
- an even number of sides
 - more sides than a square
 - fewer sides than a decagon

Write down the name of **one** shape this could be.

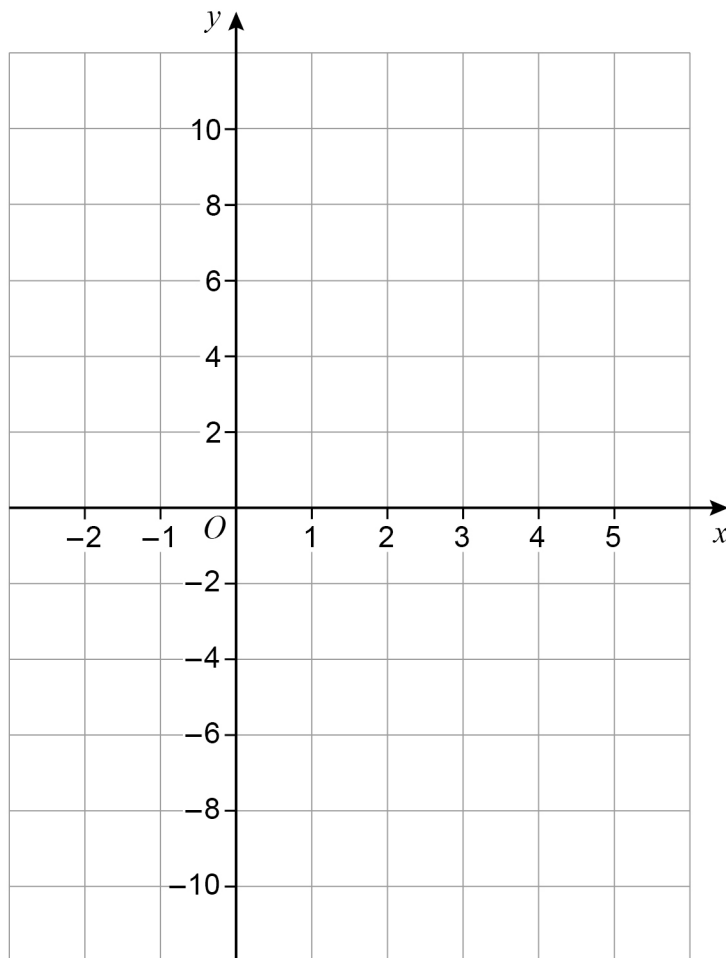
[1 mark]

Answer _____



- 14 On the grid, draw the graph of $y = 2x - 6$ for values of x from -2 to 5

[3 marks]



Turn over for the next question

Turn over ►



15

Work out $\frac{5}{8} + \frac{13}{16}$

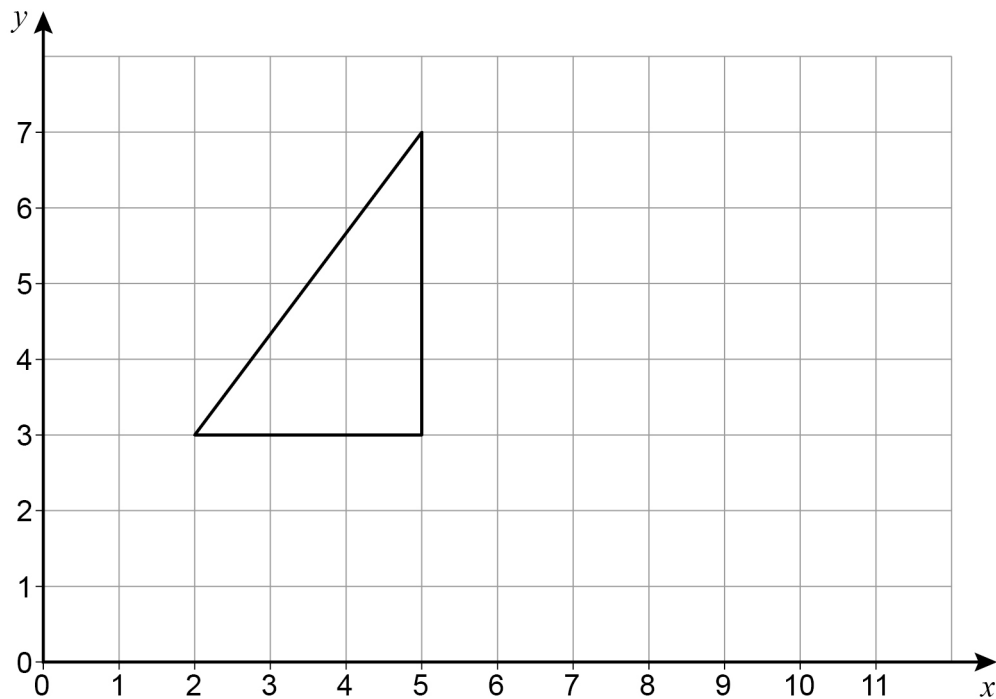
Give your answer as a mixed number.

[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 (7, 3) and (7, 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 _____



Ali has £80

Joe spends $\frac{2}{3}$ of this money.

He gives the rest back to Ali.

What fraction of the £80 does Ali have now?

Give your answer in its simplest form.

[4 marks]

Answer _____



18

Work out $\sqrt{100 - 4(2^2 + 5)}$ **[3 marks]**

Answer _____

19

What does $(A \cup B)$ represent in $P(A \cup B)$?
Circle your answer.

[1 mark]

A or B or both

A and B

not A and not B

A but not B

Turn over ►

20

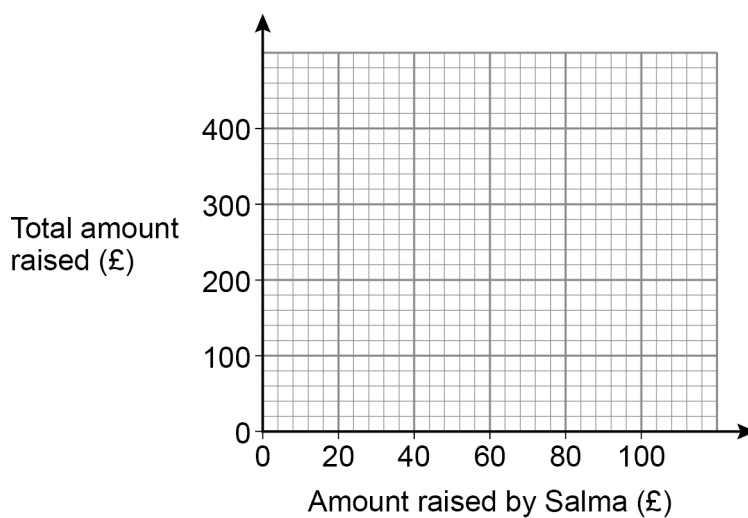
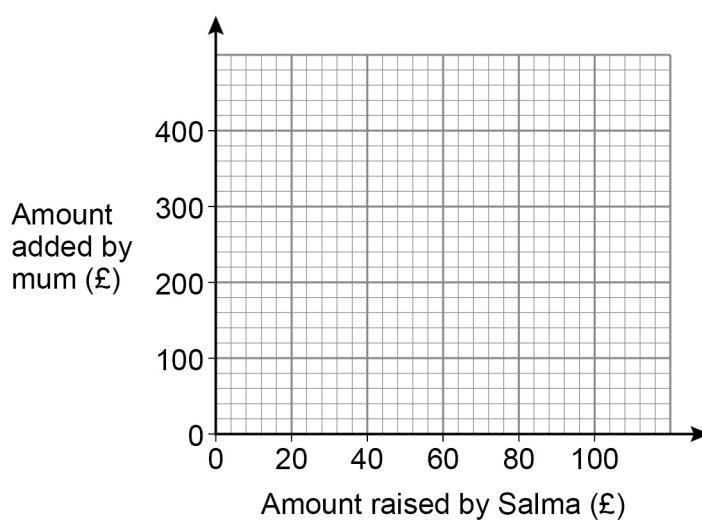
Salma is raising money for charity.

Her mum says,

“Whatever amount you raise, I will **add** double that amount.”

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

[2 marks]



- 21 Write down the value of $\cos 90^\circ$

[1 mark]

Answer _____

- 22 Work out the value of $(8^2 \times 8) \div (8^9 \div 8^5)$
Give your answer as a decimal.

[3 marks]

Answer _____

- 23 Write down the equation of a line parallel to $y = 3x + 1$

[1 mark]

Answer _____

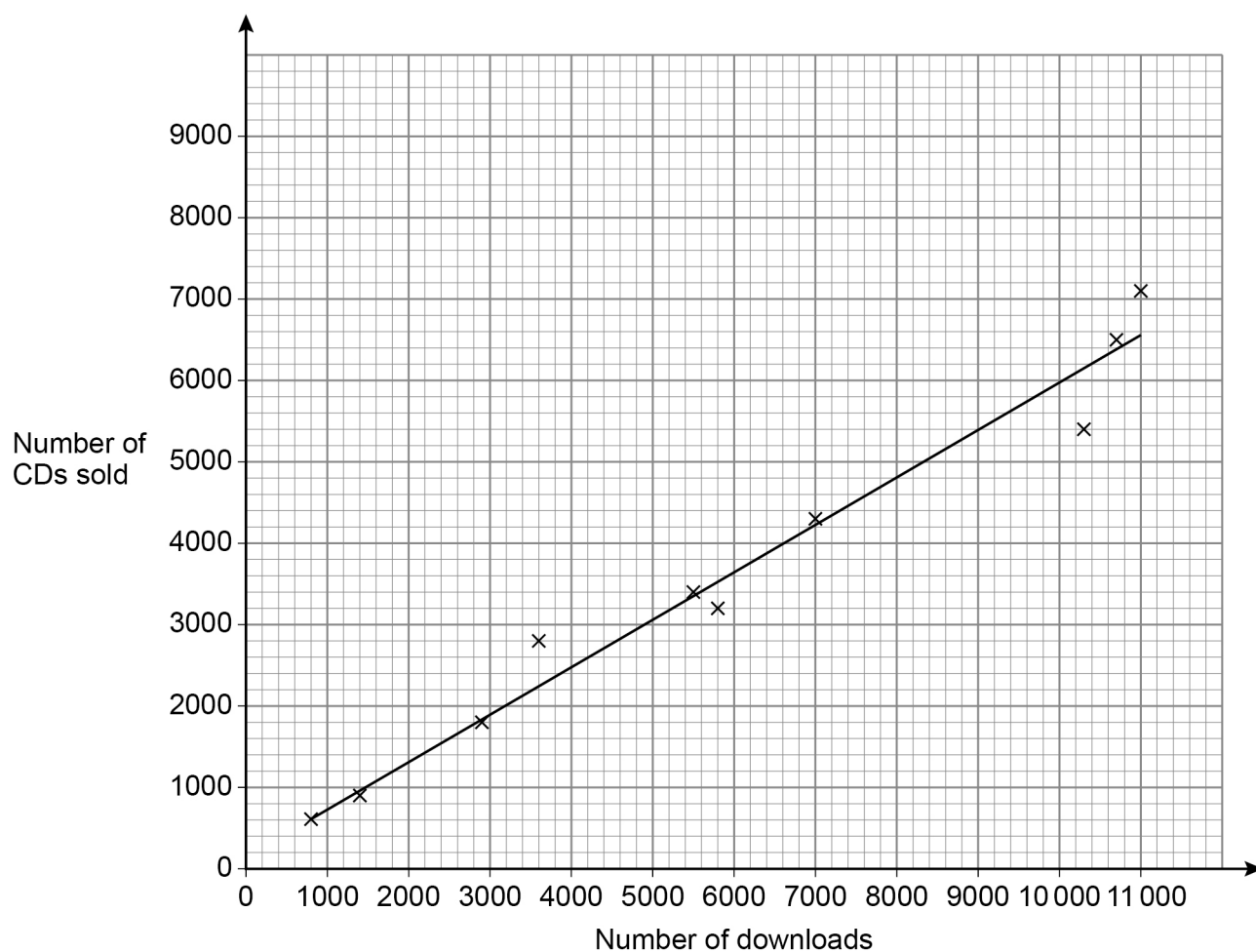


24

A music company releases 10 albums.

The scatter graph shows, for each album,
the number of downloads on the first day
and
the number of CDs sold on the first day.

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 downloads and number of CDs sold.

[1 mark]

24 (b) The company earns

£2.50 for each download

and

£3 for each CD sold.

The company releases another album.

On the first day it has 9000 downloads.

Estimate the **total** amount the company earns from downloads and CDs of the album that day.

[3 marks]

Answer £ _____

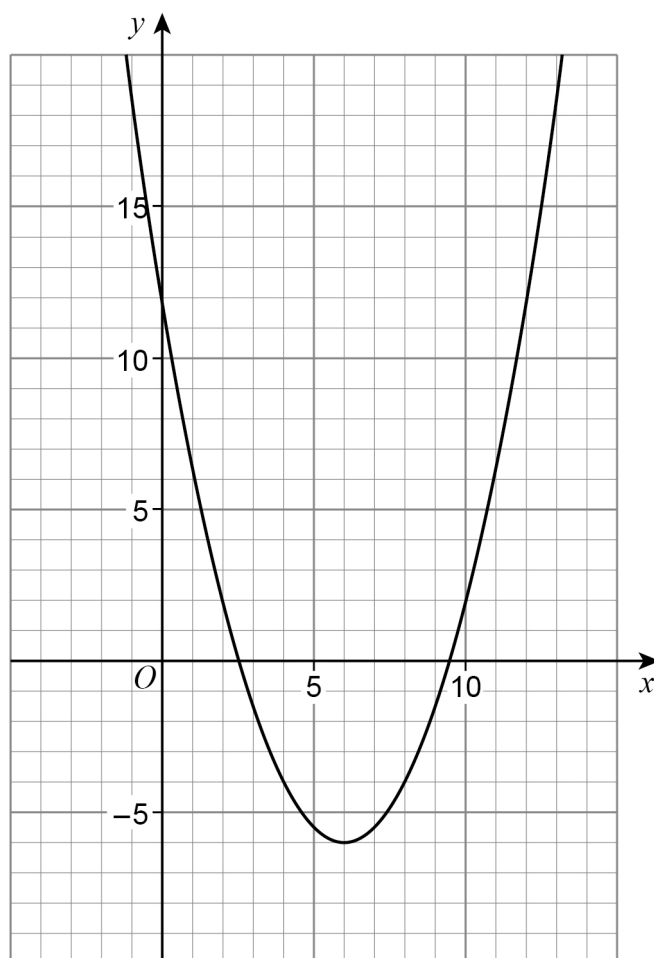


- 25** 70% of a number is 350
Work out 120% of the number. **[3 marks]**

Answer _____



26 Here is the graph of $y = 0.5x^2 - 6x + 12$



Use the graph to estimate the solutions of $0.5x^2 - 6x + 12 = 0$

[2 marks]

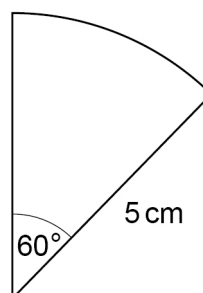
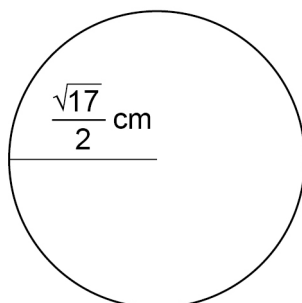
Answer _____



Shape A is a circle with radius $\frac{\sqrt{17}}{2}$ cm

Not drawn accurately

Shape B



You **must** show your working.

[5 marks]

Answer



28 Factorise $x^2 + 2x - 24$

[2 marks]

Answer _____

29 (a) Write 2×10^3 as an ordinary number.

[1 mark]

Answer _____

29 (b) Simplify $(2 \times 10^3) : (5 \times 10^{-1})$

Give your answer in the form $n : 1$

[2 marks]

Answer _____ : 1

END OF QUESTIONS



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