Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE
MATHEMATICS

F

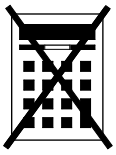
Foundation Tier Paper 1 Non-Calculator

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.

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	
26–27	
TOTAL	

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 _____

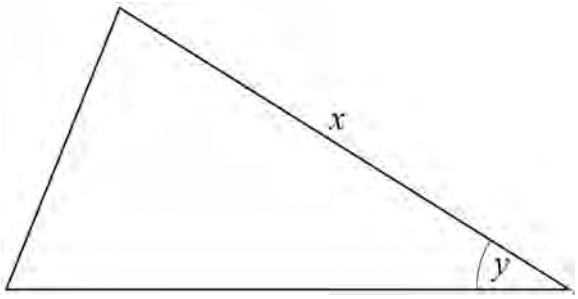
1 (b) Work out $3.45 + 2.07 - 1.3$

[2 marks]

Answer _____

Do not write outside the box

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]

$3.7 <$ ☐

6

Turn over ►

Do not write outside the box

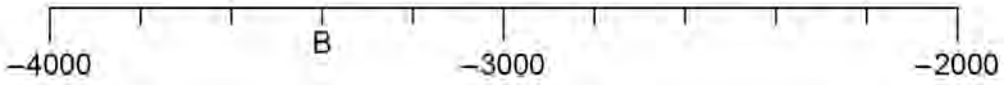
4 (a) Here is a number line.

Which number is at A?

[1 mark]

Answer _____

4 (b) Here is another number line.



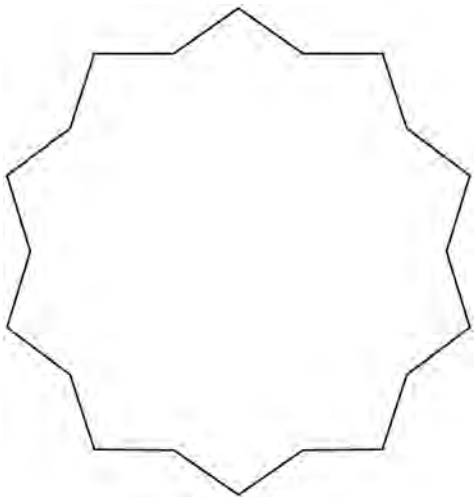
Which number is at B?

[1 mark]

Answer _____

Do not write outside the box

5 Here is a shape.



Write down the order of rotational symmetry of the shape.

[1 mark]

Answer _____

Turn over for the next question

3

Do not write outside the box

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 _____

Do not write outside the box

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

9

Do not write outside the box

8 Shamira uses a tally chart to record the vehicles passing her school.

Here is her chart with the tallies.

Each 5-bar gate (𝍸) represents 5 vehicles.

Vehicle	Tally	Frequency
Car	𝍸 𝍸 𝍸 𝍸 | | |	
Bus	𝍸 𝍸 | |	
Van	𝍸 | | | |	
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 ☐

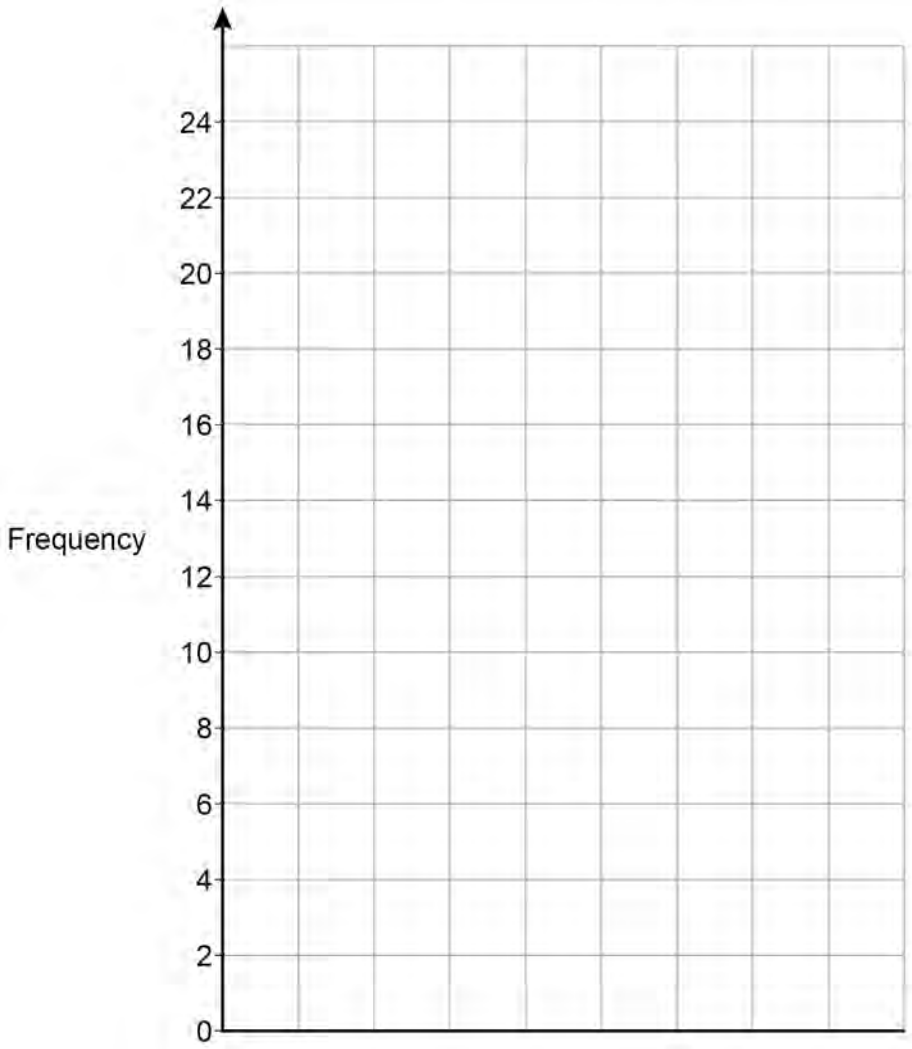
Show working to support your answer.

[2 marks]

Do not write outside the box

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

5

Do not write outside the box

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

Only use each number **once**.

[3 marks]

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

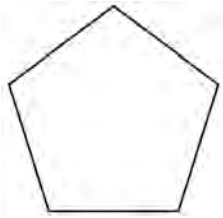
$\square + \square + \square = 32$

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

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

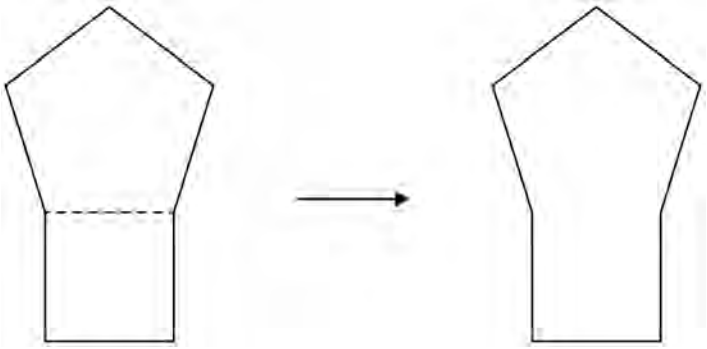
Do not write outside the box

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

6

Do not write outside the box

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 £ _____

Do not write outside the box

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

5

Do not write outside the box

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.

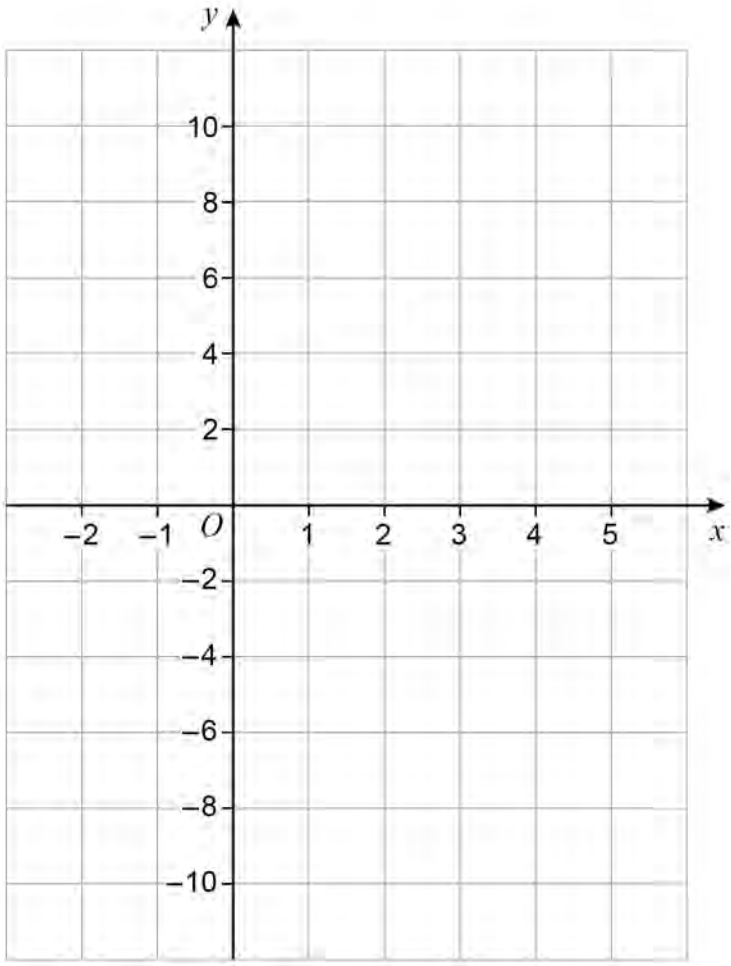
[1 mark]

Answer _____

Do not write outside the box

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

7

Do not write outside the box

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

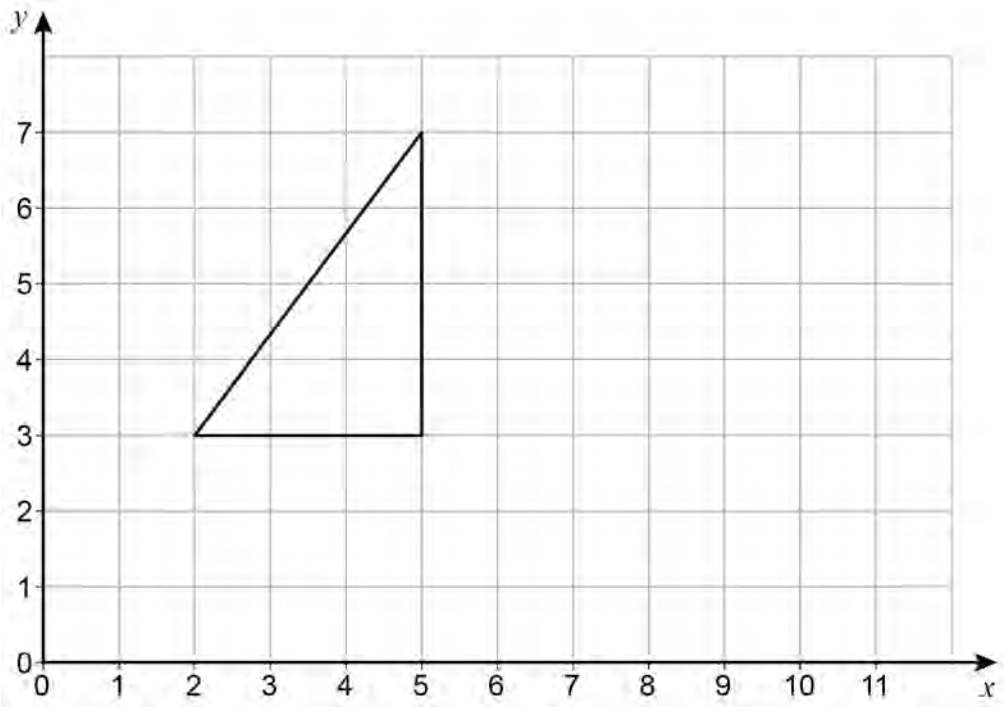
Give your answer as a mixed number.

[3 marks]

Answer _____

Do not write outside the box

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 _____

5

Do not write outside the box

17 Ali has £80

He gives $\frac{9}{10}$ of his money to Joe.

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 _____

Do not write outside the box

18 Work out $\sqrt{100 - 4(2^2 + 5)}$

[3 marks]

Answer _____

19 What does (A U B) represent in P(A U B) ?

Circle your answer.

[1 mark]

A or B or both

A and B

not A and not B

A but not B

8

Do not write outside the box

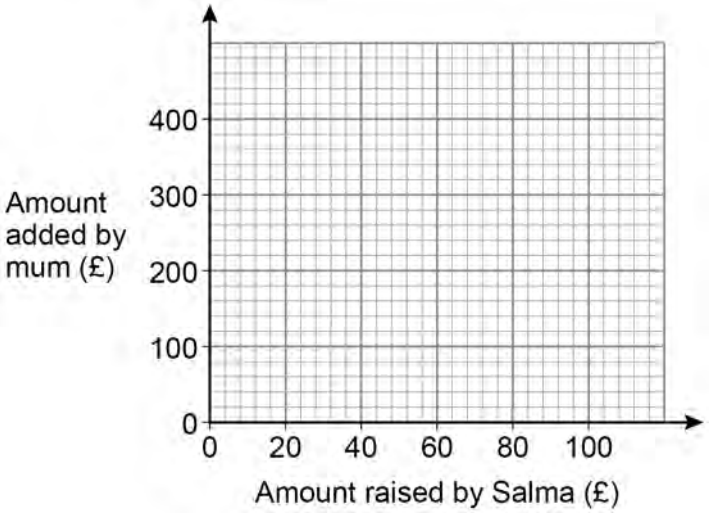
20 Salma is raising money for charity.

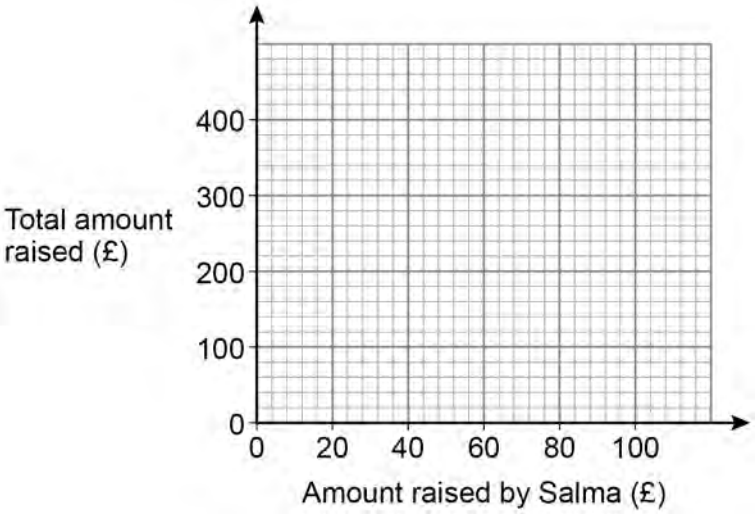
Her mum says,

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

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

[2 marks]





Do not write outside the box

21 Write down the value of cos 90°

[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 _____

7

Do not write outside the box

24 A music company releases 10 albums.

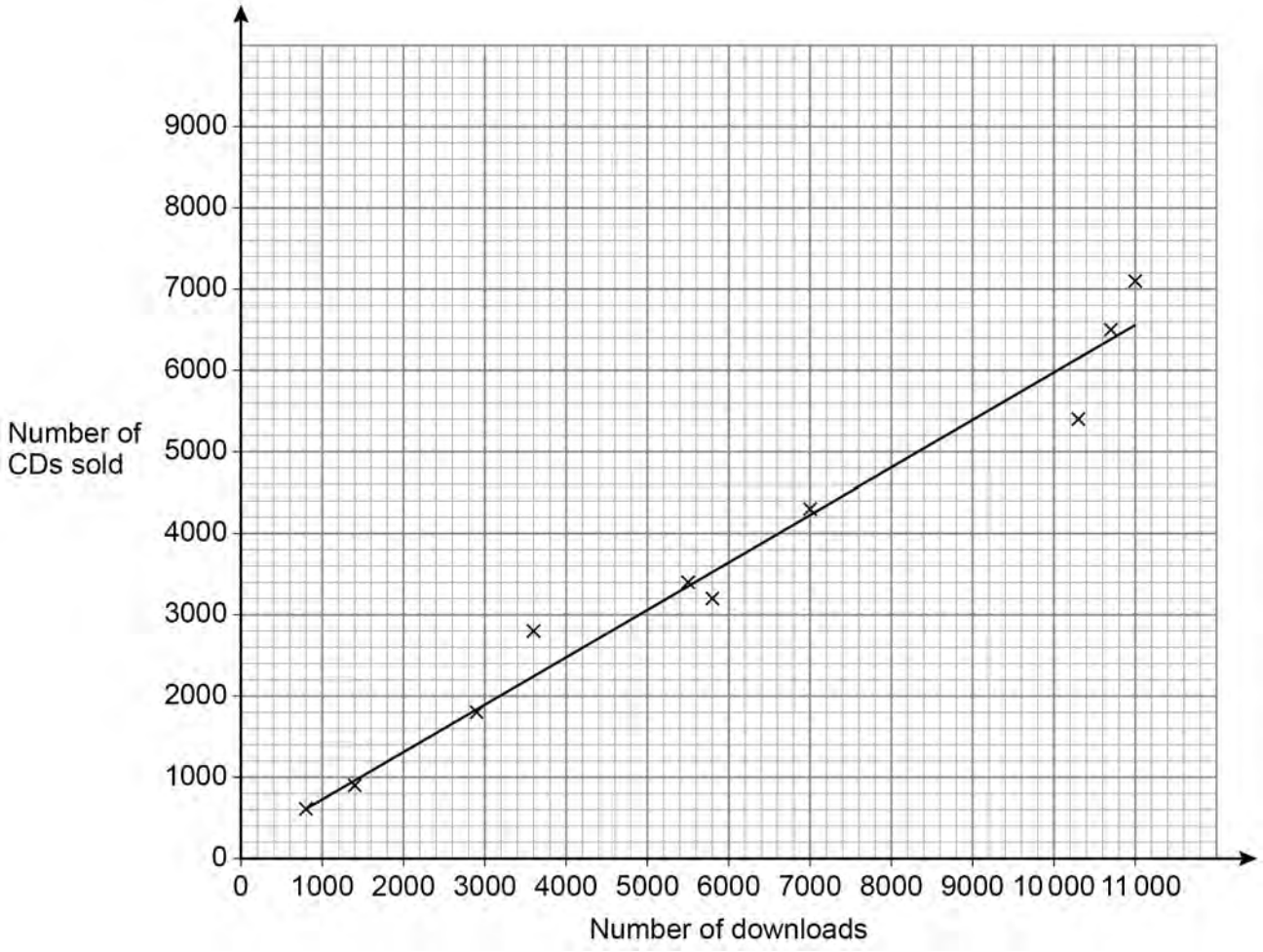
The scatter graph shows, for each album,

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.



Do not write outside the box

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 £ _____

4

Do not write outside the box

25 70% of a number is 350

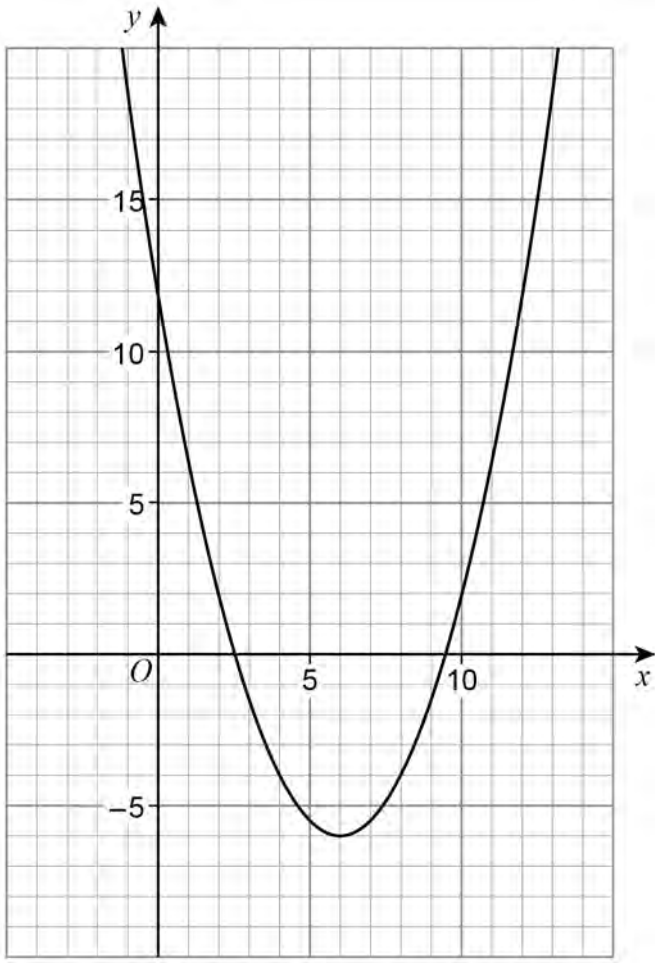
Work out 120% of the number.

[3 marks]

Answer _____

Do not write outside the box

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 _____

5

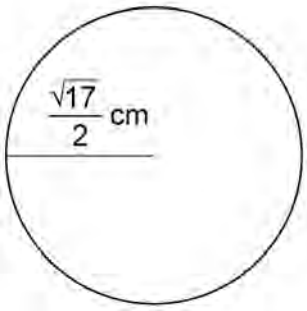
Do not write outside the box

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

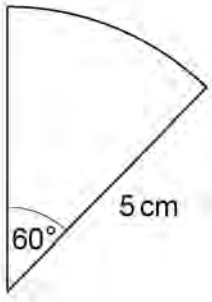
Shape B is a sector of a circle with radius 5 cm

Not drawn accurately

Shape A



Shape B



Which shape has the greater area, A or B?

You **must** show your working.

[5 marks]

Answer _____

Do not write outside the box

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

10

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