



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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I declare this is my own work.

# GCSE MATHEMATICS

# F

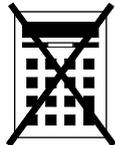
Foundation Tier      Paper 1 Non-Calculator

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        |      |
| <b>TOTAL</b> |      |

## 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.

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

[1 mark]

Answer \_\_\_\_\_

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

[2 marks]

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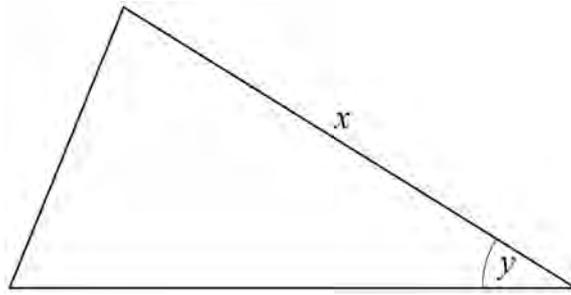
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Answer \_\_\_\_\_



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]

$y =$  \_\_\_\_\_ °

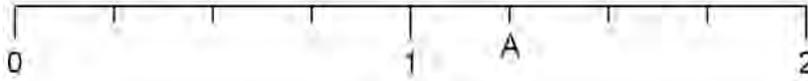
3 Write a number in the box to make the statement correct.

[1 mark]

3.7 <



4 (a) Here is a number line.

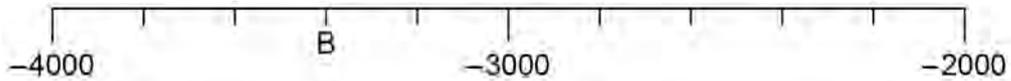


Which number is at A?

[1 mark]

Answer \_\_\_\_\_

4 (b) Here is another number line.



Which number is at B?

[1 mark]

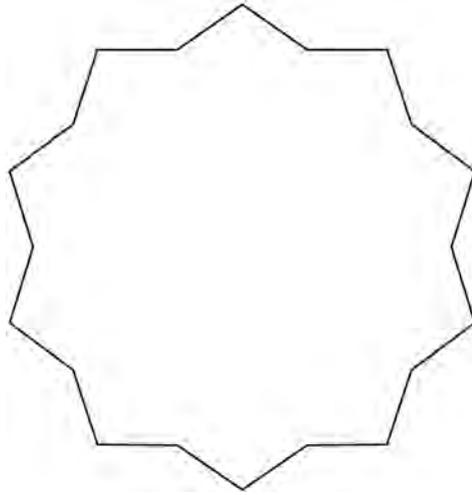
Answer \_\_\_\_\_



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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

Turn over ►



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]

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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]

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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]

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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 (𠄎) represents 5 vehicles.

| Vehicle | Tally     | Frequency |
|---------|-----------|-----------|
| Car     | 𠄎 𠄎 𠄎 𠄎 𠄎 |           |
| Bus     | 𠄎 𠄎 𠄎     |           |
| Van     | 𠄎 𠄎       |           |
| Lorry   | 𠄎         |           |

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]

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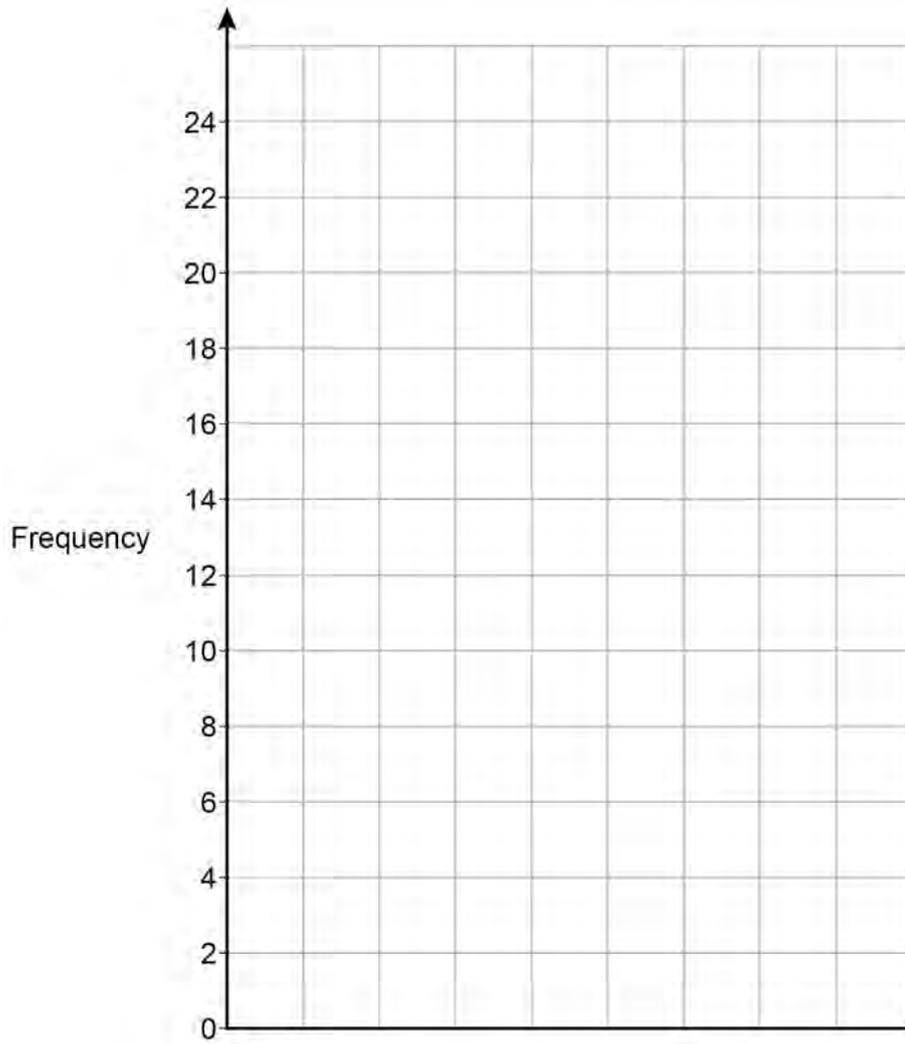
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8 (b) On the grid, draw a bar chart to represent the data in the tally chart.

[3 marks]



Turn over for the next question

5

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

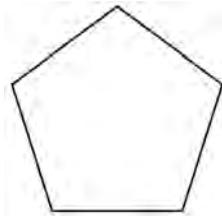
$$\square + \square + \square = \square$$

24



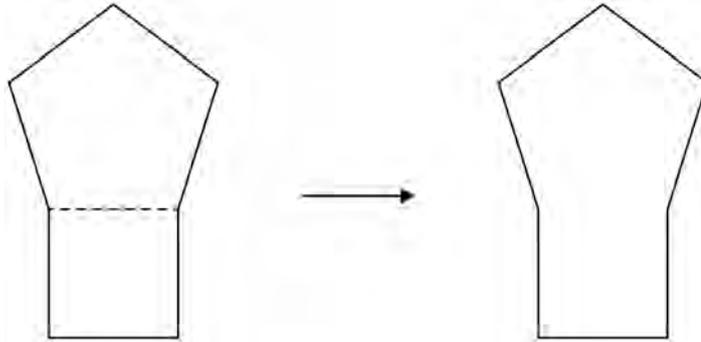
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10 A **regular** pentagon has perimeter 100 mm



Not drawn  
accurately

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



Work out the perimeter of the shape.

[3 marks]

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Answer \_\_\_\_\_ mm

6

Turn over ►



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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]

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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]

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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]

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|  | 9 |  |  | 17 |  |
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- 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.

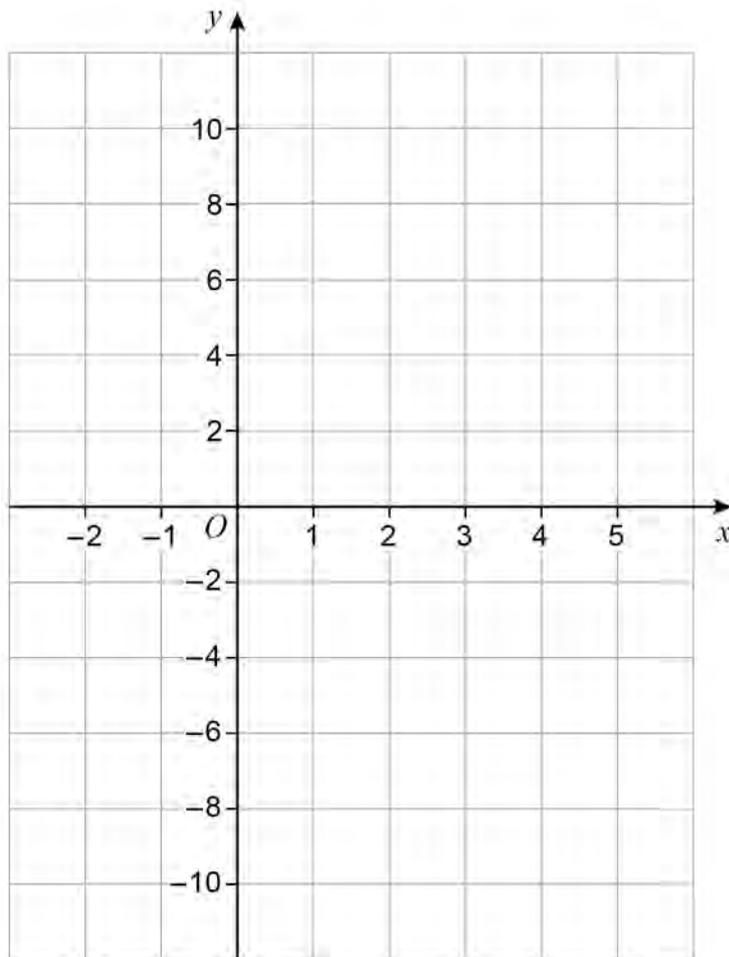
[1 mark]

Answer \_\_\_\_\_



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

[3 marks]



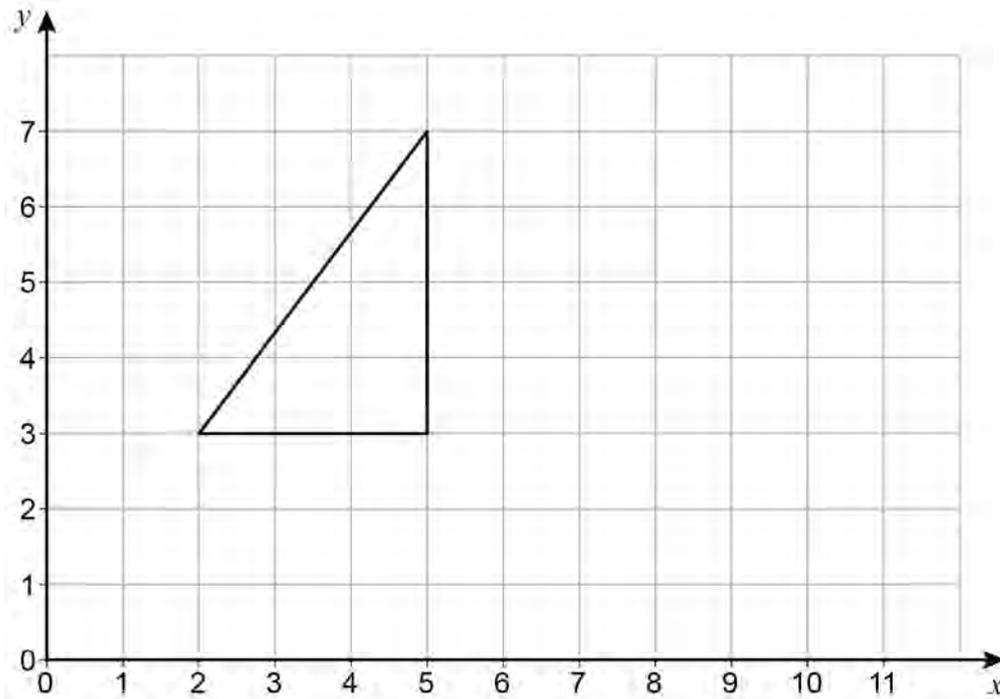
Turn over for the next question

Turn over ►





- 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 \_\_\_\_\_





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18

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

[3 marks]

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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

8

Turn over ►



20

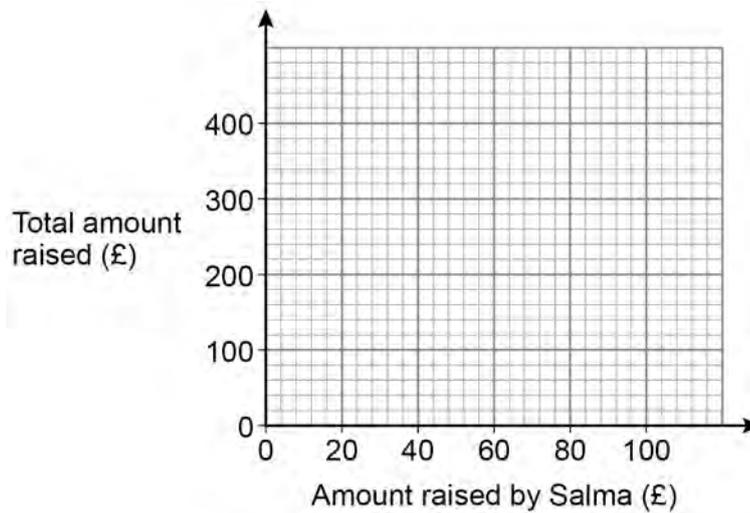
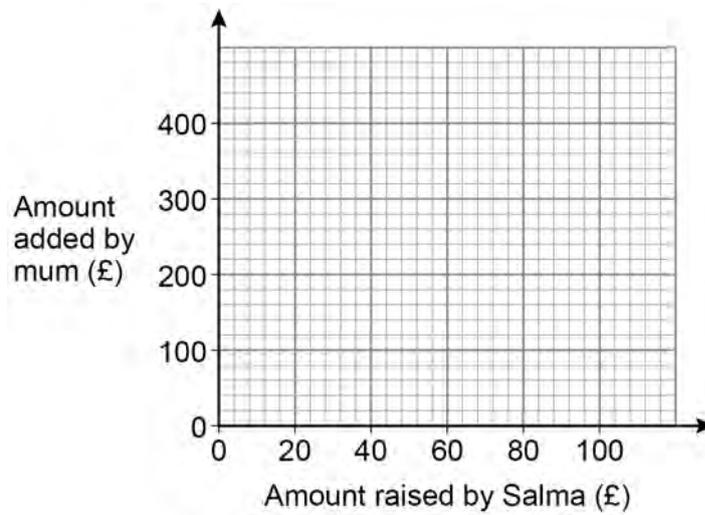
Salma is raising money for charity.

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]

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Answer \_\_\_\_\_

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

[1 mark]

Answer \_\_\_\_\_

7

Turn over ►

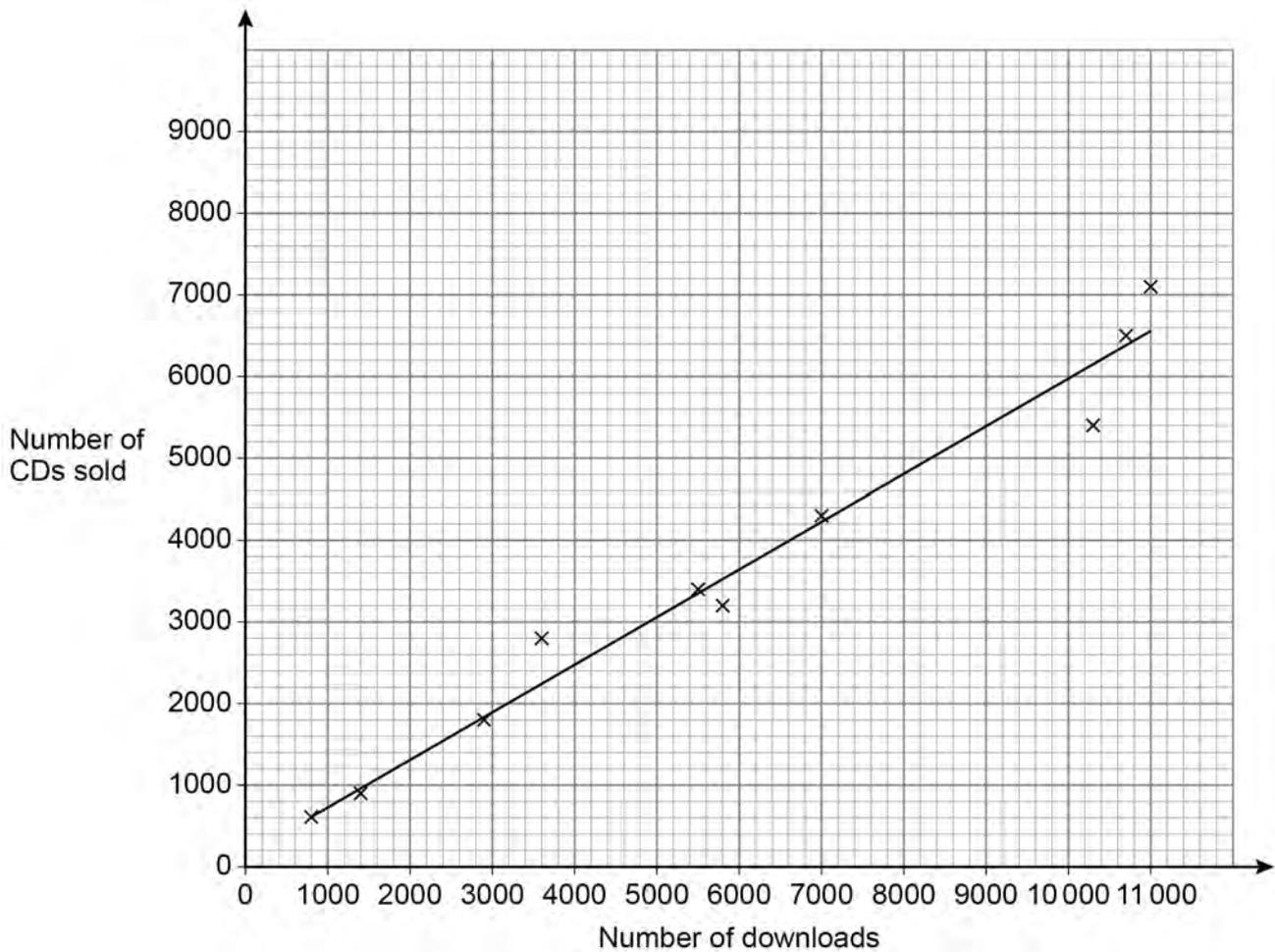


24

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.



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24 (a) The scatter graph shows positive correlation.

Describe the relationship between number of downloads and number of CDs sold.

[1 mark]

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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]

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Answer £ \_\_\_\_\_

4

Turn over ►



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70% of a number is 350

Work out 120% of the number.

[3 marks]

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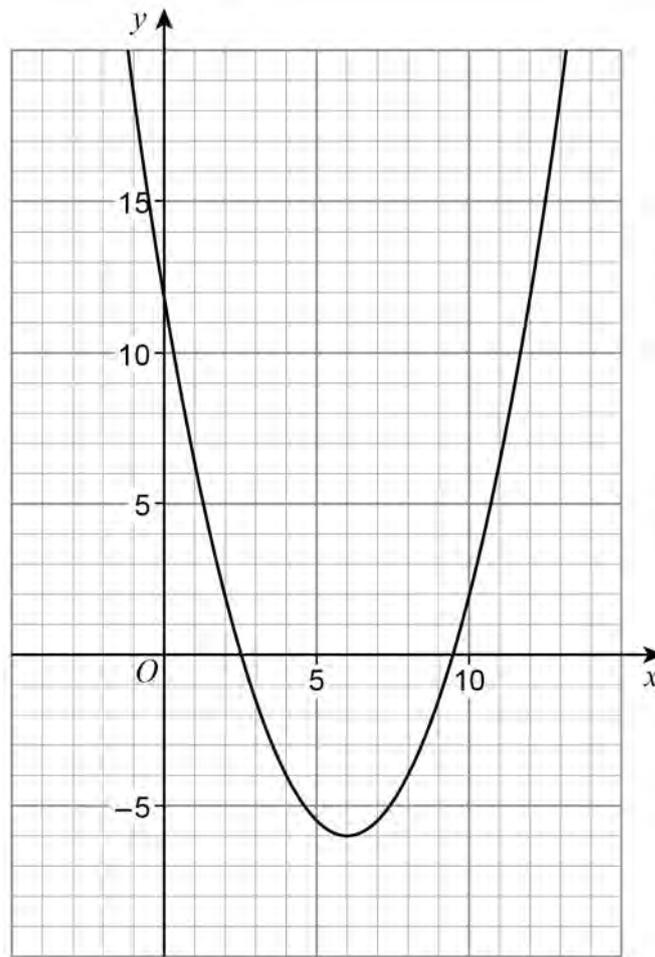
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Answer \_\_\_\_\_



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 \_\_\_\_\_





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

[2 marks]

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Answer \_\_\_\_\_

29 (a) Write  $2 \times 10^3$  as an ordinary number.

[1 mark]

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Answer \_\_\_\_\_

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

Give your answer in the form  $n : 1$

[2 marks]

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Answer \_\_\_\_\_ : 1

**END OF QUESTIONS**



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