

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

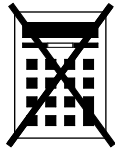
Foundation Tier Paper 1 Non-Calculator

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.

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.



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]**

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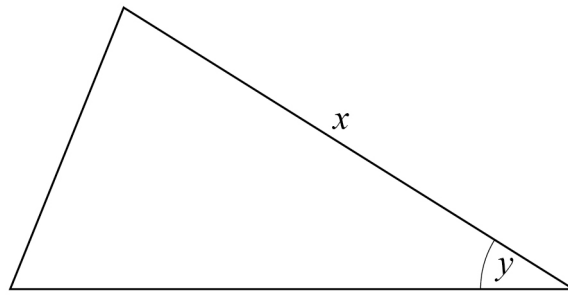
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Answer \_\_\_\_\_



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]

$y =$  \_\_\_\_\_ °

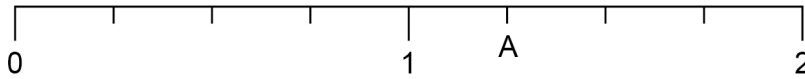
3 Write a number in the box to make the statement correct.

[1 mark]

3.7 <



- 4 (a) Here is a number line.

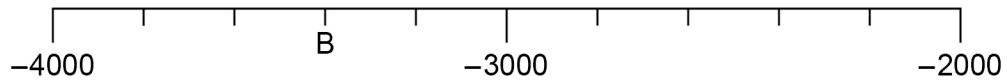


Which number is at A?

[1 mark]

Answer \_\_\_\_\_

- 4 (b) Here is another number line.



Which number is at B?

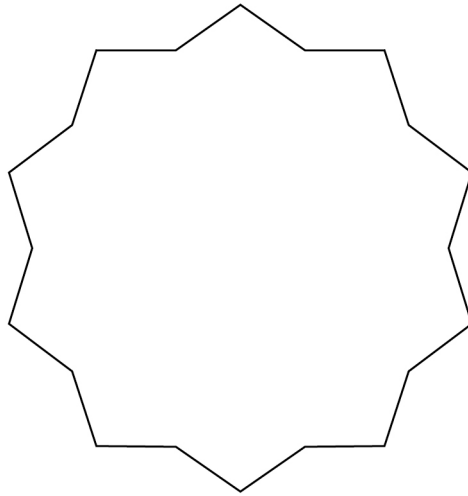
[1 mark]

Answer \_\_\_\_\_



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]

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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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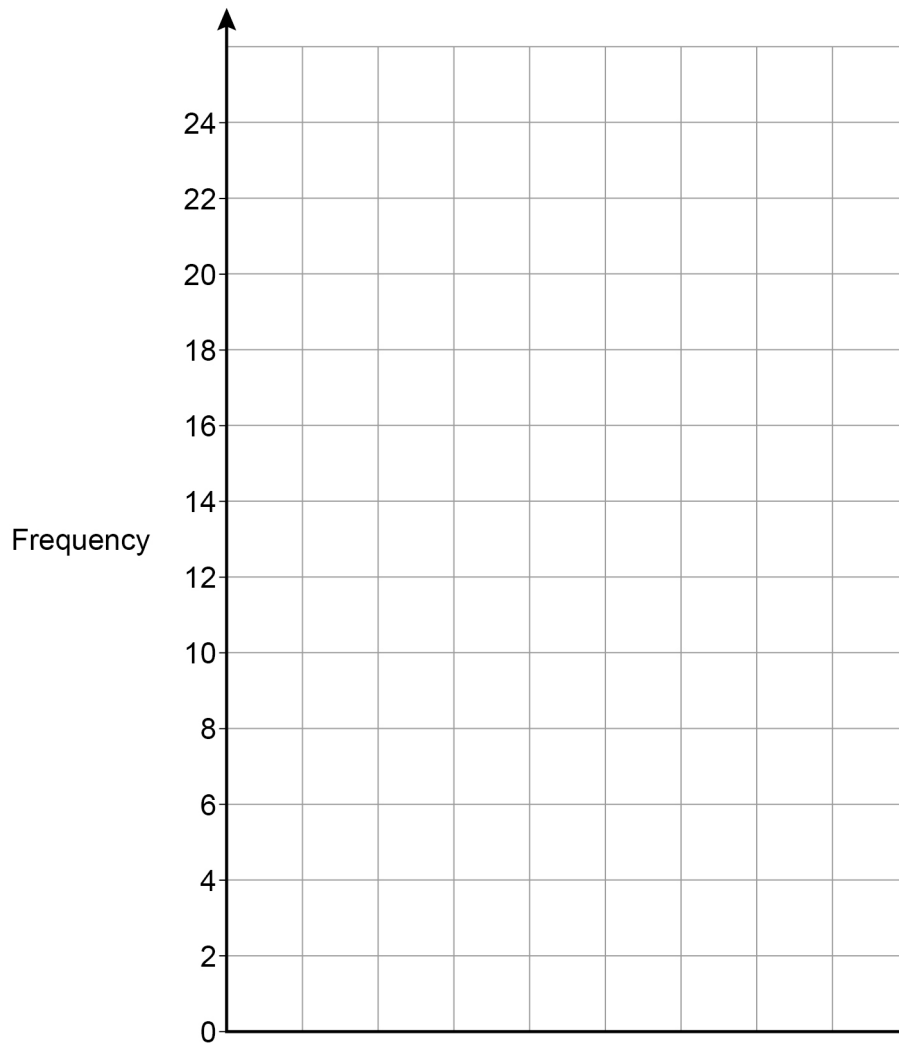


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8 (b) On the grid, draw a bar chart to represent the data in the tally chart.

[3 marks]



Turn over for the next question

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

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

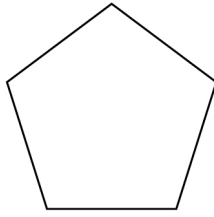
15

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

24

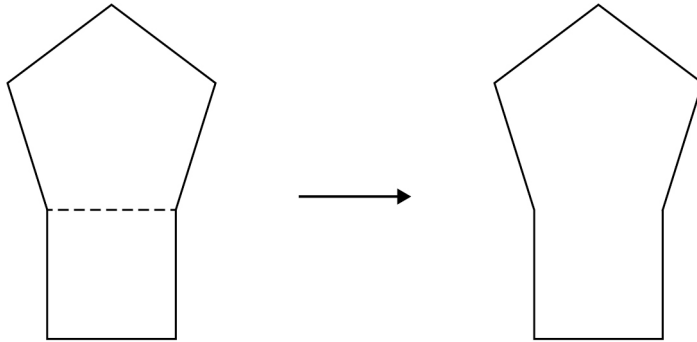


- 10 A **regular** pentagon has perimeter 100 mm



Not drawn  
accurately

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



Work out the perimeter of the shape.

**[3 marks]**

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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]**

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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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- 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.

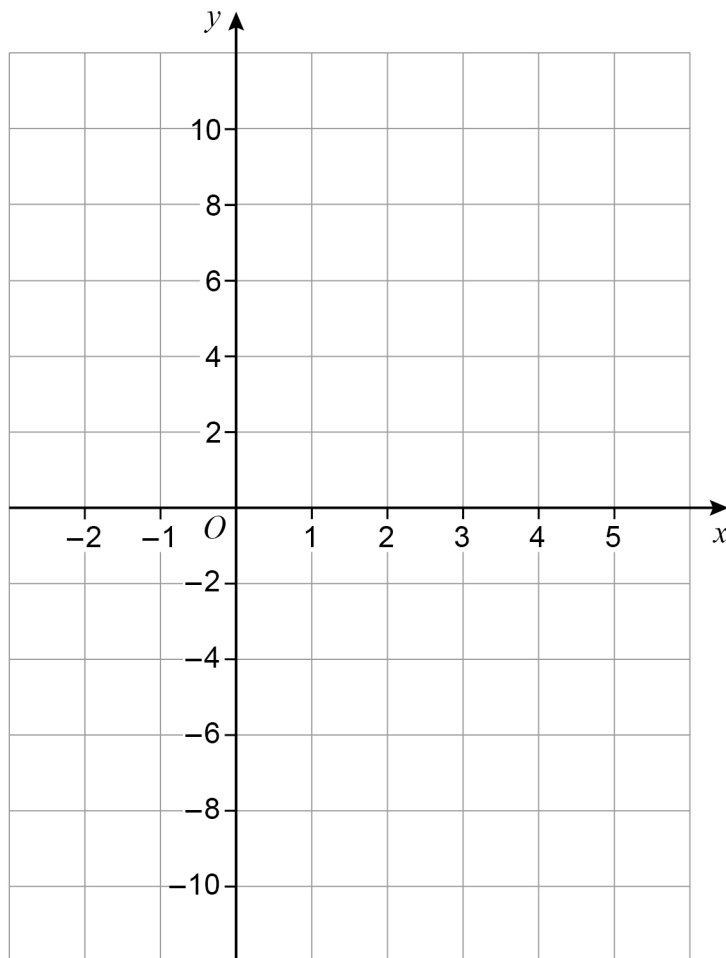
[1 mark]

Answer \_\_\_\_\_



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

[3 marks]



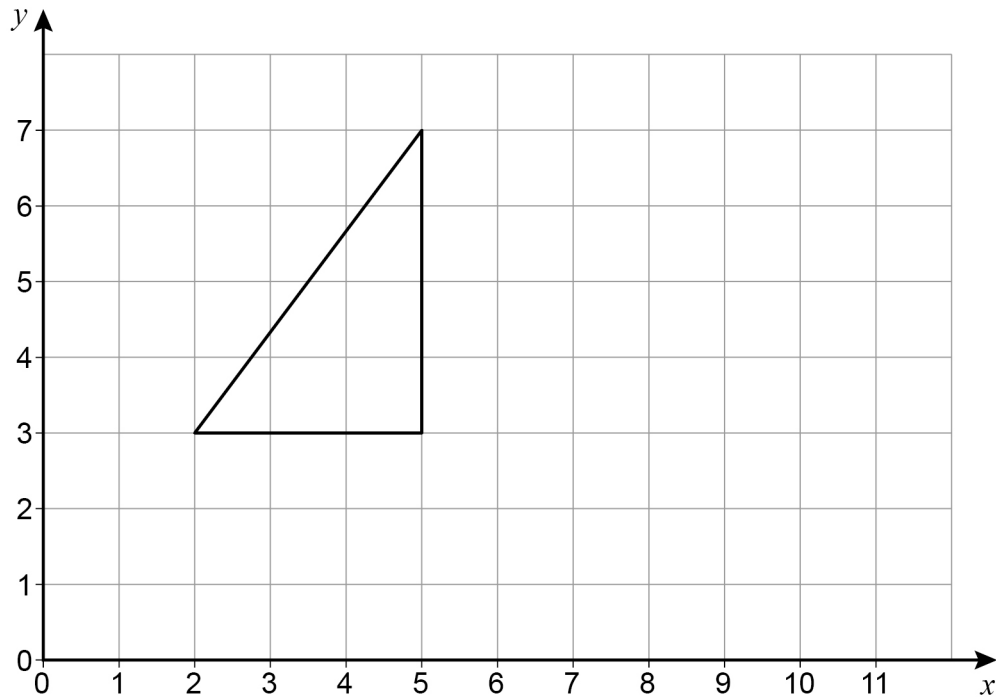
Turn over for the next question

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 \_\_\_\_\_





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



20

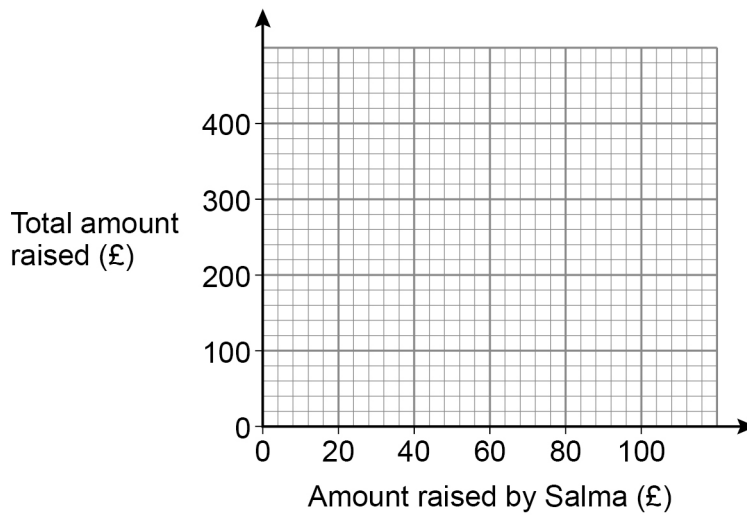
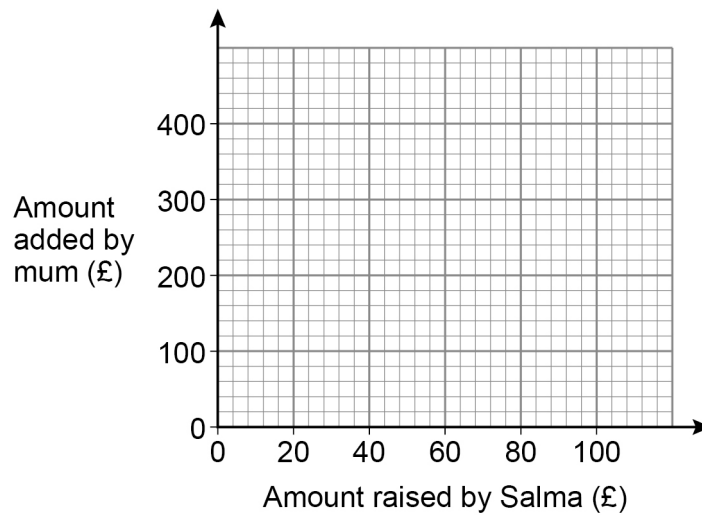
Salma is raising money for charity.

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 ►

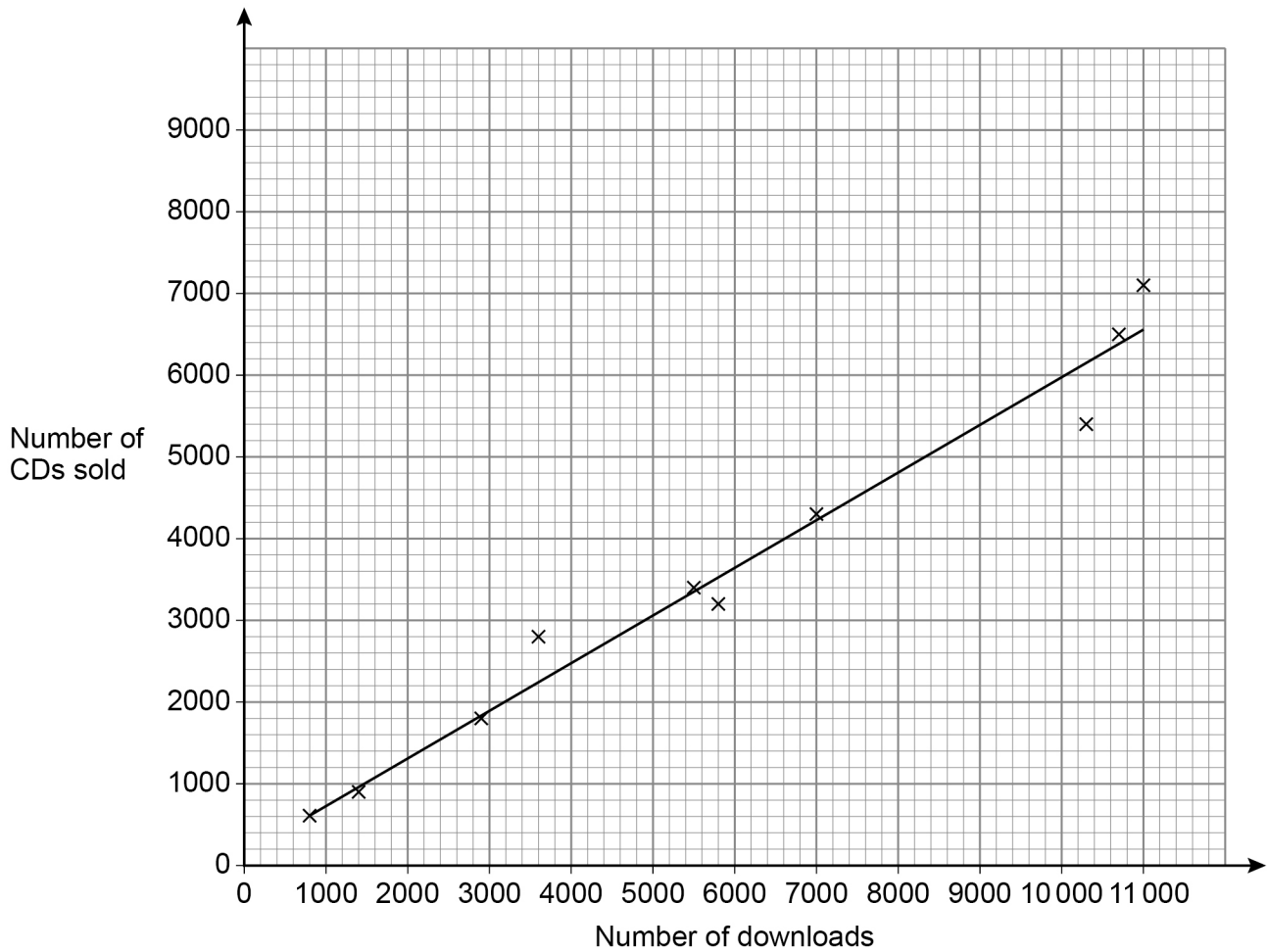


24

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.



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 ►



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

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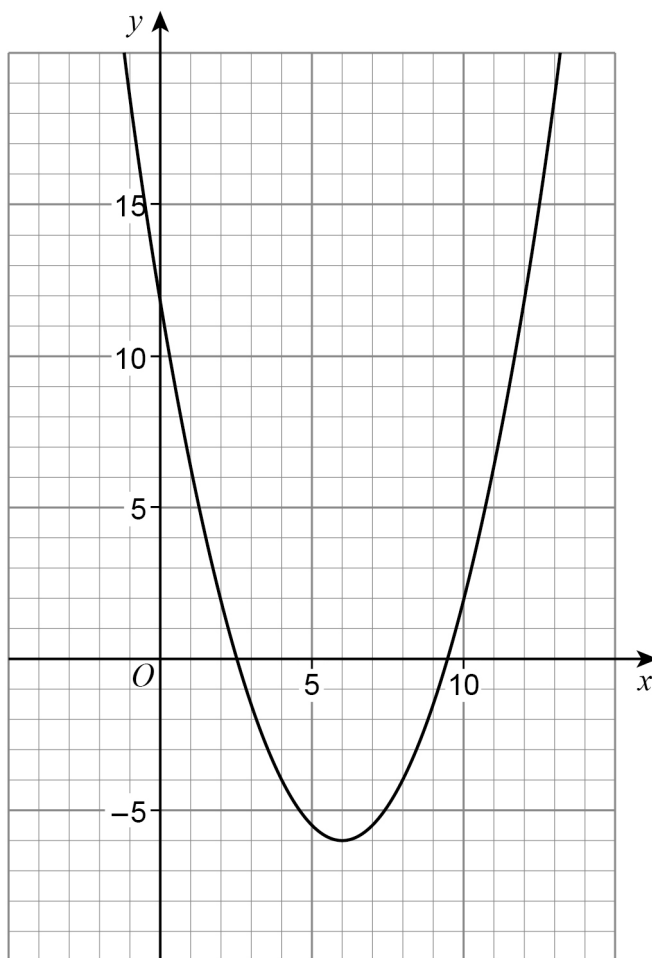
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Answer \_\_\_\_\_



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 \_\_\_\_\_



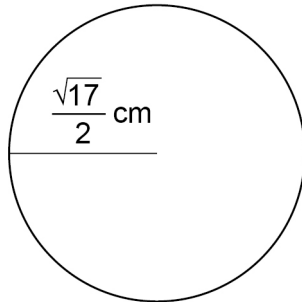
27

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

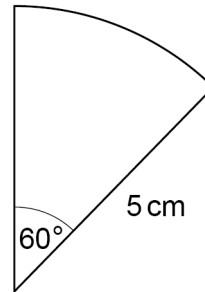
Shape B is a sector of a circle with radius 5 cm

Not drawn  
accurately

Shape A



Shape B



Which shape has the greater area, A or B?

You **must** show your working.

[5 marks]

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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**

