

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

Foundation Tier Paper 1 Non-Calculator

# F

Thursday 16 May 2024

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	
<b>TOTAL</b>	

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

Do not write  
outside the  
box

1 (a) Work out  $280 \div 7$

[1 mark]

40

Answer \_\_\_\_\_

Your paragraph text

1 (b) Work out  $1062 - 438$

[2 marks]

624

Answer \_\_\_\_\_

- 2 (a) Complete the statement.

[1 mark]

2 metres = 100 centimetres

- 2 (b) Complete the statement.

[1 mark]

8 kilograms = 8000 grams

- 2 (c) Convert 24 kilometres to miles.

Use 8 kilometres = 5 miles

[2 marks]

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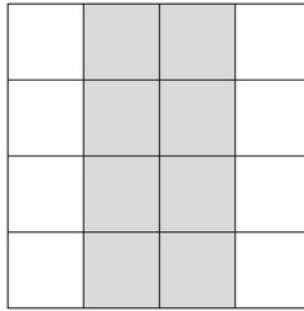
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Answer \_\_\_\_\_ miles

- 3 (a) Here is a centimetre grid.

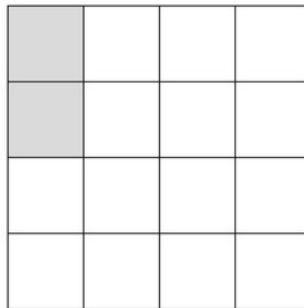


What **percentage** of the grid is shaded?

[1 mark]

Answer \_\_\_\_\_ %

- 3 (b) Kai has shaded two small squares on this centimetre grid.



He wants  $\frac{3}{4}$  of the grid to be shaded.

How many **more** small squares must he shade?

[2 marks]

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Answer \_\_\_\_\_

4 (a) Here is a list of four numbers.

6.92      7.27      7.18      7.14

Use **one** number from the list to complete each statement.

[2 marks]

The number closest in value to 7 is \_\_\_\_\_

The number that rounds to 7.2 to 1 decimal place is \_\_\_\_\_

4 (b) Here is a list of six numbers.

-10      -5      -2      4      6      10

Use **two** numbers from the list to complete each statement.

[2 marks]

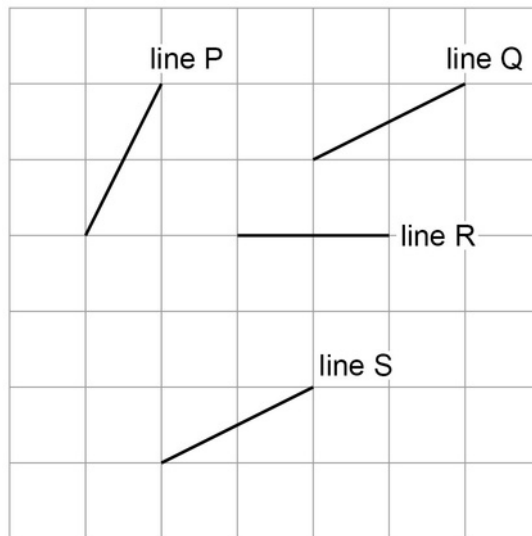
Two numbers that **add** to make -1 are \_\_\_\_\_ and \_\_\_\_\_

Two numbers that **multiply** to make 20 are \_\_\_\_\_ and \_\_\_\_\_

Turn over for the next question

Turn over ►

- 5 (a) Here are four lines on a square grid.

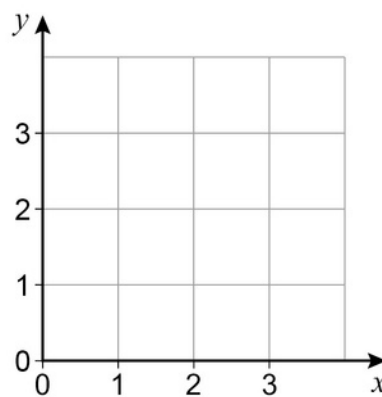


Which **two** lines are parallel?

[1 mark]

line \_\_\_\_\_ and line \_\_\_\_\_

- 5 (b) Here is a different grid.



There are **four** points on this grid that each have  
both coordinates that are whole numbers  
and  
 $x\text{-coordinate} + y\text{-coordinate} = 3$

Plot the **four** points on the grid.

[2 marks]

**6 (a)** Write down the value of 32

**[1 mark]**

Answer \_\_\_\_\_

**6 (b)** Write down the value of  $\sqrt{144}$

**[1 mark]**

Answer \_\_\_\_\_

**6 (c)** Work out the value of 24

**[1 mark]**

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Answer \_\_\_\_\_

**Turn over for the next question**

- 7 (a) At a restaurant, vegan pizzas have two **different** toppings.

The toppings are

sweetcorn (S)

mushrooms (M)

peppers (P)

Complete the table to list all the possible pairs of toppings.

[1 mark]

SM

- 7 (b) At the restaurant, dough balls can be ordered in small portions and large portions.

**Small portion**

6 dough balls

**Large portion**

10 dough balls

A group of people want to order **exactly** 44 dough balls.

Show how they can do this.

[2 marks]

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Number of Small portions \_\_\_\_\_

Number of Large portions \_\_\_\_\_



Apples	25p each
Oranges	60p each

**[4 marks]**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Answer \_\_\_\_\_

7

**Turn over ►**

- 9** Alina and Sue play netball.  
The number of goals they scored in 8 games is shown.

<b>Alina</b>	12	15	17	17	21	22	24	26
<b>Sue</b>	13	13	17	20	22	23	24	31

- 9 (a)** Complete this table.

**[2 marks]**

	<b>Range</b>	<b>Median</b>
<b>Alina</b>		19
<b>Sue</b>	18	

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- 9 (b)** Which player scored the more consistent number of goals?  
Tick a box.

Alina

☐

Sue

☐

Give a reason for your answer.

**[1 mark]**

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**10**

Work out 35% of 1200

**[3 marks]**

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Answer \_\_\_\_\_

**Turn over for the next question****Turn over ►**

- 11** A window cleaner uses this formula.

$$C = 2W + 5$$

$C$  = cost, in £, for the customer

$W$  = number of windows to be cleaned

- 11 (a)** How much does it cost for 6 windows to be cleaned?

**[2 marks]**

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Answer £ \_\_\_\_\_

- 11 (b)** The cost for another customer was £24

Show why this cost **must** be incorrect.

**[1 mark]**

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**12** Two bags, X and Y, each contain coloured discs.

In bag X,  $\frac{7}{20}$  of the discs are red.

In bag Y,  $\frac{2}{5}$  of the discs are red.

Which bag has the **greater** proportion of red discs, X or Y?

You **must** show your working.

**[2 marks]**

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Answer \_\_\_\_\_

**Turn over for the next question**

**13 (a)** Two friends share £240 in the ratio 1 : 3

Work out the larger share.

**[2 marks]**

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Answer £ \_\_\_\_\_

**13 (b)** A tennis player wins or loses matches in the ratio win : lose = 5 : 9

What fraction of the matches do they win?

**[1 mark]**

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Answer \_\_\_\_\_

**14** Here is a multiplication table.

×	61	63	65	67
61	3721	3843	3965	4087
63	3843	3969	4095	4221
65	3965	4095	4225	4355
67	4087	4221	4355	4489

Use the table to answer the following questions.

**14 (a)** Work out  $3843 \div 63$

**[1 mark]**

Answer \_\_\_\_\_

**14 (b)** Work out  $6.1 \times 6.7$

**[1 mark]**

Answer \_\_\_\_\_

**14 (c)** Work out  $63 \times 66$

**[2 marks]**

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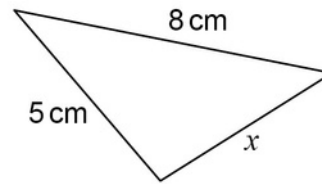
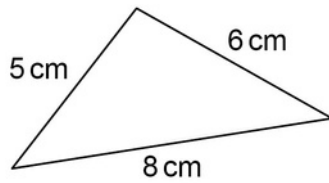


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Answer \_\_\_\_\_

- 15 These two triangles are **congruent**.

Not drawn  
accurately



Write down the value of  $x$ .

[1 mark]

$x =$  \_\_\_\_\_ cm

- 16  $c$  and  $d$  are positive numbers.

$c$  is even.

$d$  is odd.

Tick a box for each expression.

[3 marks]

	Ev en	Odd	Canno t tell
$c + d$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$4c$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$\frac{c}{2}$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



17

A linear sequence has

- 1st term = 10
- 1st term + 2nd term = 39

Work out the 5th term.

**[4 marks]**


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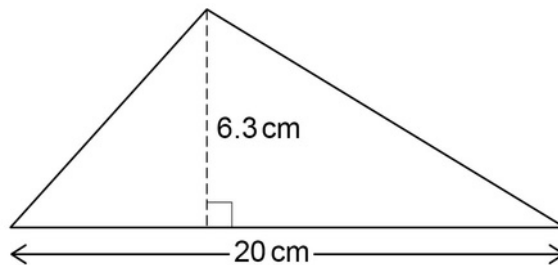
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Answer \_\_\_\_\_

18

Not drawn  
accurately

Work out the area of this triangle.

**[2 marks]**


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Answer \_\_\_\_\_ cm<sup>2</sup>

- 19 The vector  $\begin{pmatrix} \square \\ \square \\ \square \\ \square \end{pmatrix} - 3 \begin{pmatrix} \square \\ \square \end{pmatrix}$  translates A to B.

Write down the vector that translates B to A.

[1 mark]

Answer  $\begin{pmatrix} \square & \square \\ \square & \square \end{pmatrix}$

- 20 The attendance for a rugby match is 8400 people to the nearest 100

- 20 (a) Write down the minimum possible attendance.

[1 mark]

Answer \_\_\_\_\_

- 20(b) Write down the maximum possible attendance.

[1 mark]

Answer \_\_\_\_\_

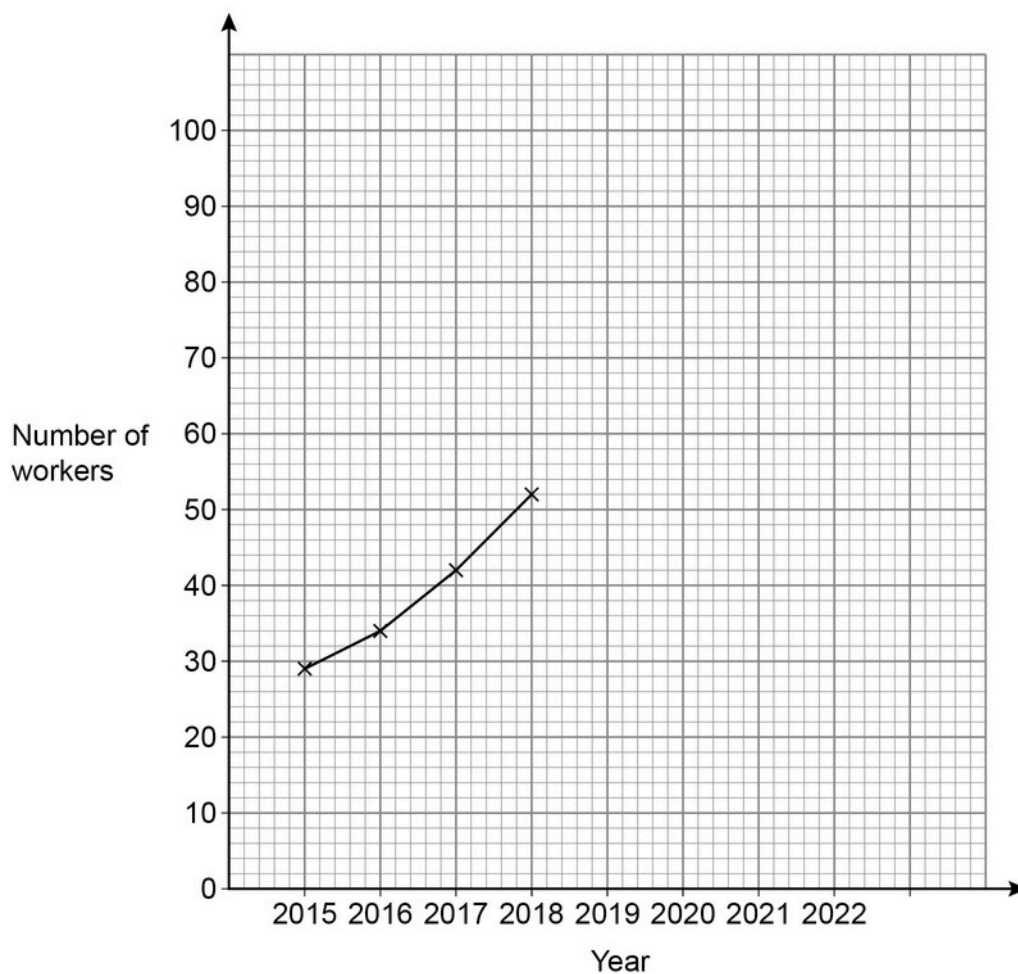
21

The table shows the number of workers at a company in different years.

Year	2015	2016	2017	2018	2019	2020	2021	2022
Number of workers	29	34	42	52	62	70	76	80

A time-series graph is drawn to represent the data.

The first four points have been plotted.



21 (a) Complete the graph.

[2 marks]

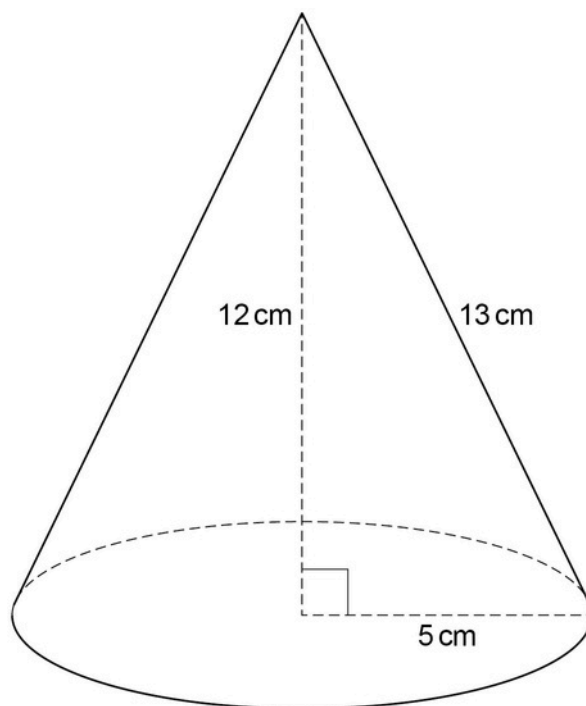
21 (b) Estimate the number of workers at the company in 2023.

[1 mark]

Answer \_\_\_\_\_

22

Here is a cone.

Do not write  
outside the  
box

22 (a)

Curved surface area of a cone =  $\pi r l$   
 where  $r$  is the radius and  $l$  is the slant height

Beth tries to work out the curved surface area in terms of  $\pi$

$$\begin{aligned}\text{Curved surface area of the cone} &= \pi \times 5 \times 12 \\ &= 60\pi \text{ cm}^2\end{aligned}$$

What mistake has she made?

[1 mark]

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**22 (b)** Adam uses  $\pi = 3$  to estimate the area of the **base** of the cone.

Work out his estimate.

**[2 marks]**

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Answer \_\_\_\_\_ cm<sup>2</sup>

**22 (c)** Beth uses  $\pi = 3.14$  to estimate the area of the **base** of the cone.

Is Beth's estimate more than or less than Adam's estimate?

Tick a box.

More than

☐

Less than

☐

Give a reason for your answer.

**[1 mark]**

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**Turn over for the next question**

**Turn over ►**

**23**

Each day, Erik drinks

 $\frac{1}{4}$  of a pint of milk in the morning

and

 $\frac{1}{2}$  of a pint of milk in the afternoon.

How many pints of milk does he drink in 30 days?

**[3 marks]**

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Answer \_\_\_\_\_

**24** Solve  $7x - 22 = 4x + 29$

**[3 marks]**

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$x =$  \_\_\_\_\_

**25** In a house

the floor area of the living room is 26m<sup>2</sup>

the floor area of the kitchen is 16.4m<sup>2</sup>

Express the area of the living room as a fraction of the area of the kitchen.

Give your answer in its simplest form.

**[3 marks]**

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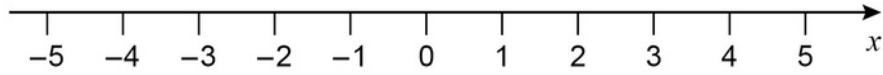
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Answer \_\_\_\_\_

**26 (a)** Represent  $-2 < x < 4$  on the number line.

**[1 mark]**



**26 (b)** Solve  $5y + 14 \geq 11$

**[2 marks]**

$\geq$

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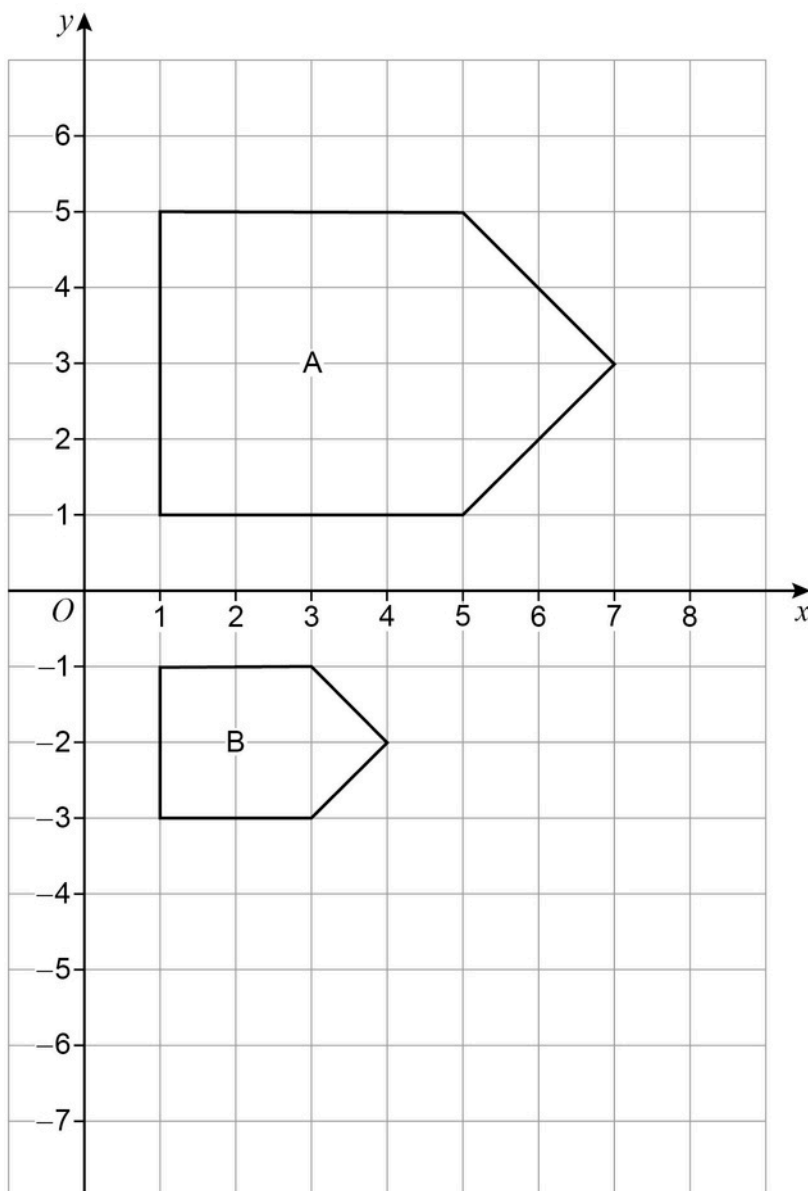


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Answer \_\_\_\_\_



27

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Describe fully the **single** transformation that maps shape A to shape B.

[3 marks]

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END OF QUESTIONS

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