



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

Friday 19 May 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	
<b>TOTAL</b>	

### Advice

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



J U N 2 3 8 3 0 0 1 F 0 1

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

**1** Here is a list of numbers.

14    9    20    29    3    45    33

**1 (a)** Which number in the list is a multiple of 4 ?

**[1 mark]**

Answer \_\_\_\_\_

**1 (b)** Which number in the list is a square number?

**[1 mark]**

Answer \_\_\_\_\_

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1 (c) Which **two** numbers in the list have a total of 43 ?

[1 mark]

Answer \_\_\_\_\_ and \_\_\_\_\_

1 (d) Work out  
largest number in the list  $\div$  smallest number in the list

[1 mark]

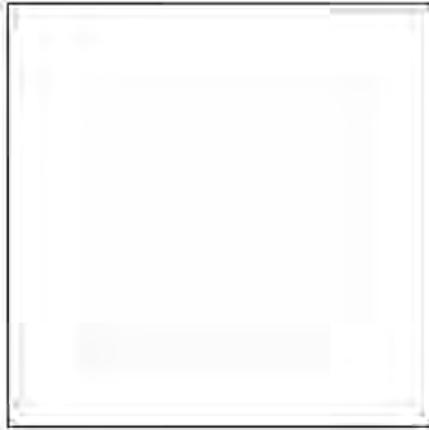
Answer \_\_\_\_\_

Turn over for the next question

Turn over ►



- 2 (a) Here is a square.



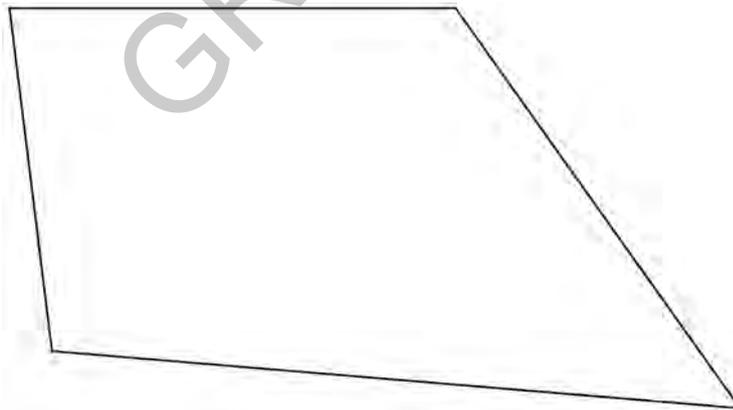
Use a ruler to measure a side length of the square.

Give your answer in **millimetres**.

[1 mark]

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

- 2 (b) Here is a quadrilateral.



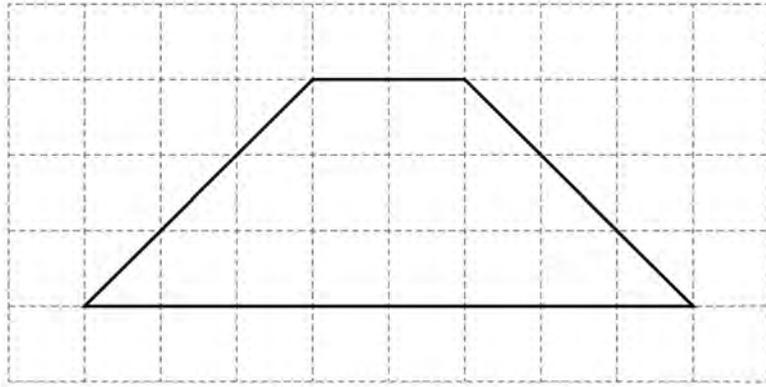
Use a protractor to measure the size of the **smallest** angle.

[1 mark]

Answer \_\_\_\_\_ °



- 2 (c) A different quadrilateral is drawn on a centimetre grid.

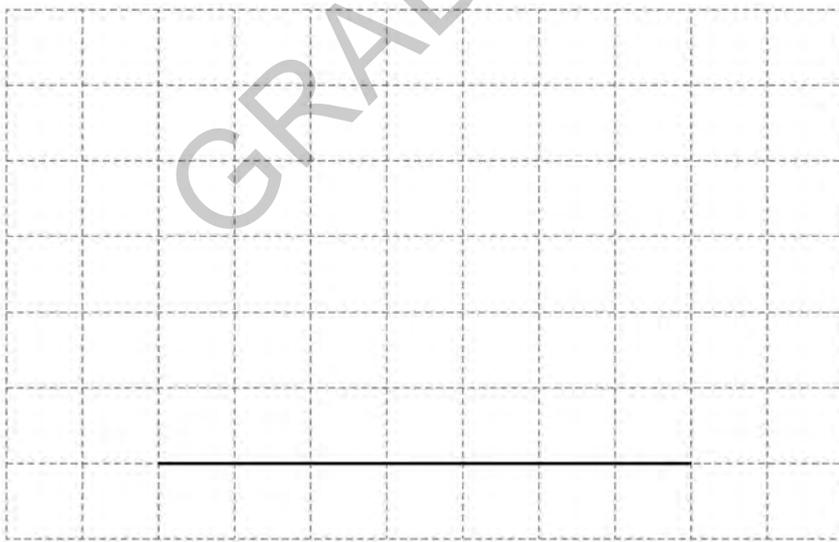


By counting squares, work out the **area** of the quadrilateral.

[1 mark]

Answer \_\_\_\_\_  $\text{cm}^2$

- 2 (d) One side of a rectangle is drawn on this centimetre grid.



Complete the rectangle so that it has a **perimeter** of 20 cm

[1 mark]



3 (a) Work out  $(-4) \times (-3)$

[1 mark]

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Answer \_\_\_\_\_

3 (b) Work out  $6 \times (-5)$

[1 mark]

---

Answer \_\_\_\_\_

3 (c) Work out  $(-8)^2$

[1 mark]

---

Answer \_\_\_\_\_

3 (d) Work out  $10^3$

[1 mark]

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Answer \_\_\_\_\_



4 Write 18 out of 30 as a fraction in its simplest form.

[2 marks]

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Answer \_\_\_\_\_

5 At a shop

the normal price of one pen is 24p

the normal price of one calculator is £7

The shop has these special offers.

**Pens**

Half the normal price

**Calculators**

£1.50 less than the normal price

Work out the **total** price of 5 pens and 1 calculator using the special offers.

[4 marks]

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Answer £ \_\_\_\_\_

10

Turn over ►



6 (a) Write  $3\frac{2}{5}$  as an improper fraction.

[1 mark]

Answer \_\_\_\_\_

6 (b) Write 0.19 as a fraction.

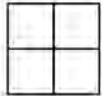
[1 mark]

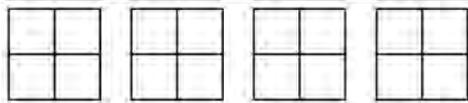
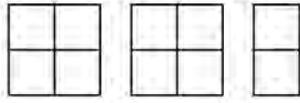
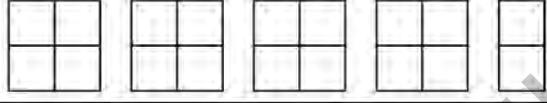
Answer \_\_\_\_\_

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- 7 Misha recorded the main type of weather each day for **55 days**.  
The pictogram shows the results for rain, snow and cloud.

Key:  = 4 days

Rain	
Snow	
Cloud	
Sun	
Fog	

Sun was recorded on 1 **more** day than fog.

Complete the pictogram for the 55 days.

[4 marks]

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8

$$T = 5P - W$$

8 (a) Work out the value of  $T$  when  $P = 4$  and  $W = 2$

**[2 marks]**

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$$T = \underline{\hspace{10em}}$$

8 (b) Work out the value of  $P$  when  $T = -40$  and  $W = 10$

**[3 marks]**

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$$P = \underline{\hspace{10em}}$$



9

Match each box on the left to the box on the right with the same value.  
One has been done for you.

[3 marks]

$\frac{1}{10}$	0.1
$\frac{1}{2}$	0.05
$\frac{1}{4}$	20%
$\frac{1}{5}$	$\frac{2}{6}$
	0.25
	$\frac{10}{20}$

Turn over for the next question

Turn over ►



**10** Here are two calculations, A and B.

<b>A</b>	$8 \times 3 + 2$
<b>B</b>	$21 - (15 - 4)$

Work out answer to A  $\times$  answer to B

**[3 marks]**

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Answer \_\_\_\_\_

**11** Convert 7 gallons to litres.

Use 1 gallon = 4.5 litres

**[2 marks]**

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Answer \_\_\_\_\_ litres



- 12 The table shows monthly payments for electricity.

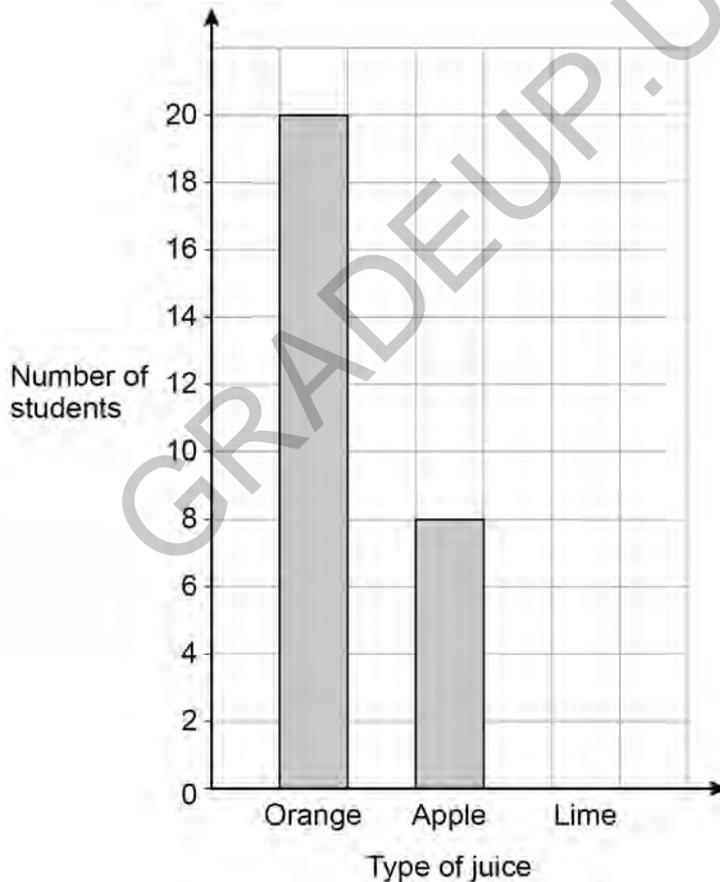
October	November
£120	£240

Write down the percentage increase from October to November.

[1 mark]

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

- 13 Students choose juice with their school meal in the ratio  
orange : apple : lime = 5 : 2 : 3



Complete the bar chart.

[3 marks]

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Turn over ►



14

Here is some data about people visiting a gym one week.

	Percentage of all visitors	Mean number of hours visiting	Range of number of hours visiting
Members	64	4	6
Guests	36	$2\frac{1}{2}$	8

Compare the data for the members with the data for the guests.

Make **three** comparisons.**[3 marks]**

Comparison 1 \_\_\_\_\_

\_\_\_\_\_

Comparison 2 \_\_\_\_\_

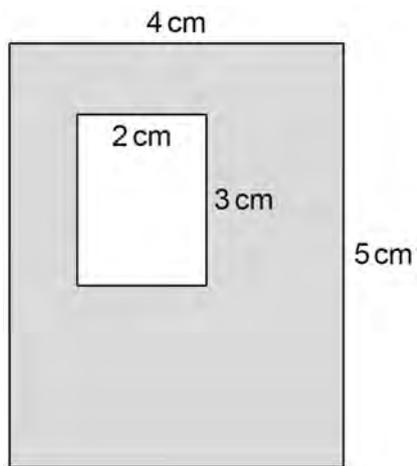
\_\_\_\_\_

Comparison 3 \_\_\_\_\_

\_\_\_\_\_



- 15 A large rectangle has a rectangular hole cut out.



Not drawn  
accurately

Work out the percentage of the large rectangle that is shaded.

[3 marks]

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

- 16 Liz travels 18 miles in 20 minutes.

Work out her average speed in miles per hour.

[3 marks]

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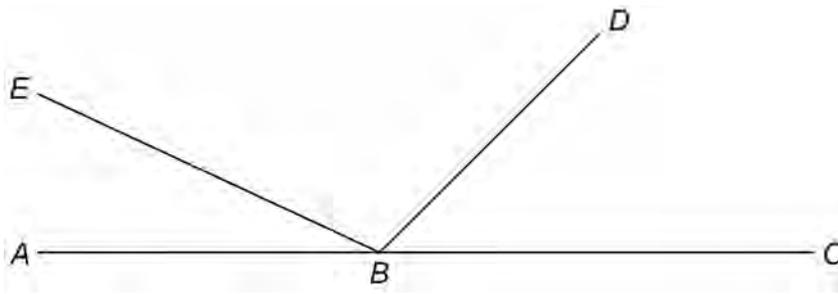
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Answer \_\_\_\_\_ mph

Turn over ►



17  $ABC$ ,  $BD$  and  $BE$  are straight lines.



Not drawn  
accurately

$$\text{angle } EBD = 5 \times \text{angle } ABE$$

$$\text{angle } DBC = 3 \times \text{angle } ABE$$

Work out the size of angle  $EBD$ .

[3 marks]

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Answer \_\_\_\_\_ °



18

Two prime numbers are multiplied together.

The answer is an **even** number between 50 and 60

Complete the calculation.

[3 marks]

$$\square \times \square = \square$$

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19

Andrew and Bruce share some money in the ratio 5 : 6

Bruce gets £96

Andrew gives  $\frac{1}{4}$  of his share to Carl.

Bruce gives  $\frac{2}{3}$  of his share to Carl.

How much money does Carl receive?

[4 marks]

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Answer £ \_\_\_\_\_

10

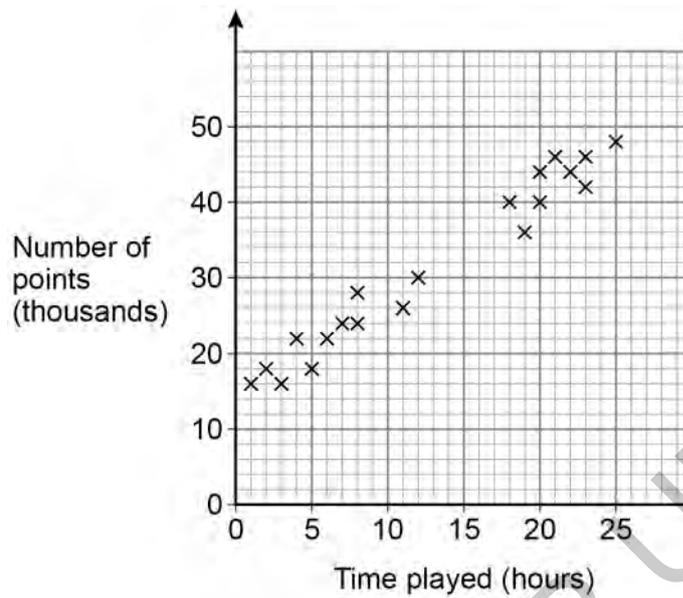
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20

Players score points in a game.

The scatter graph shows the time played and the points scored by some players.



20 (a) Circle the strength and type of correlation shown.

[1 mark]

weak positive

strong positive

weak negative

strong negative

20 (b) Players get one extra life for every 2000 points they score.

Jonah plays the game for 15 hours.

Use a line of best fit to estimate the number of extra lives he gets.

[3 marks]

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Answer \_\_\_\_\_



21  $2^a \times 3 \times 5^2 = 600$

Work out the value of  $a$ .

You **must** show your working.

[3 marks]

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$a =$  \_\_\_\_\_

22 Expand and simplify fully  $5(3x + 4) - 2(x - 1)$

[2 marks]

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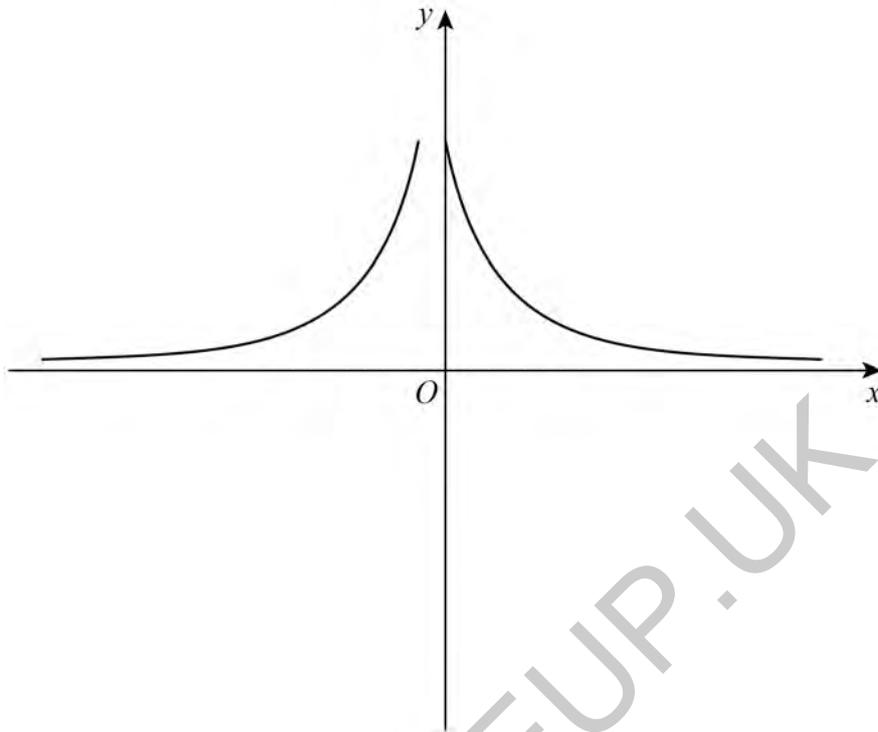
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Answer \_\_\_\_\_



23 Erika tries to sketch the graph  $y = \frac{1}{x}$  with  $x \neq 0$



Make **two** different criticisms of her sketch.

[2 marks]

Criticism 1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Criticism 2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_







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2 8



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