



Please write clearly in block capitals.

Centre number

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Candidate number

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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.

Advice

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



JUN2383001F01

18/M/Jun23/E7

8300/1F



02

18/M/Jun23/8300/1F

2

Answer all questions in the spaces provided.

Do not write
outside the
box

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

20

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

[1 mark]

Answer

9

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

[1 mark]

Answer 14 and 29

- 1 (d) Work out

largest number in the list \div smallest number in the list

[1 mark]

$$45 \div 3$$

Answer 15

Turn over for the next question

4

Turn over ►



03

IB/M/Jun23/8300/1F

- 2 (a) Here is a square.



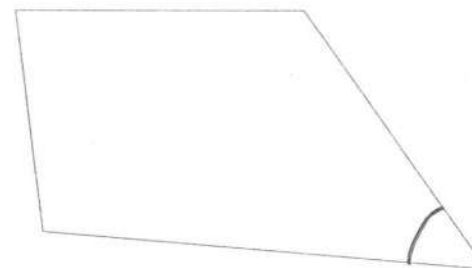
Use a ruler to measure a side length of the square.

Give your answer in **millimetres**.

[1 mark]

ms 54 → 58 mm

- 2 (b) Here is a quadrilateral.



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

[1 mark]

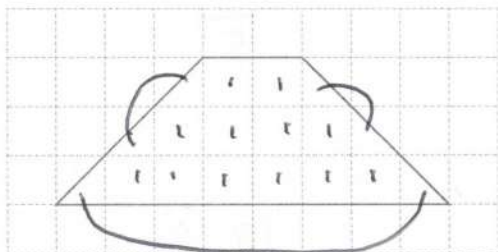
ms 48 → 52



04

IB/M/Jun23/8300/1F

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

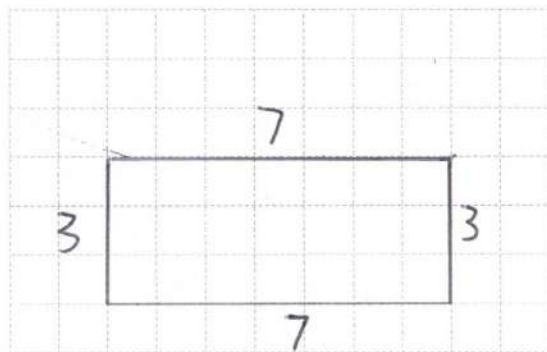


By counting squares, work out the **area** of the quadrilateral.

[1 mark]

Answer 15 cm²

- 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]

Turn over ►



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

[1 mark]

Answer 12

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

[1 mark]

Answer -30

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

[1 mark]

-8×-8
= 64

Answer 64

- 3 (d) Work out 10^3

[1 mark]

$10 \times 10 \times 10$
= 1000

Answer 1000



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

[2 marks]

$$\frac{18}{30} \div 6$$

$$\div 6$$

Answer

$$\frac{3}{5}$$

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]

$$5 \text{ pens} = 5 \times 12 = 60 \text{p}$$

$$1 \text{ calc} = 550 \text{p}$$

$$\underline{610 \text{p}}$$

Answer £

$$6.10$$

10

Turn over ►



0 7

IB/M/Jun23/8300/1F

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

[1 mark]

Answer

$$\frac{17}{5}$$

- 6 (b) Write 0.19 as a fraction.

[1 mark]

Answer

$$\frac{19}{100}$$




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















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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	   	16
Snow	  	10
Cloud	    	18
Sun	 	6
Fog	 	5

Sun was recorded on 1 **more** day than fog.Complete the pictogram for the **55 days**.

[4 marks]

$$16 + 10 + 18 = 44$$



8

$$T = 5P - W$$

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

[2 marks]

$$\begin{aligned} T &= 5 \times 4 - 2 \\ &= 20 - 2 \end{aligned}$$

$$T = 18$$

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

[3 marks]

$$\begin{aligned} -40 &= 5P - 10 \\ -30 &= 5P \end{aligned}$$

$$P = -30 \div 5$$

$$P = -6$$

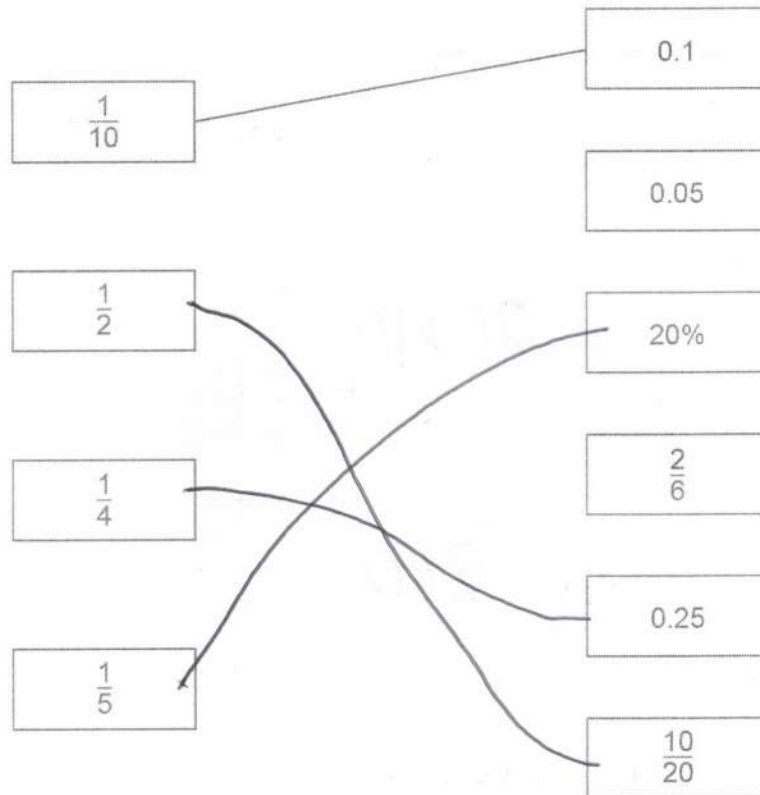


9

Match each box on the left to the box on the right with the same value.

One has been done for you.

[3 marks]



Turn over for the next question

Turn over ►



10

Here are two calculations, A and B.

A	$8 \times 3 + 2$	$= 24 + 2 = 26$
B	$21 - (15 - 4)$	$= 21 - 11 = 10$

Work out answer to A \times answer to B

[3 marks]

$$26 \times 10$$

Answer 260

11

Convert 7 gallons to litres.

Use 1 gallon = 4.5 litres

[2 marks]

$$\begin{array}{r} 45 \\ \times 7 \\ \hline 315 \end{array}$$

Answer 31.5 litres



12

The table shows monthly payments for electricity.

October	November
£120	£240

Write down the percentage increase from October to November.

[1 mark]

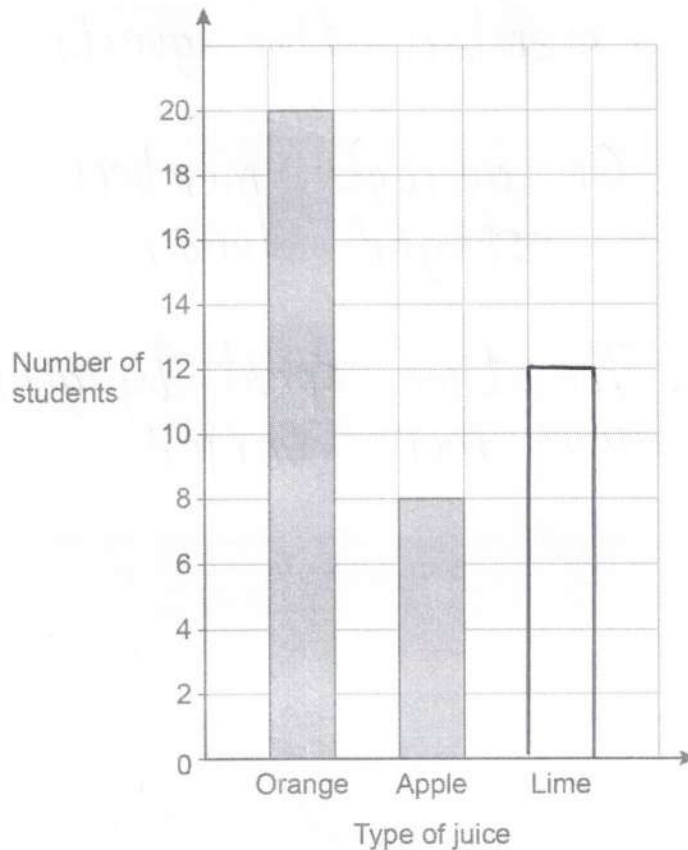
100

Answer _____ %

13

Students choose juice with their school meal in the ratio

orange : apple : lime = 5 : 2 : 3



O A L
5 2 3
(x4)
20 8 12

Complete the bar chart.

[3 marks]



14

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

Do not write
outside the
box

	① Percentage of all visitors	② Mean number of hours visiting	③ 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

There were more
members than guests

Comparison 2

On average members
stayed longer

Comparison 3

The time spent by guests
was more varied

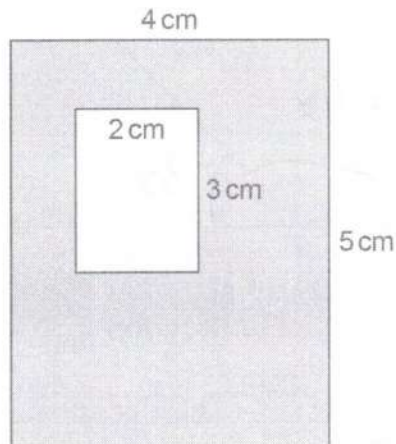
15

A large rectangle has a rectangular hole cut out.

Not drawn
accurately

$$5 \times 4 = 20$$

$$3 \times 2 = 6$$



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

[3 marks]

$$\text{Shaded} = 20 - 6 = 14$$

$$\frac{14}{20} = \frac{70}{100}$$

Answer 70 %

16

Liz travels 18 miles in 20 minutes.

Work out her average speed in miles per hour.

[3 marks]

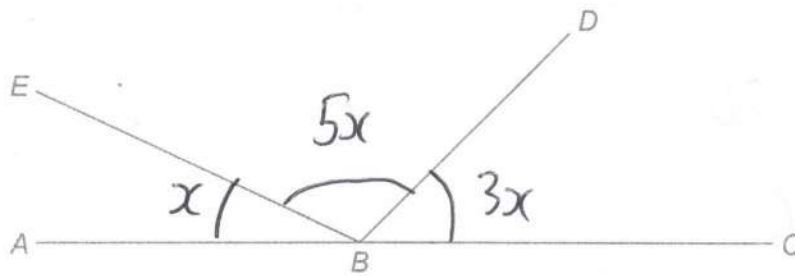
$$18 \times 3 = 54 \text{ miles in } 60 \text{ mins}$$

Answer 54 mph

17

ABC , BD and BE are straight lines.

Do not write
outside the
box



Not drawn
accurately

angle $EBD = 5 \times$ angle ABE

angle $DBC = 3 \times$ angle ABE

Work out the size of angle EBD .

[3 marks]

$$9x = 180$$

$$x = 20$$

$$EBD = 5x = 5 \times 20$$

Answer 100°



18

Two prime numbers are multiplied together.

The answer is an even number between 50 and 60

Complete the calculation.

[3 marks]

$$\boxed{2} \times \boxed{29} = \boxed{58}$$

②, 3, 5, 7, 11, 13, 17, 19, 23, 29

x x x x x x x x x

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]

A : B

5 : 6

↓

) x16

80

96

$$\frac{1}{4} \text{ of } 80 = \underline{20}$$

$$\frac{2}{3} \text{ of } 96 = 32$$

$$32 \times 2 = \underline{64}$$

Answer £

84

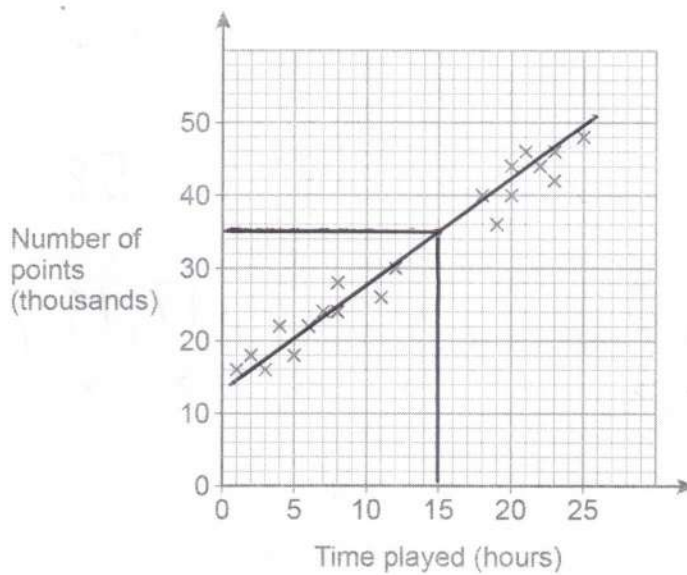
Turn over ►



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]

$$\frac{35000 \text{ pts}}{2000} = 17.5$$

Answer

17

[ms! 16 or 17]



21

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

Work out the value of a .You **must** show your working.

[3 marks]

$$600 \div 3 = 200$$

$$200 \div 25 = 8$$

$$2^a = 8$$

$$a = 3$$

22

Expand and simplify fully

$$5(3x + 4) - 2(x - 1)$$

[2 marks]

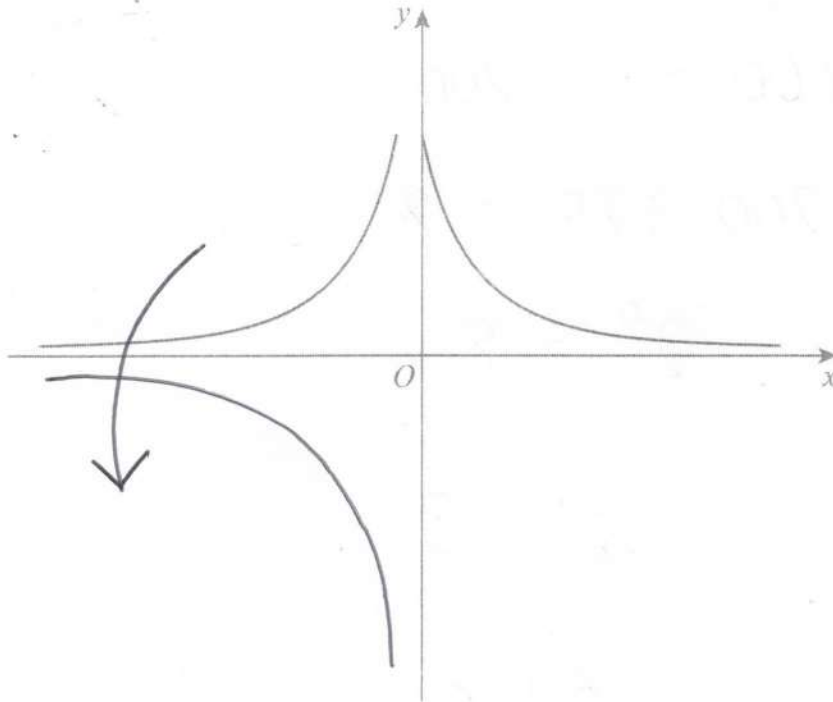
$$15x + 20 - 2x + 2$$

$$\text{Answer } 13x + 22$$



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

Shouldn't contact y-axis

Criticism 2

Values when $x < 0$ give $y < 0$

[ms allows sketches as answers]



24

Sunita is x years old.

Beth is one year younger than Sunita.

Joel is double Sunita's age.

The mean of their ages is 5

$$\text{so total} = 5 \times 3 = 15$$

How old is Joel?

[5 marks]

S	B	J
x	$x-1$	$2x$

$$x + x-1 + 2x = 15$$

$$4x - 1 = 15$$

$$4x = 16$$

$$x = 4$$

$$\begin{aligned} \text{Joel} &= 2x = 2 \times 4 \\ &= 8 \end{aligned}$$

Answer _____

Turn over for the next question

Turn over ►



25

Work out $2\frac{1}{3} \div \frac{4}{5}$

Give your answer as a mixed number.

[4 marks]

$$\frac{7}{3} \times \frac{5}{4} = \frac{35}{12}$$

$$35 \div 12 = 2 \text{ r } 11$$

Answer

$$2\frac{11}{12}$$

END OF QUESTIONS



25

Work out $2\frac{1}{3} \div \frac{4}{5}$

Give your answer as a mixed number.

[4 marks]

$$\frac{7}{3} \times \frac{5}{4} = \frac{35}{12}$$

$$35 \div 12 = 2 \text{ r } 11$$

Answer

$$2\frac{11}{12}$$

END OF QUESTIONS

