AQA

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

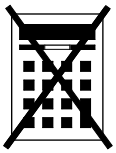
Foundation Tier Paper 1 Non-Calculator

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.

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	
TOTAL	

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)

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

[1 mark]

Answer 9 (1)

Do not write outside the box

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

[1 mark]

Answer 29 and 14 (1)

1 (d) Work out

largest number in the list ÷ smallest number in the list

[1 mark]

45 ÷ 3 = 15

Answer 15 (1)

Turn over for the next question

4

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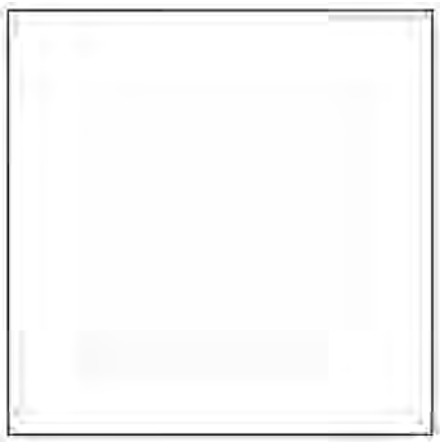
2 (a) Here is a square.



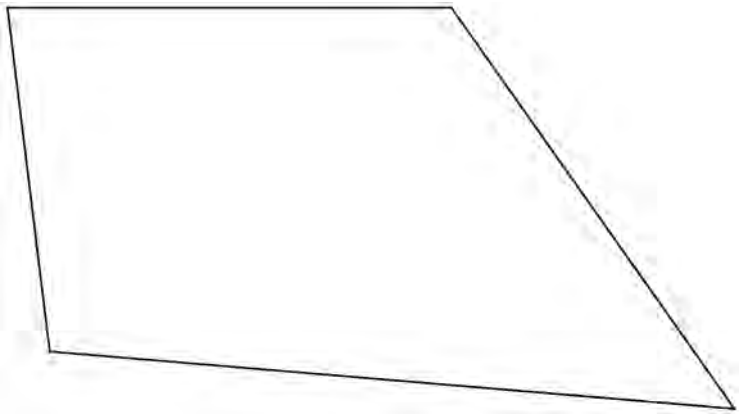
Use a ruler to measure a side length of the square.

Give your answer in **millimetres**.

[1 mark]

Answer 56 (1) mm

2 (b) Here is a quadrilateral.



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

[1 mark]

Answer 50 (1) °

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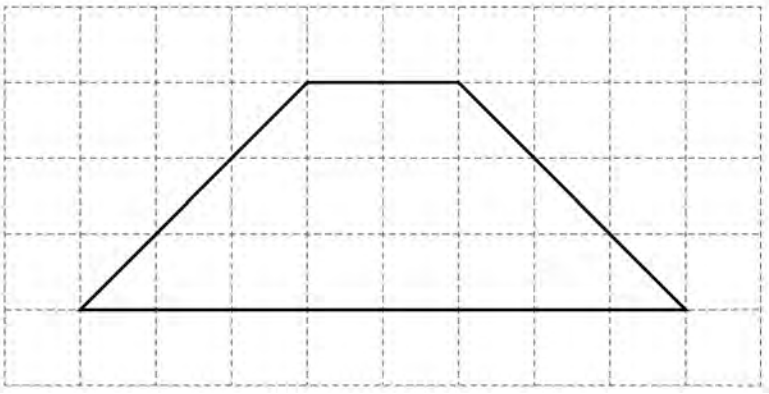
2 (c) A different quadrilateral is drawn on a centimetre grid.



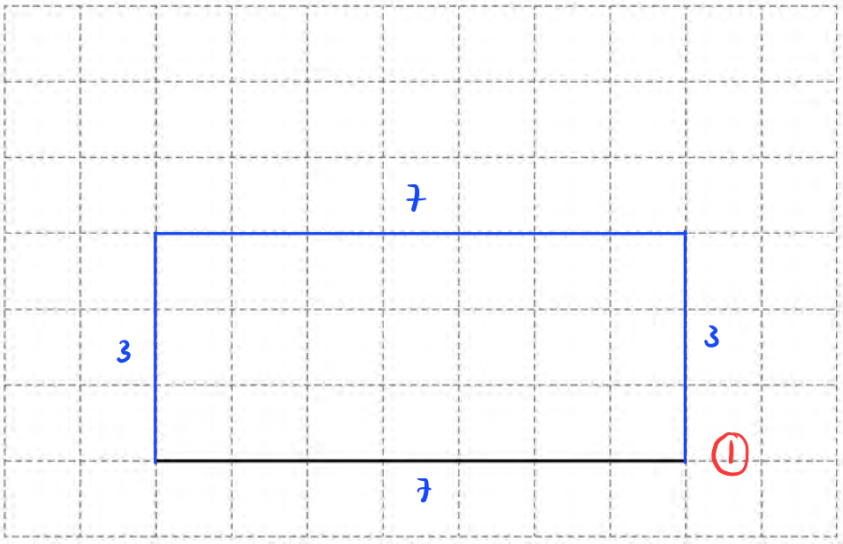
15 squares

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

[1 mark]

Answer 15 (1) 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]

4

Do not write outside the box

3 (a) Work out (–4) × (–3)

[1 mark]

12

Answer 12 (1)

3 (b) Work out 6 × (–5)

[1 mark]

-30

Answer -30 (1)

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

[1 mark]

64

Answer 64 (1)

3 (d) Work out 10^3

[1 mark]

10 × 10 × 10 = 1000

Answer 1000 (1)

Do not write outside the box

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

[2 marks]

$\frac{18 \div 6}{30 \div 6} = \frac{3}{5}$

Answer $\frac{3}{5}$ (2)

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	**Calculators**
Half the normal price	£1.50 less than the normal price

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

[4 marks]

Pen : $\frac{1}{2} \times 0.24 = 0.12$ (1)

Calculators : $7 - 1.5 = 5.50$

(1)

Total : $5(0.12) + 5.50$ (1)

$= 0.60 + 5.50$

$= 6.10$ (1)

Answer £ 6.10

10

Do not write outside the box

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

$\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{2}{5} = \frac{17}{5}$

[1 mark]

Answer $\frac{17}{5}$ (1)

6 (b) Write 0.19 as a fraction.

[1 mark]

Answer $\frac{19}{100}$ (1)

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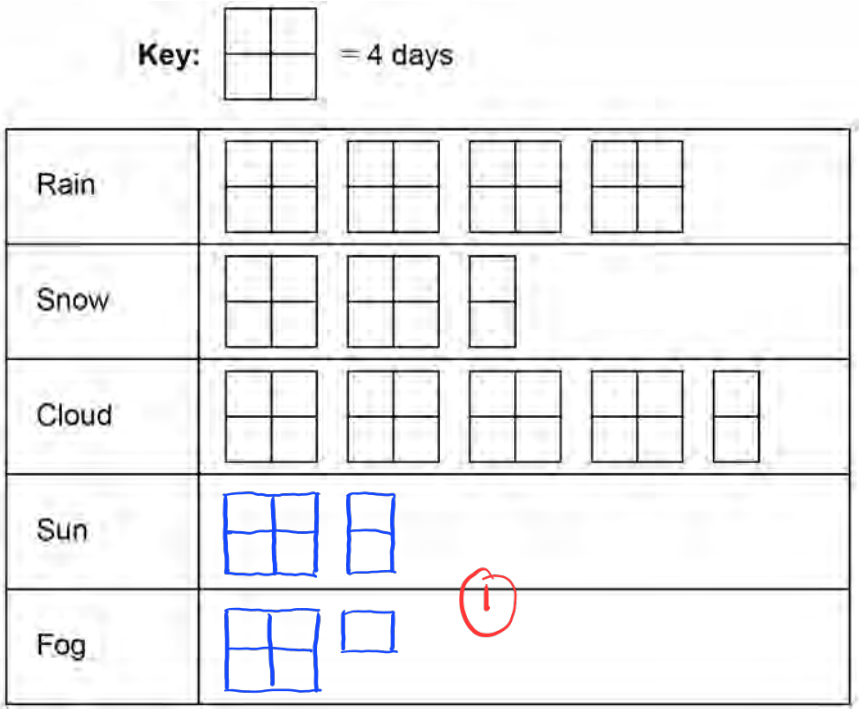
7 Misha recorded the main type of weather each day for **55 days**.

The pictogram shows the results for rain, snow and cloud.



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

Complete the pictogram for the 55 days.

[4 marks]

(1)

Rain : $4 \times 4 = 16$, Snow : $2.5 \times 4 = 10$, Cloud : $4.5 \times 4 = 18$

Sun and fog : $55 - 16 - 10 - 18 = 11$ days (1)

Sun = 6 days , Fog = 5 days

(1)

6

Do not write outside the box

8 $T = 5P - W$

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

[2 marks]

(1)
$T = 5(4) - 2$

$= 20 - 2$

$= 18$ (1)

$T =$ 18

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

[3 marks]

$-40 = 5P - 10$

$5P = -40 + 10$ (1)

$5P = -30$

$P = -30 \div 5$ (1)

$P = -6$

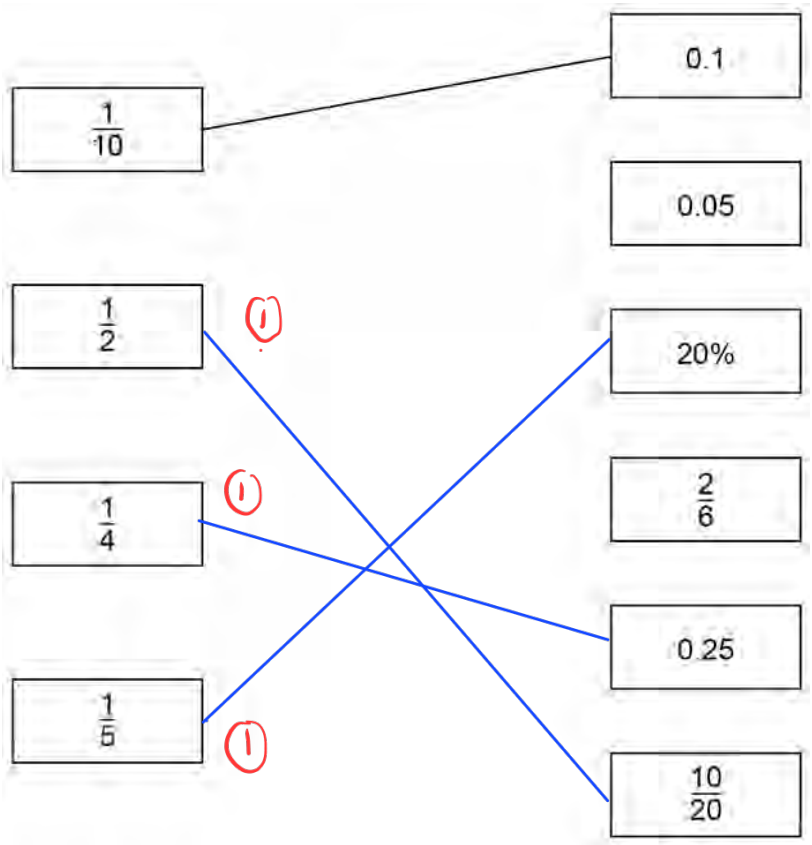
$P =$ −6 (1)

Do not write outside the box

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

8

Do not write outside the box

10 Here are two calculations, A and B.

A	8 × 3 + 2
B	21 – (15 – 4)

Work out answer to A × answer to B

[3 marks]

A : 8 × 3 + 2 = 26 (1)

B : 21 - (15 - 4) = 10 (1)

A × B : 26 × 10

= 260 (1)

Answer 260

11 Convert 7 gallons to litres.

Use 1 gallon = 4.5 litres

[2 marks]

7 × 4.5 = 31.5

(1) (1)

Answer 31.5 litres

Do not write outside the box

12 The table shows monthly payments for electricity.

October	November
£120	£240

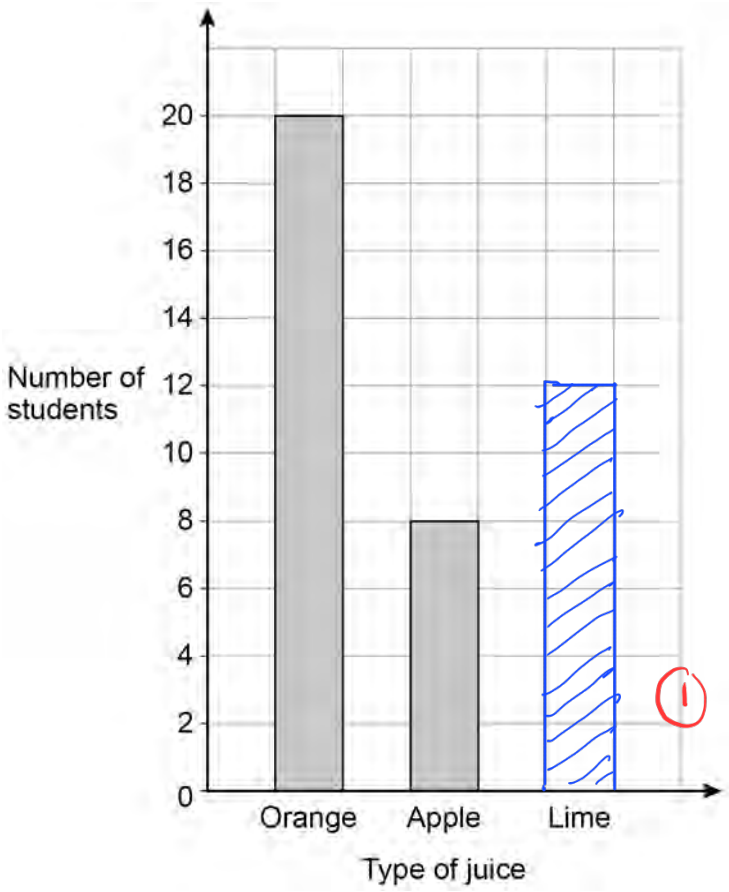
Write down the percentage increase from October to November.

[1 mark]

Answer 100 (1) %

13 Students choose juice with their school meal in the ratio

orange : apple : lime = 5 : 2 : 3



Complete the bar chart.

[3 marks]

$\frac{3}{5} \times 20 = 12$ (1) (1)

9

Do not write outside the box

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 There are more number of members than guests. (1)

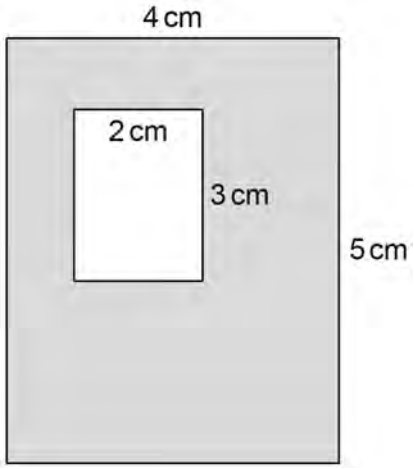
Comparison 2 The average number of hours of visiting was greater for the members (1)

Comparison 3 The visiting hours of the guests were more spread out. (1)

Do not write outside the box

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]

Area of large rectangle : $4 \times 5 = 20$ cm^2 (1)

Area of small rectangle : $2 \times 3 = 6$ cm^2

Shaded area : $20 - 6 = 14$ (1)

$\frac{14}{20} \times 100\% = 70$ (1)

Answer 70 %

16 Liz travels 18 miles in 20 minutes.

Work out her average speed in miles per hour.

[3 marks]

$\frac{18 \text{ miles}}{20 \text{ mins}} = 0.9$ miles per minutes (1)

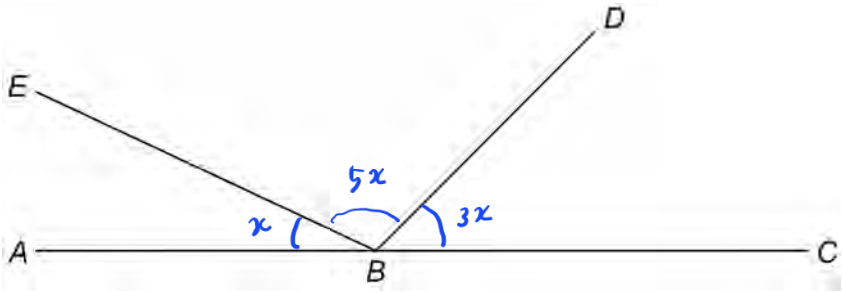
$\frac{0.9 \text{ miles}}{1 \text{ mins}}$ (1) $\times \frac{60 \text{ minutes}}{1 \text{ hour}} = 54$ mph (1)

Answer 54 mph

9

Do not write outside the box

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



Not drawn accurately

angle *EBD* = 5 × angle *ABE*

angle *DBC* = 3 × angle *ABE*

Work out the size of angle *EBD*.

[3 marks]

let ABE = x

total angle = x + 5x + 3x = 9x (1)

$EBD = \frac{5x}{9x} \times 180^\circ = 100^\circ$ (1) (1)

Answer 100 °

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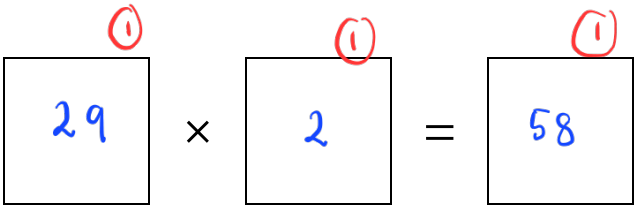
18 Two prime numbers are multiplied together.

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

Complete the calculation.

[3 marks]



prime number : 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Even number $50 < x < 60$: 52, 54, 56, 58

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]

Andrew : $\frac{96}{6} \times 5 = 80$ (1)

Andrew gives : $\frac{1}{4} \times 80 = 20$ (1)

Bruce gives : $\frac{2}{3} \times 96 = 64$ (1)

Carl : $20 + 64 = 84$ (1)

Answer £ 84

10

Turn over ►

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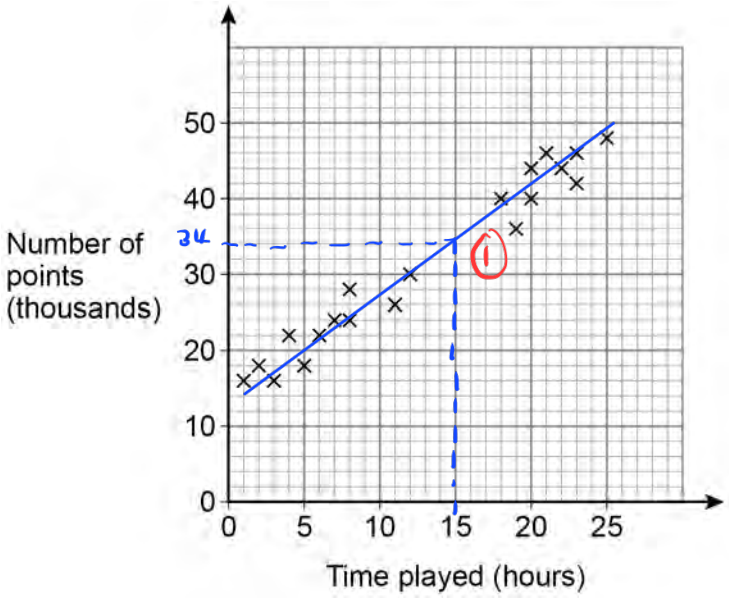
20 Players score points in a game.

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]

34000 ÷ 2000 = 17

Answer 17

Do not write outside the box

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

Work out the value of a.

You **must** show your working.

[3 marks]

$2^a \times 3 \times 25 = 600$ (1)

$2^a \times 75 = 600$

$2^a = \frac{600}{75} = 8$ (1)

$2^a = 8$

$a = 3$ (1)

$a =$ 3

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

[2 marks]

$15x + 20 - 2x + 2$

$= 13x + 22$ (2)

Answer $13x + 22$

9

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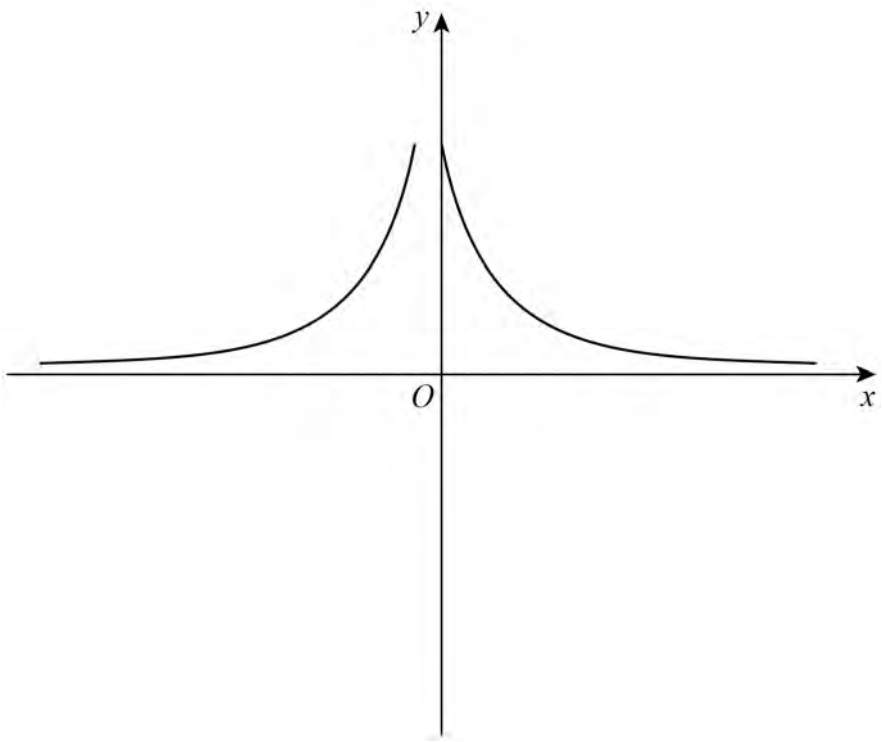
23 Erika tries to sketch the graph $y = \frac{1}{x}$ with $x \neq 0$



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

[2 marks]

Criticism 1 The graph touches the y-axis (1)

Criticism 2 The graph on the left of y-axis should be below x-axis. (1)

Do not write outside the box

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

How old is **Joel**?

[5 marks]

Beth : $x - 1$

Joel : $2x$

Total their ages : $3 \times 5 = 15$ (1)

(1)

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

$4x = 16$

$x = 4$ (1)

Joel = $2(4) = 8$ (1)

Answer 8

Turn over for the next question

7

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

Give your answer as a mixed number.

[4 marks]

$2\frac{1}{3} = \frac{7}{3}$ (1)

$\frac{7}{3} \times \frac{5}{4}$ (1) $= \frac{35}{12}$ (1)

$= \frac{12}{12} + \frac{12}{12} + \frac{11}{12}$

$= 2\frac{11}{12}$ (1)

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

END OF QUESTIONS

4

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