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.

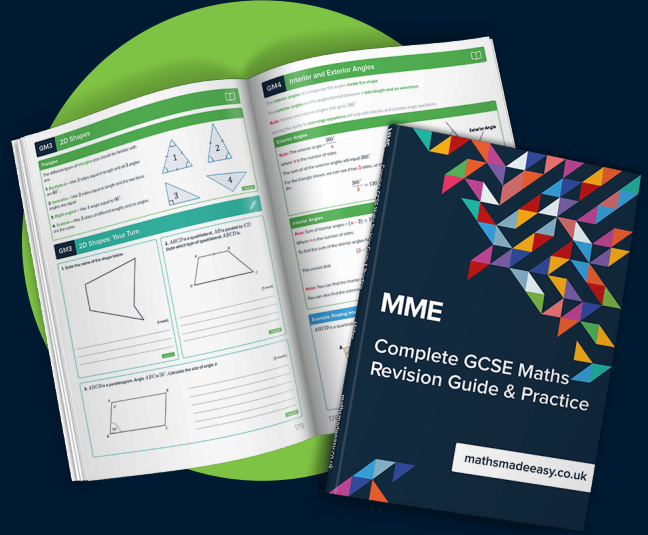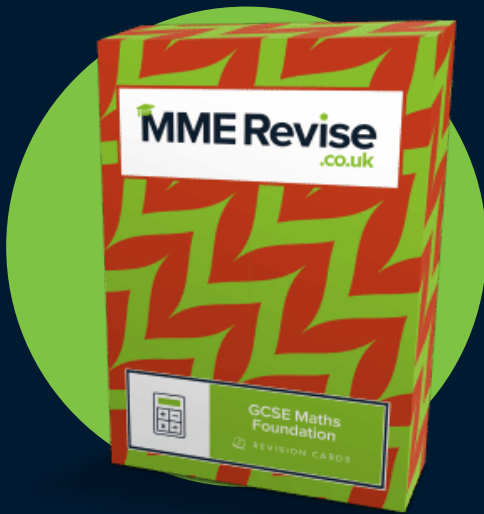| For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22	
TOTAL	

MME.

GCSE Revision - GCSE Maths
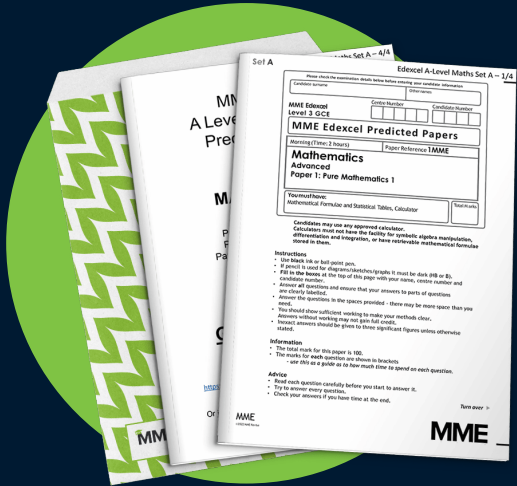
**GCSE Maths Predicted
Papers 2024**

**GCSE Maths
Revision Guide**

**GCSE Maths
Revision Cards**

**Course in a Box – GCSE
Maths (Guaranteed Pass)**

View All GCSE Maths

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   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 ÷ smallest number in the list

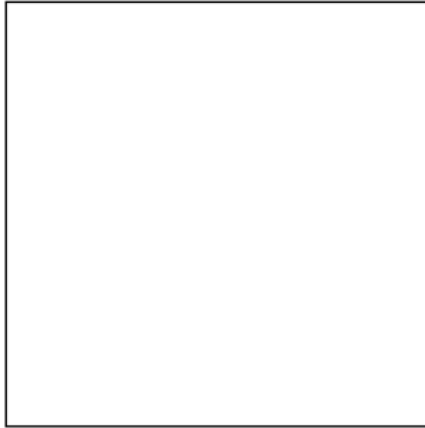[1 mark]

_____45 ÷ 3 = 15_____

Answer ____15_____

Turn over for the next question

4

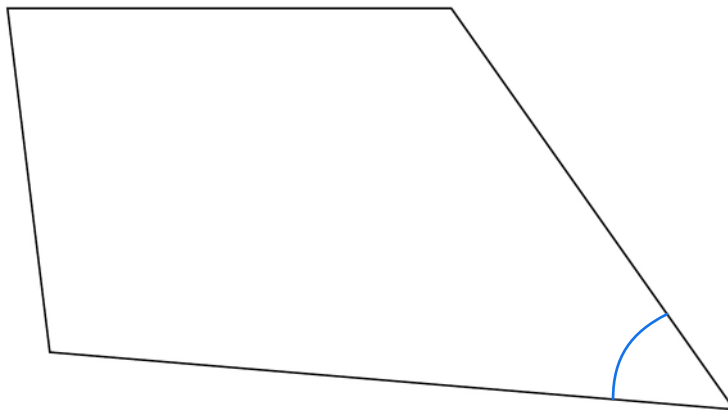**Turn over ▶**

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   55   mm

2 (b) Here is a quadrilateral.

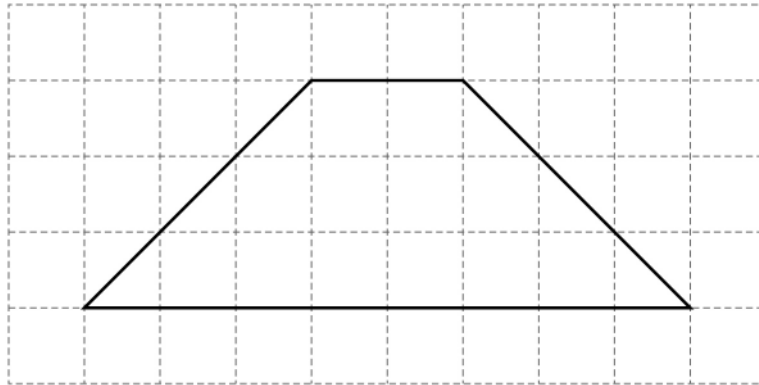Use a protractor to measure the size of the **smallest** angle.

[1 mark]

Answer   50 °

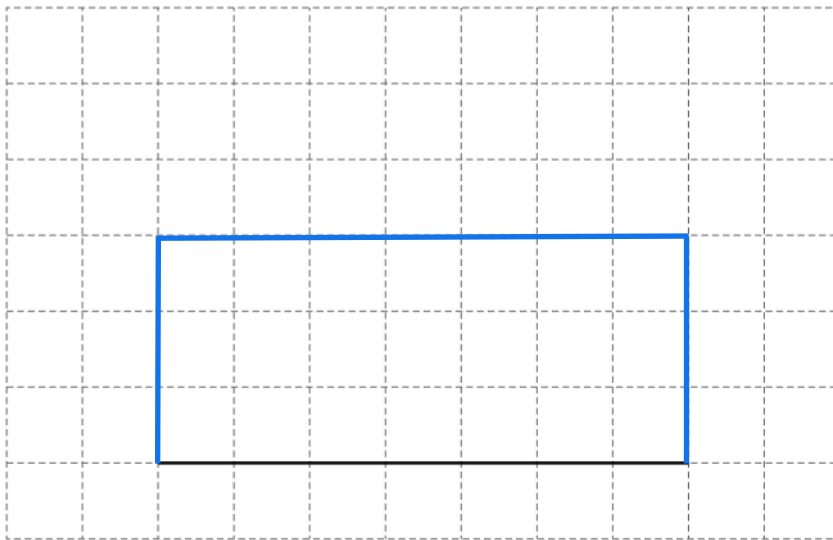**2 (c)** A different quadrilateral is drawn on a centimetre grid.

12 whole squares + 6 half squares = 15 whole squares

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

[1 mark]

Answer _____15_____ 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

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

Answer   64

3 **(d)** Work out 10^3

[1 mark]

10 × 10 × 10

Answer   1000

Do not write outside the box

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

[2 marks]

$$\frac{18}{30} = \frac{9}{15} = \frac{3}{5}$$

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	**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]

Pens new price = 24p ÷ 2 = 12p

5 pens cost 5 × 12p = 60p

Calculator new price = £7 − £1.50 = £5.50

Total: £5.50 + 60p = £6.10

Answer £ 6.10

10

Turn over ▶

**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.
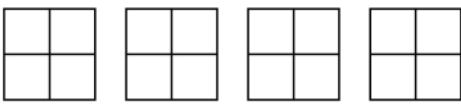
[1 mark]
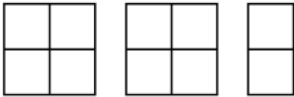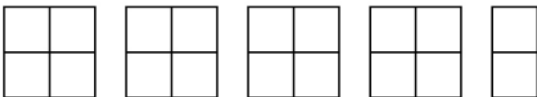
Answer $\frac{19}{100}$

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

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

Key: [grid] = 4 days

Rain	[4 grids]	4 + 4 + 4 + 4 = 16 days
Snow	[2½ grids]	4 + 4 + 2 = 10 days
Cloud	[4½ grids]	4 + 4 + 4 + 4 + 2 = 18 days
Sun	[1½ grids]	
Fog	[1¼ grids]	

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

Complete the pictogram for the 55 days.

[4 marks]

rain, snow and cloud add to 16 + 10 + 18 = 44 days

So 55 − 44 = 11 days left for sun and fog added together

sun has one more day than fog so sun = 6 days   fog = 5 days

8

$$T = 5P - W$$

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

[2 marks]

$$T = 5 \times 4 - 2$$
$$= 20 - 2$$
$$= 18$$

$T =$ _____18_____

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

[3 marks]

$$-40 = 5 \times P - 10$$
$$-30 = 5 \times P$$
$$-6 = P$$

+10 ... +10
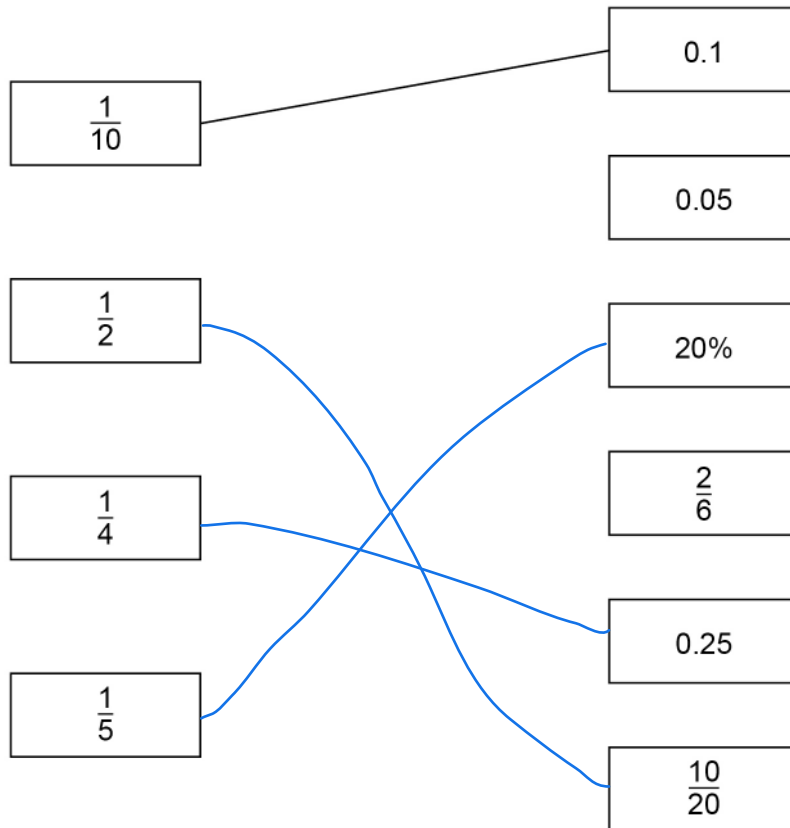÷5 ... ÷5

$P =$ _____−6_____

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

Turn over ▶

10   Here are two calculations, A and B.

A	$8 \times 3 + 2$
B	$21 - (15 - 4)$

= 24 + 2 = 26

= 21 - 11 = 10

Work out   answer to A × answer to B

[3 marks]

26 × 10 = 260

Answer   260

11   Convert 7 gallons to litres.

Use   1 gallon = 4.5 litres

[2 marks]

×7 (1 gallon = 4.5 litres)
  7 gallons = 31.5 litres ×7

45
× 7
315
 3

Answer   31.5   litres

12 The table shows monthly payments for electricity.

October	November
£120	£240

$\dfrac{240 - 120}{120} \times 100$

$= \dfrac{120}{120} \times 100$

Write down the percentage increase from October to November.

$= 1 \times 100$

[1 mark]

Answer _____ 100 %

13 Students choose juice with their school meal in the ratio

orange : apple : lime = 5 : 2 : 3
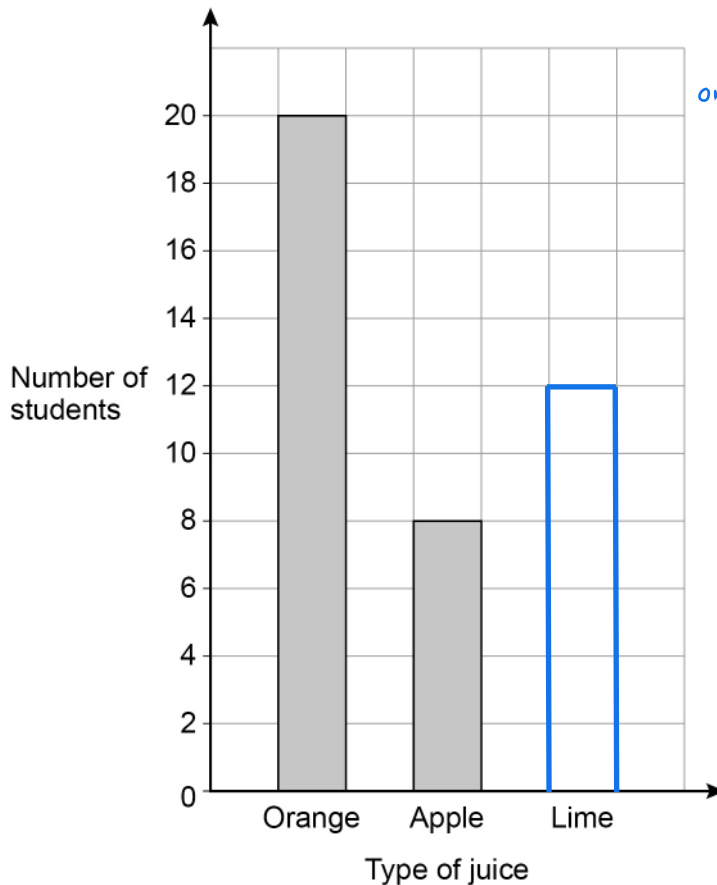
orange
5 parts = 20 students
1 part = 4 students
3 parts = 12 students
lime

Complete the bar chart.

[3 marks]

_____

_____

9

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   There were more members than guests

Comparison 2   Members had a higher mean number of hours
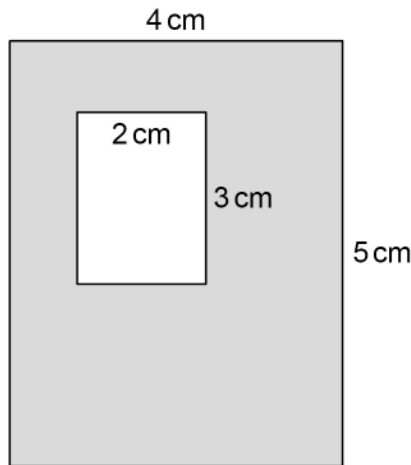
Comparison 3   The visiting hours for guests had a bigger spread

15 A large rectangle has a rectangular hole cut out.

Not drawn
accurately

4 cm

2 cm

3 cm

5 cm

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

[3 marks]

Area of large rectangle = 4 x 5 = 20 cm²

Area of hole = 2 x 3 = 6 cm²

hole = $\frac{6}{20}$ = $\frac{3}{10}$ of whole shape

So shaded part = $\frac{7}{10}$ = 70% of whole shape

Answer _____ 70 %

16 Liz travels 18 miles in 20 minutes.

Work out her average speed in miles per hour.

D

S   T

[3 marks]

20 minutes = $\frac{20}{60}$ hrs = $\frac{1}{3}$ hrs

Speed = $\frac{Distance}{Time}$ = $\frac{18}{1/3}$ = 18 x 3 = 54 mph

18
x   3
─────
5 4
2

Answer _____ 54 mph

9

Turn over ▶

17   *ABC*, *BD* and *BE* are straight lines.
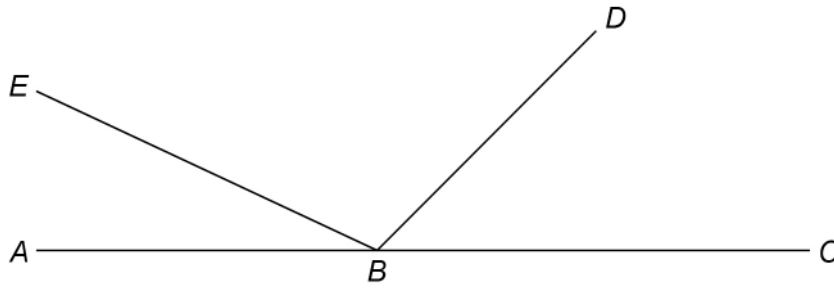
Not drawn accurately

angle *EBD* = 5 × angle *ABE*

angle *DBC* = 3 × angle *ABE*

Work out the size of angle *EBD*.

[3 marks]

ABE : DBC : EBD

Angles in ratio 1 ; 3 ; 5 and add to 180°

1 + 3 + 5 = 9   So   9 parts = 180°

÷9 (1 part = 20°) ÷9

×3   ×5

3 parts   5 parts
60°   100°   So EBD = 100°

Answer _____ 100 °

18 Two prime numbers are multiplied together.

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

Complete the calculation.

[3 marks]

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

prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43 ...

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

A : B

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]

Looking at Bruce, 6 parts = £96

÷6 (1 part = £16) ÷6

×5 (5 parts = £80) ×5

Andrew gets £80, Bruce gets £96

Andrew gives 80 ÷ 4 = £20 to Carl

Bruce gives 96 ÷ 3 × 2 = 32 × 2 = £64 to Carl

Carl gets £20 + £64 = £84

$$6 \overline{)9^3 6} = 16$$

$$\begin{array}{r} 16 \\ \times \ 5 \\ \hline 8\,0 \\ 3 \end{array}$$
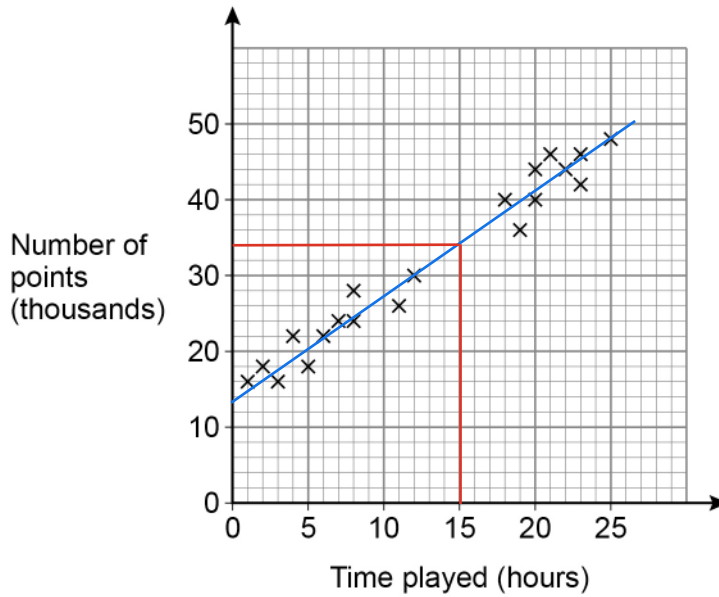
Answer £ _84_

10

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]

from graph, 34,000 points

so 34000 ÷ 2000 = 17 extra lives

Answer   17

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

Work out the value of a.

You **must** show your working.

[3 marks]

$2^a \times 3 \times 25 = 600$

$2^a \times 75 = 600$

$2^a = 600 \div 75$

$2^a = 8$

$a = 3$ $2^3 = 2 \times 2 \times 2 = 8$

$a = $ __3__

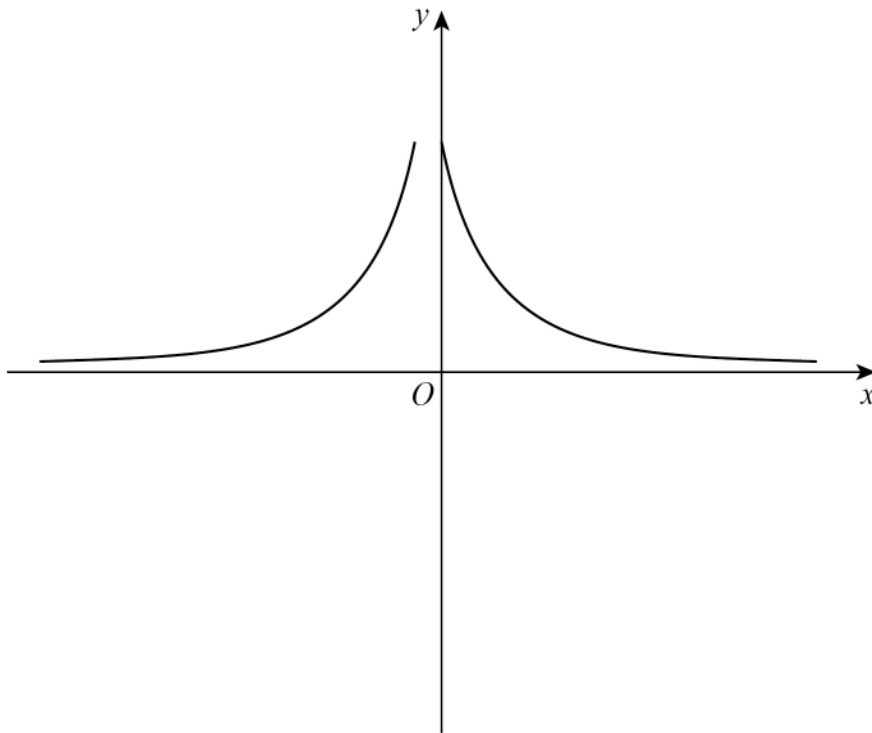**22**   Expand and simplify fully $5(3x + 4) - 2(x - 1)$

[2 marks]

$15x + 20 - 2x + 2$

$13x + 22$

Answer $13x + 22$

9

Turn over ▶

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

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

[2 marks]

Criticism 1   Passes through point where $x = 0$

(says in question $x \neq 0$)

Criticism 2   Incorrect for negative x values

shape of graph should be

24   Sunita is x years old.

Beth is one year younger than Sunita. $x - 1$

Joel is double Sunita's age. $2x$

The mean of their ages is 5

How old is **Joel**?

[5 marks]

3 people so total of their ages is $5 \times 3 = 15$ years

Adding their ages, $x + x - 1 + 2x = 15$

$$4x - 1 = 15$$

$$4x = 16$$

$$x = 4$$

Joel is $2x$ years old, so $2 \times 4 = 8$

Answer _____ 8 years old _____

Turn over for the next question

7

Do not write outside the box

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

Give your answer as a mixed number.

[4 marks]

$$\frac{7}{3} \div \frac{4}{5}$$

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

$$= \frac{35}{12}$$

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

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

END OF QUESTIONS

4