

Please write clearly in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

Forename(s)

Candidate signature

I declare this is my own work.

GCSE MATHEMATICS

Example-Problem Past Paper

Foundation Tier Paper 1 Non-Calculator

F

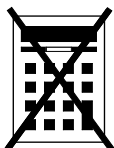
June 2023

Materials

For this paper you must have:

- mathematical instruments.

You must **not** use a calculator.



Second Half

Instructions

- Engage with the fully-worked solutions in full before attempting the shadow questions.
- Explain the fully-worked solutions to yourself, anticipating the next steps in the worked solutions, making links between the problems and the mathematics used to solve them.
- Apply the methods learnt from the fully-worked solutions to the shadow questions, writing down all the workings in the spaces provided. Your thought process is important.
- Do all rough work in this book. Cross through any work you do not want to be marked.

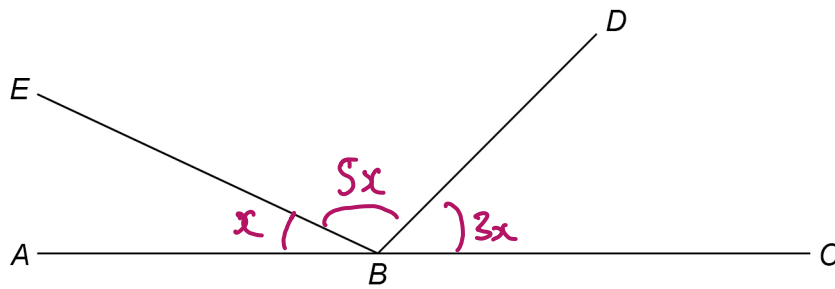
Information

- The marks for questions are shown in brackets.
- You may ask for more answer paper, graph paper and tracing paper.
- You should ask your teacher for help on a question if you do not fully understand a part of the fully-worked solution. Remember to be specific, understanding why the step was completed, rather than simply getting the correct answer.

Advice

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

17

 ABC , BD and BE are straight lines.Not drawn
accuratelyangle $EBD = 5 \times$ angle ABE (x)angle $DBC = 3 \times$ angle ABE (x)Work out the size of angle EBD .**[3 marks]**

$$x + 5x + 3x = 9x$$

$$9x = 180^\circ$$

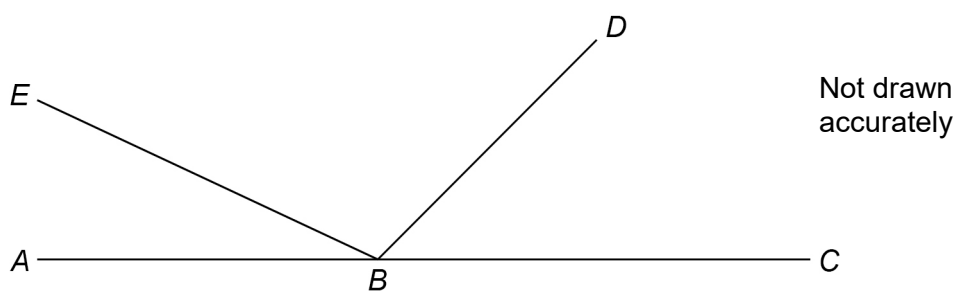
$$\div 9 \quad \div 9$$

$$x = 20^\circ$$

$$EBD = 5x = 5(20) = 100^\circ$$

Answer 100 $^\circ$

17

 ABC , BD and BE are straight lines.

$$\text{angle } EBD = 6 \times \text{angle } ABE$$

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

Work out the size of angle DBC .

[3 marks]

Answer _____ °

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.

even $\times$ even = even $2 \times 29 = 58$

even $\times$ odd = even

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 ○ ○ ○ ○ ○

A: £80

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

B ○ ○ ○ ○ ○ ○
£96

B: £96

$\frac{2}{3}$ of 96 = 64

$96 \div 6 = 16$

$16 \times 5 = 80$

C = 20 + 64
= 84

Answer £ 84

18

Two prime numbers are multiplied together.

The answer is an **even** number between 40 and 50

Complete the calculation.

[3 marks]

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

19

Chloe and Mikey share some money in the ratio 3 : 4

Mikey gets £72

Chloe gives $\frac{1}{6}$ of her share to Pippa.Mikey gives $\frac{4}{9}$ of his share to Pippa.

How much money does Pippa receive?

[4 marks]

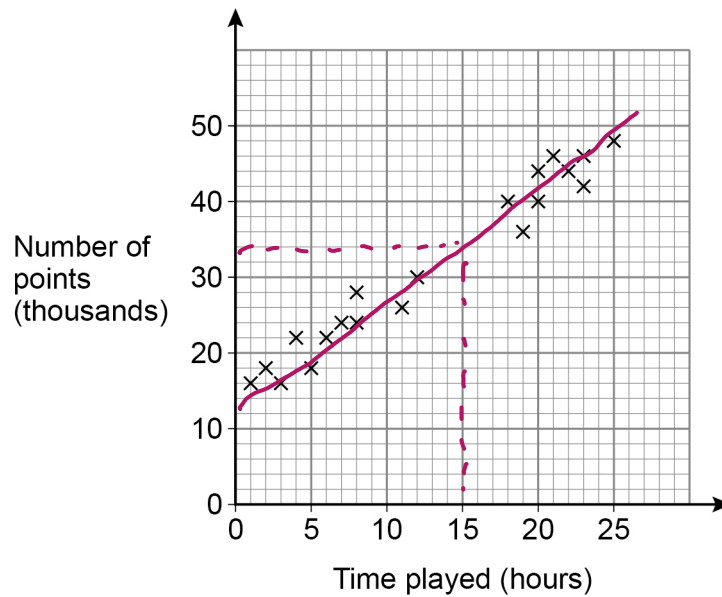
Answer £ _____

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]

$$\begin{array}{r|l}
 1 \text{ life} & 2000 \text{ pts} \\
 \hline
 177 \downarrow & 34000 \text{ pts} \quad \downarrow \times 17
 \end{array}$$

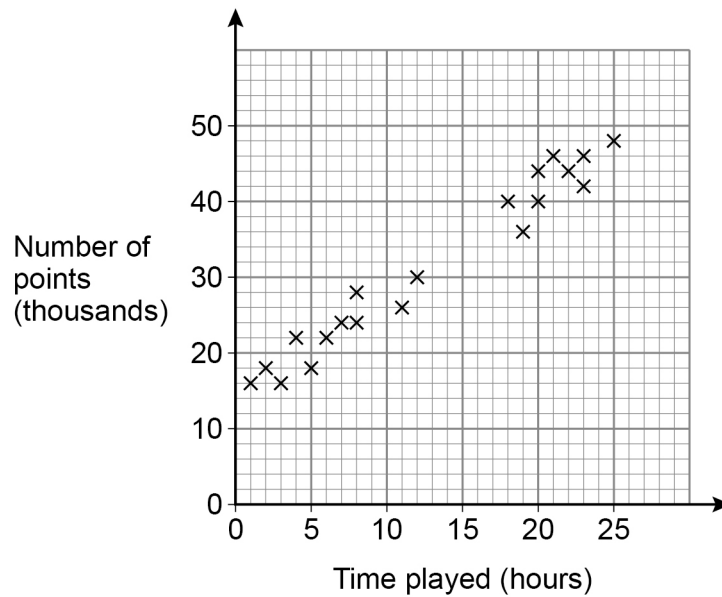
Answer

17

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 type of correlation shown.**[1 mark]**

none

weak

negative

positive

20 (b) Players get one extra life for every 500 points they score.

Amy plays the game for 10 hours.

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

[3 marks]

Answer _____

21

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

Work out the value of a .

You **must** show your working.

[3 marks]

$$600 : 60 \times 10$$

$$= 6 \times 10 \times 10$$

$$= 2 \times 3 \times 2 \times 5 \times 2 \times 5$$

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

$$a = 3$$

$$a = \underline{\quad 3 \quad}$$

22

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

[2 marks]

$$\begin{array}{r|l} & 3x + 4 \\ 5 & 15x + 20 \end{array}$$

$$\begin{array}{r|l} & x - 1 \\ -2 & -2x + 2 \end{array}$$

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

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

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

21 $2^a \times 3^2 \times 5 = 360$

Work out the value of a .

You **must** show your working.

[3 marks]

$a =$ _____

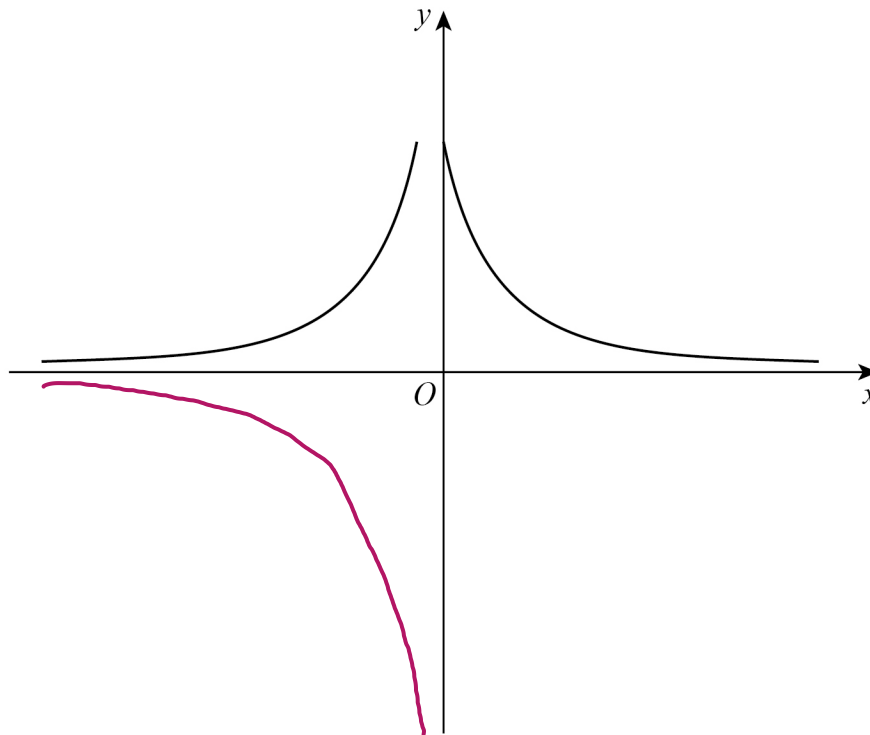
22 Expand and simplify fully $2(5x + 6) - 3(x - 2)$

[2 marks]

Answer _____

23

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



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

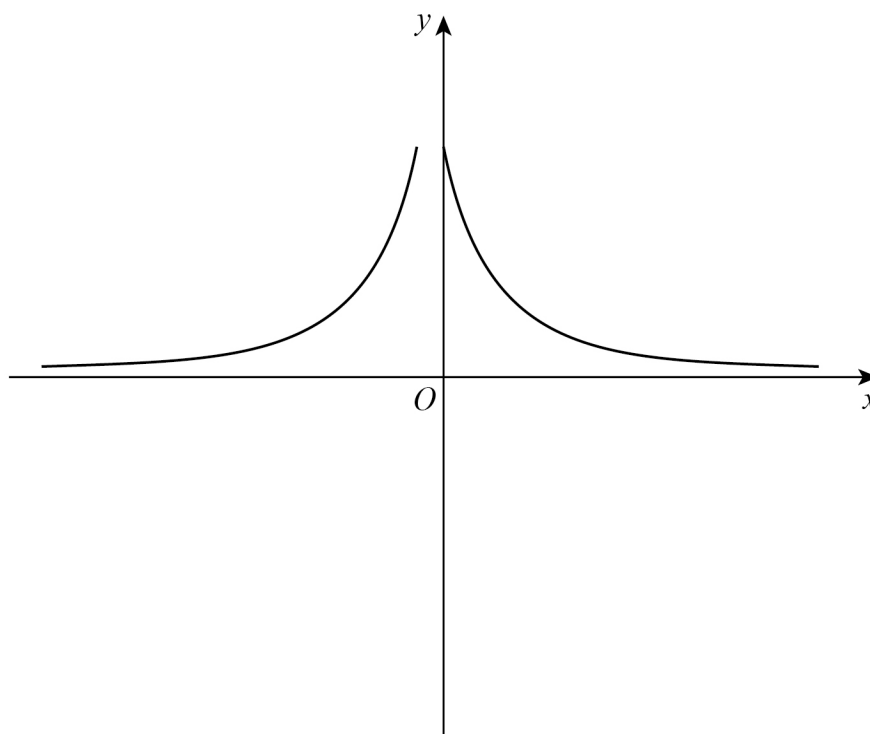
[2 marks]

Criticism 1 The decreasing part of the graph shouldn't intersect the y-axis.

Criticism 2 The part of the graph on the left of the y-axis should be reflected.

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 _____

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

$$\frac{x + x - 1 + 2x}{3} = 5$$

$$\frac{4x - 1}{3} = 5$$

$$\times 3 \quad \times 3$$

$$4x - 1 = 15$$

$$+1 \quad +1$$

$$4x = 16$$

$$\div 4 \quad \div 4$$

$$x = 4$$

$$2x = 2(4) = 8$$

Answer 8

[5 marks]

Answer _____

5

Turn over ►

25

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

Give your answer as a mixed number.

[4 marks]

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

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

$$\frac{35}{12} = 2\frac{11}{12}$$

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

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

Give your answer as a mixed number.

[4 marks]

Answer _____

END OF QUESTIONS

[illegible]