

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier

Paper 1 Non-Calculator

Shadow paper based on June 2023 question paper

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments



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	
TOTAL	

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

1 Here is a list of numbers.

12 20 42 27 18 36 6

1 (a) Which number in the list is a multiple of 5?

[1 mark]

Answer _____

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

[1 mark]

Answer _____

1 (c) Which **two** numbers in the list have a total of 45 ?

[1 mark]

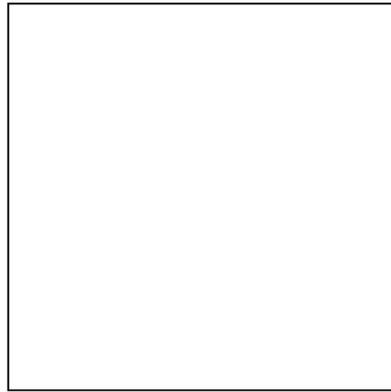
Answer _____ and _____

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

[1 mark]

Answer _____

2 (a) Here is a square.



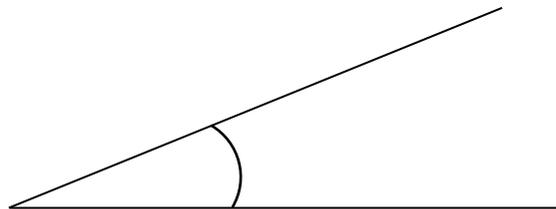
Use a ruler to measure a side length of the square.

Give your answer in **millimetres**.

[1 mark]

Answer _____ mm

2 (b) Here is an angle.



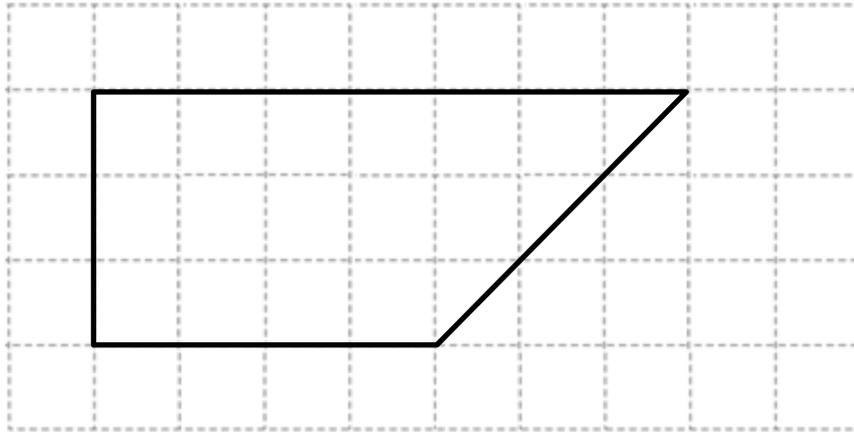
Use a protractor to measure the size of the angle.

[1 mark]

Answer _____ °

Turn over for the next question

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

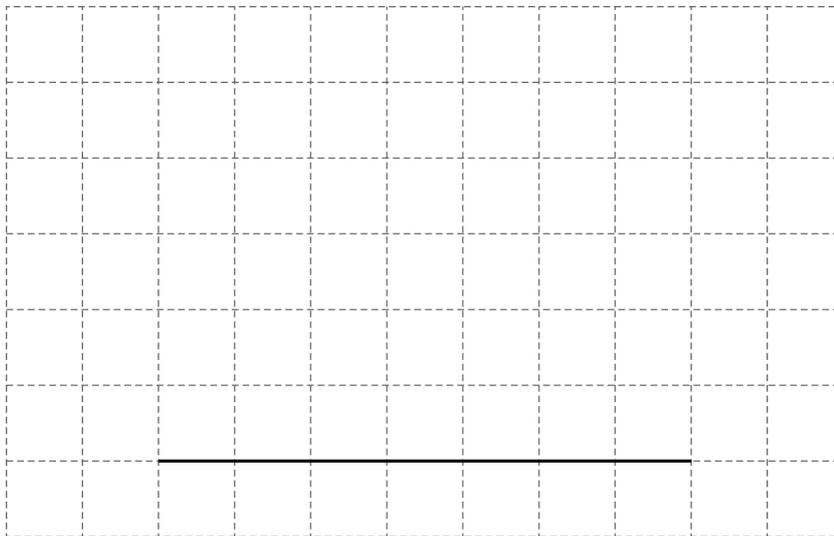


By counting squares, work out the **area** of the quadrilateral.

[1 mark]

Answer _____ cm^2

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



Complete the rectangle so that it has an **area** of 28 square centimetres.

[1 mark]

3 (a) Work out $(-2) \times (-5)$

[1 mark]

Answer _____

3 (b) Work out $3 \times (-8)$

[1 mark]

Answer _____

3 (c) Work out $(-4)^2$

[1 mark]

Answer _____

3 (d) Work out 2^3

[1 mark]

Answer _____

Turn over for the next question

4 Write 12 out of 40 as a fraction in its simplest form.

[2 marks]

Answer _____

5 At a cinema

the normal price of a ticket is £12

the normal price of a regular popcorn tub is £4.90

The cinema has these special offers.

Cinema Ticket

Half the normal price

Regular popcorn tub

£1.40 less than the normal price

Work out the **total** price of 3 cinema tickets and 1 regular popcorn tub using the special offers.

[4 marks]

Answer £ _____

6 (a) Write $2\frac{3}{7}$ as an improper fraction.

[1 mark]

Answer _____

6 (b) Write 0.23 as a fraction.

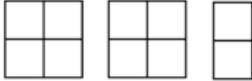
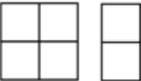
[1 mark]

Answer _____

Turn over for the next question

- 7 Talal recorded the colour of 100 cars.
The pictogram shows the results.

Key:  = 8 cars

White	
Black	
Blue	
Red	
Silver	
Other	

There were 4 **more** red cars than silver cars.

Complete the pictogram for the 100 cars.

[4 marks]

8

$$T = 2A - B$$

8 (a) Work out the value of T when $A = 10$ and $B = 8$ **[2 marks]**

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

8 (b) Work out the value of A when $T = -22$ and $B = 16$ **[3 marks]**

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

Turn over for the next question**Turn over ►**

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]

$$\frac{1}{25}$$

$$\frac{1}{2}$$

$$\frac{1}{50}$$

$$\frac{1}{4}$$

$$0.04$$

$$\frac{2}{100}$$

$$20\%$$

$$\frac{2}{6}$$

$$25\%$$

$$0.5$$

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

A	$12 \times 2 + 6$
B	$11 - (10 - 7)$

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

[3 marks]

Answer _____

11 Convert 18 litres to gallons.

Use 1 gallon = 4.5 litres

[2 marks]

Answer _____ gallons

Turn over for the next question

- 12 The table shows the number of visitors to a museum.

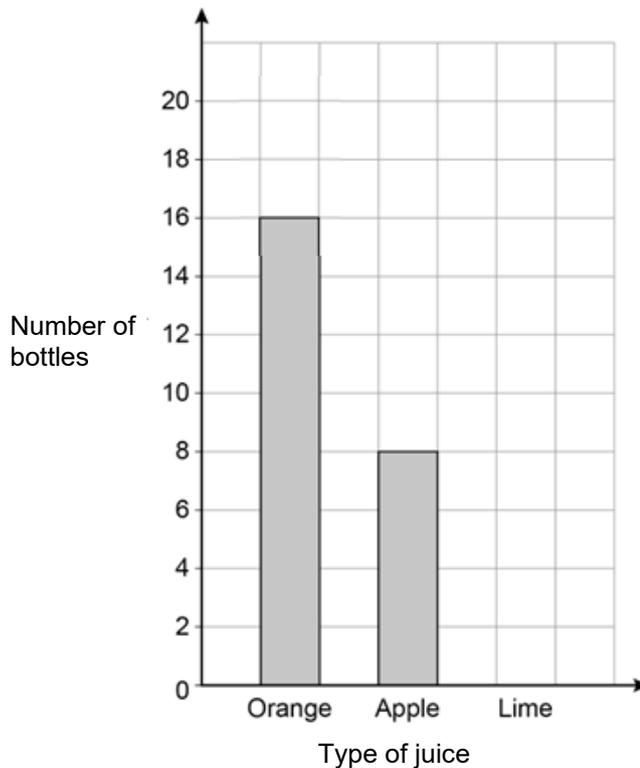
October	November
200	400

Write down the percentage increase from October to November.

[1 mark]

Answer _____ %

- 13 A shop stocks juice in the ratio
orange : apple : lime = 4 : 2 : 3



Complete the bar chart.

[3 marks]

14

Here is some data about people visiting a ski centre one week.

	Percentage of all visitors	Mean number of hours visiting	Range of number of hours visiting
Members	32	3.5	3
Guests	68	2	4

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

Make **three** comparisons.

[3 marks]

Comparison 1 _____

Comparison 2 _____

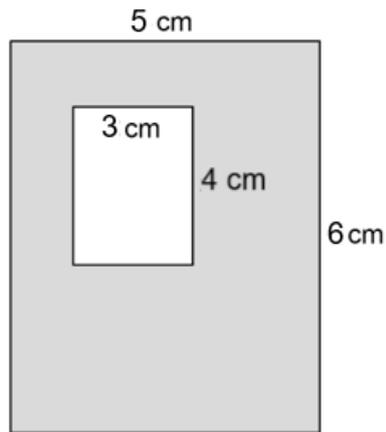
Comparison 3 _____

Turn over for the next question

Turn over ►

- 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]

Answer _____ %

- 16** Sabina travels 12 miles in 15 minutes.

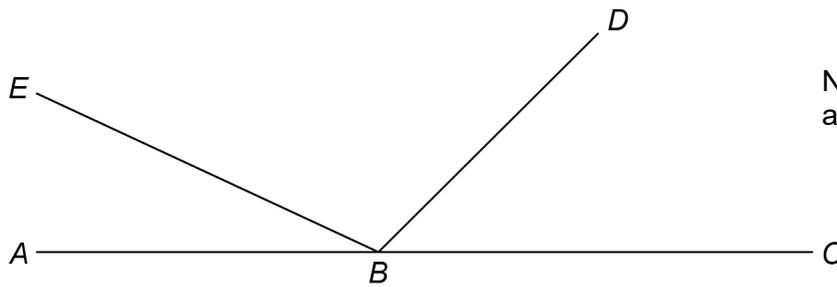
Work out her average speed in miles per hour.

[3 marks]

Answer _____ mph

17

ABC , BD and BE are straight lines.



Not drawn
accurately

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

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

Work out the size of angle DBC .

[3 marks]

Answer _____ °

Turn over for the next question

Turn over ►

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?

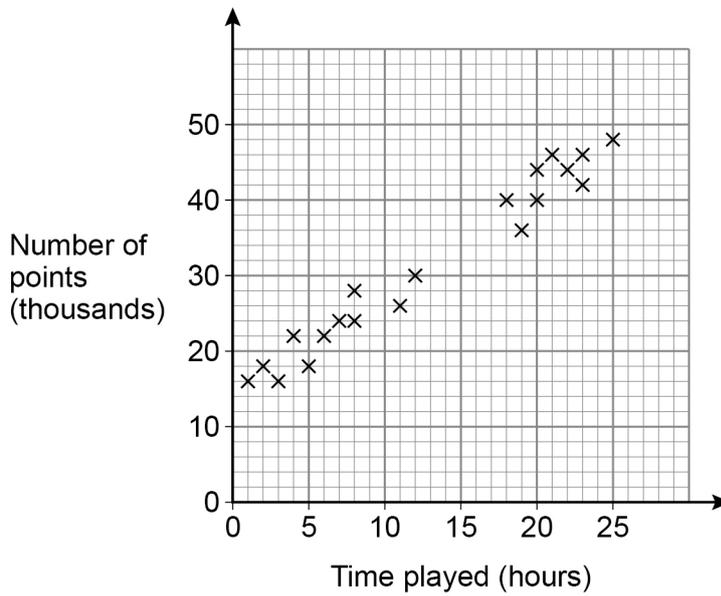
[4 marks]

Answer £ _____

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 _____

Turn over for the next question

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

Work out the value of a .

You **must** show your working.

[3 marks]

$a =$ _____

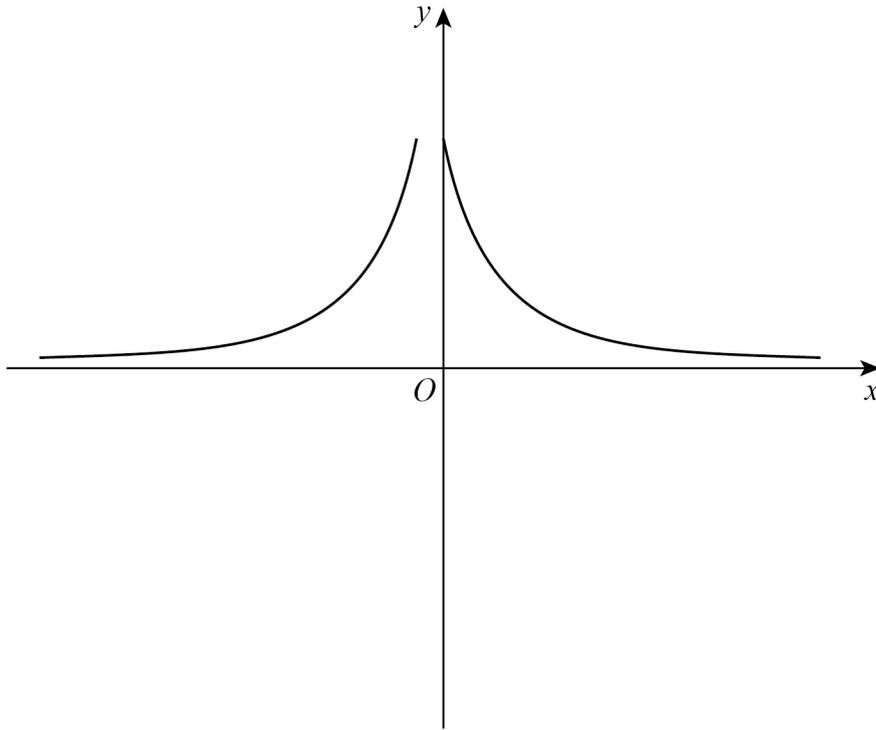
22 Expand and simplify fully $2(5x + 6) - 3(x - 2)$

[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 _____

Criticism 2 _____

Turn over for the next question

Turn over ►

There are no questions printed on this page

*Do not write
outside the
box*

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ANSWER IN THE SPACES PROVIDED**

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