

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

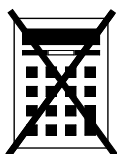
Foundation Tier Paper 1 Non-Calculator

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.

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	
22–23	
24–25	
26	
TOTAL	

Advice

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



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

1 Circle the answer to 0.02×100 [1 mark]

0.2

2

20

200

2 Circle the expression that is equal to $x + x + x - x + x$ [1 mark]

 x $2x$ $3x$ $4x$

3 What is 260 millimetres in centimetres?
Circle your answer. [1 mark]

0.26 cm

2.6 cm

26 cm

2600 cm



- 4 Which shape **can** have sides with lengths that are all different?
Circle your answer.

[1 mark]

trapezium

kite

parallelogram

rhombus

- 5 Work out $(-8) \times 5$

[1 mark]

Answer -45

Turn over for the next question

Turn over ►



- 6 Luke buys 4 apples and 5 bananas.
The total cost is £3.70
Each apple costs 35p
Work out the cost in pence of each banana.

[4 marks]

$$\begin{array}{r} 35 \\ 4 \\ \hline 140 \\ 2 \end{array} \rightarrow \text{apples}$$


$$\begin{array}{r} 370 \\ 140 \\ \hline 230 \end{array}$$


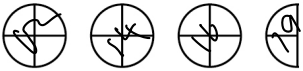

$$\begin{array}{r} 0.46 \\ 5 \overline{) 230} \end{array}$$

Answer 46 pence



7 Rashid counted the pieces of homework he had done in three subjects. He draws a pictogram to show the results.

Key:  represents 4 pieces of homework

Maths	 20
English	 14
Geography	 1 ^h and 5 ^m half

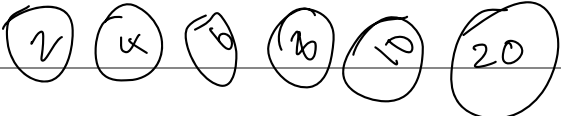
7 (a) Rashid had done 5 pieces of Geography homework. Show this information on the pictogram.

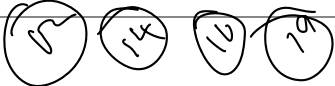
[1 mark]

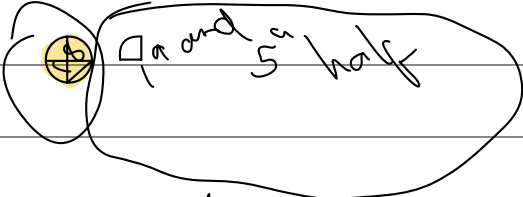
7 (b) Rashid spent 30 minutes on each piece of homework. Work out the total time he spent on homework for these three subjects. Give your answer in hours and minutes.

[3 marks]

Handwritten work on lined paper:

Maths:  20

English:  14

Geography: 

Answer 19 hours 30 minutes



- 8 A travel company is taking some passengers on a trip.
They can use coaches or minibuses.

Each coach can carry 53 passengers.

Each minibus can carry 12 passengers.

The passengers going on the trip would exactly fill 3 coaches.

If the company uses only minibuses, how many will they need?

[4 marks]

$$\begin{array}{r} 53 \\ \times 3 \\ \hline 159 \end{array}$$

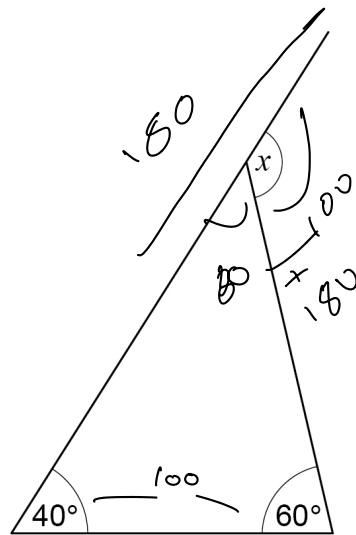
$$\begin{array}{r} 013 \\ 12 \overline{) 159} \\ \underline{12} \\ 39 \\ \underline{36} \\ 3 \end{array}$$

3 more seats
needed

Answer 13 buses : 3 more seats are needed



- 9 One side of a triangle is extended.



Not drawn
accurately

Circle the size of angle x .

[1 mark]

100°

80°

60°

40°

- 10 Pavel uses his calculator to work out 352×7268

Circle the **last** digit in the answer.

[1 mark]

0

2

6

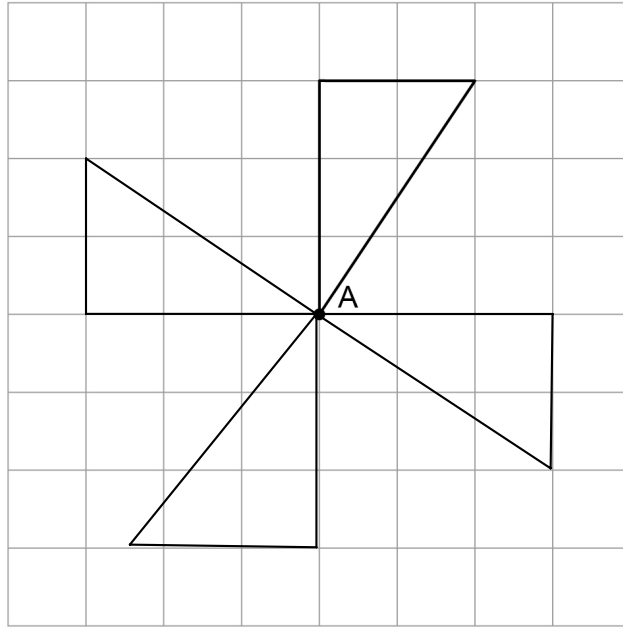
8

Turn over for the next question



- 11 Complete the diagram so that it has rotational symmetry of order 4
centre of rotation at point A.

[2 marks]



12

10% of 2100 is 210

Work out 43% of 2100

[3 marks]

$$40\% = 840$$

$$\frac{210}{10} = 1\% = 21$$

$$21 \times 3 = 3\% = 63$$

$$\begin{array}{r} 840 \\ + \quad 63 \\ \hline \end{array}$$

$$903$$

1

$$\begin{array}{r} 210 \\ \quad 4 \\ \hline 840 \end{array}$$

$$\begin{array}{r} 21 \\ \quad 3 \\ \hline 63 \end{array}$$

Answer 903

Turn over for the next question

Turn over ►



13

Katy records the number of cars using a drive-through each hour for 24 hours.
Here are the results.

36 20 37 53 42 41 24 18 39 35 40 47
38 17 23 18 13 35 10 7 6 18 31 57

Katy makes this tally and frequency chart to put the data into groups.

Number of cars	Tally	Frequency
0 to 10		
10 to 20		
20 to 30		
30 to 40		
40 to 50		

Make **two** criticisms of Katy's tally and frequency chart.

You do **not** need to complete the chart.

[2 marks]

Criticism 1 There is no clear number of how many cars

Criticism 2 _____



- 14** Counters in a bag are red, white or blue.
A counter is picked at random.
Complete the table.

[2 marks]

	Red	White	Blue
Probability	0.15	0.4	0.45

$$\begin{array}{r}
 + 0.15 \\
 0.40 \\
 \hline
 0.55
 \end{array}
 \qquad
 \begin{array}{r}
 0.91 \\
 0.40 \\
 - 0.55 \\
 \hline
 0.45
 \end{array}$$

Turn over for the next question

Turn over ►



15 Here is a calculation.

$$31 \times 84 = 2604$$

You can use the calculation to help answer the following questions.

15 (a) Work out $2604 \div 84$

[1 mark]

Answer _____

15 (b) Work out 3.1×8.4

[1 mark]

Answer _____

15 (c) Work out 31×85

[2 marks]

Answer _____



- 16** A password has 30 characters.
It is made up of 5 numbers, 15 letters and some symbols.

Work out the ratio numbers : letters : symbols

Give your answer in its simplest form.

[2 marks]

Answer _____ : _____ : _____

- 17** Work out $\frac{5}{6} + \frac{7}{12}$

Give your answer as a mixed number.

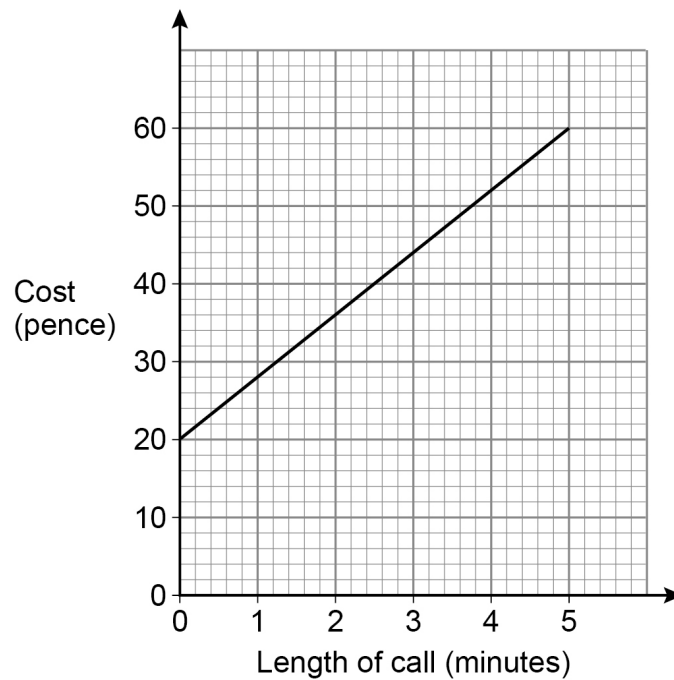
[3 marks]

Answer _____



- 18** The cost of making a phone call is
a fixed charge
and
a charge per minute.

The costs of phone calls up to 5 minutes are represented by the graph.



- 18 (a)** Write down the fixed charge.

[1 mark]

Answer _____ pence



18 (b) Work out the charge per minute.

[2 marks]

Answer _____ pence

18 (c) Work out the cost of a phone call lasting 7 minutes.

[2 marks]

Answer _____ pence

Turn over for the next question



19

A company sells bags of toffees and bags of mints.

Here are the numbers of sweets in 11 bags of toffees.

55 50 49 51 55 47 54 50 49 55 57

Here are the numbers of sweets in 10 bags of mints.

46 47 47 48 48 50 53 54 54 54

The company claims that the average number of sweets per bag is at least 50

Using medians, is the company's claim correct for each type of sweet?

You **must** work out the median for toffees and the median for mints.

[4 marks]

Toffees _____

Tick a box for toffees.

 Yes

 No

Mints _____

Tick a box for mints.

 Yes

 No

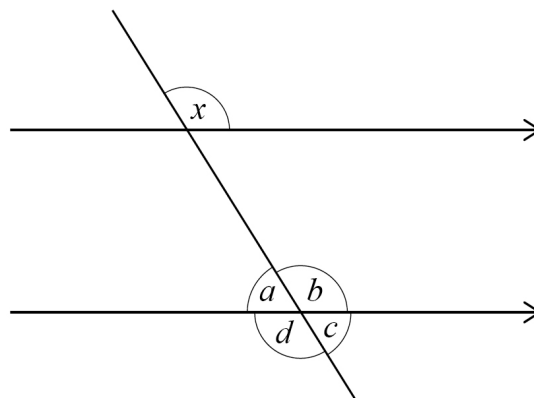

20 Freddie tries to work out $\frac{29.15 + 83.47}{9.82}$

His answer is 37.65

By rounding each number to the nearest 10, show that his answer is incorrect.

[3 marks]

21 A straight line passes through two parallel lines.



Not drawn
accurately

Circle the angle that is **corresponding** to angle x .

[1 mark]

a

b

c

d



22 (a) Lucy wants to simplify $6a - (7b - 2a)$

She writes $4a - 7b$

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]

22 (b) Lucy also wants to simplify $3p^2 \times 5p^7$

She says,

“Add 3 and 5, then add 2 and 7”

Her answer is $8p^9$

Tick a box for each part of her method.

[1 mark]

	Correct	Not correct
Add 3 and 5	<input type="checkbox"/>	<input type="checkbox"/>
Add 2 and 7	<input type="checkbox"/>	<input type="checkbox"/>



22 (c) Lucy thinks of a number.

$$10 \times \text{the number} = 10 \div \text{the number}$$

Give a possible value of the number.

[1 mark]

Answer _____

23 Lily's age is 2 years and 4 months.

Hugo's age is 1 year and 8 months.

Write Lily's age in months as a fraction of Hugo's age in months.

Give your fraction in its simplest form.

[2 marks]

Answer _____



24

Working alone, it takes Kevin 4 hours to paint an area of 12 m^2

Kevin and Steve are going to paint an area of 24 m^2

Kevin says,

“Working together at the same rate it will take us 8 hours, because 24 is 2×12 ”

Is he correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]



25 (a) Solve $5x + 6 > 3x + 15$

[3 marks]

Answer _____

25 (b) Write down the inequality represented by the number line.



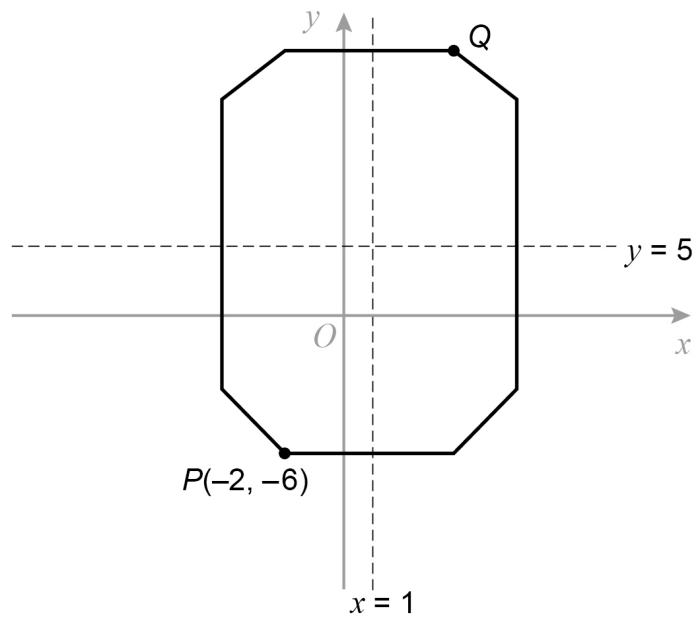
[2 marks]

Answer _____



26

The diagram shows an octagon.

Not drawn
accurately

$x = 1$ and $y = 5$ are lines of symmetry.

Work out the coordinates of point Q.

[2 marks]

Answer (_____ , _____)



- 27 (a)** Work out $2000 \times 70\,000$
Give your answer in standard form.

[2 marks]

Answer _____

- 27 (b)** Work out $\frac{1.8 \times 10^2}{3 \times 10^{-1}}$
Give your answer as an ordinary number.

[2 marks]

Answer _____

6

Turn over ►



28

A , B , C and D are junctions on a motorway.

Not drawn
accurately



distance $CD = 3 \times$ distance AB

distance $BC = 25$ miles

Salma drives from A to C .

She drives for 30 minutes at an average speed of 62 miles per hour.

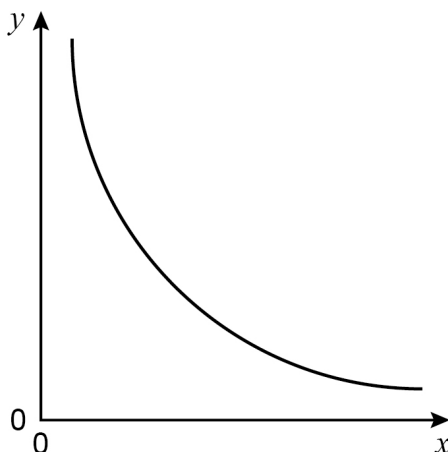
Work out the distance AD .

[4 marks]

Answer _____ miles



29 Here is a sketch of a graph.



Circle the equation of the graph.

k is a constant.

[1 mark]

$$y = kx$$

$$y = k + x$$

$$y = k - x$$

$$y = \frac{k}{x}$$

30 Write 200 as a product of prime factors.
Give your answer in index form.

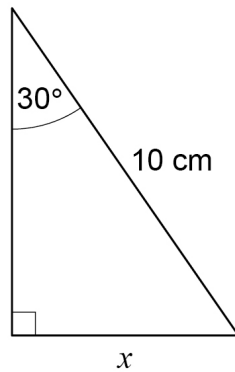
[3 marks]

Answer _____

Turn over ►



31 Here is a right-angled triangle.



Not drawn
accurately

Use trigonometry to work out the value of x .

[3 marks]

Answer _____ cm

32 Factorise $x^2 + 7x + 10$

[2 marks]

Answer _____

END OF QUESTIONS



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outside the
box*

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