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

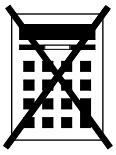
Foundation Tier Paper 1 Non-Calculator

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	
22–23	
24–25	
26	
TOTAL	

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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

Do not write outside the box

4 Which shape **can** have sides with lengths that are all different?

Circle your answer.

[1 mark]

trapezium kite parallelogram rhombus

1

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

[1 mark]

Answer −40 1

Turn over for the next question

5

Do not write outside the box

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]

$4 \times £0.35 = £1.40$ (1)

$£1.40 + 5B = £3.70$

$5B = £3.70 - £1.40$ (1)

$= £2.30$

$B = £2.30 \div 5$ (1)

$= £0.46$

$= 46p$ (1)

Answer 46 pence

Do not write outside the box

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	⊕ ⊕ ⊕ ⊕ ⊕
English	⊕ ⊕ ⊕ ◁
Geography	⊕ ◁ (1)

7 (a) Rashid had done 5 pieces of Geography homework.

Show this information on the pictogram.

[1 mark]

$5 \div 4 = 1.25$

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]

Total pieces of homework = 9.75×4

$= 39$ (1)

Total time spent (in minutes) = 39×30 minutes

$= 1170$ minutes (1)

Total time spent (in hours) = $1170 \div 60 = 19.5$ hours

Answer 19 hours 30 (1) minutes

8

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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]

53 × 3 = 159 (1)

(1) 159 ÷ 12 = 13.25 (1)

They need 14 minibuses to bring all passengers

Answer 14 (1)

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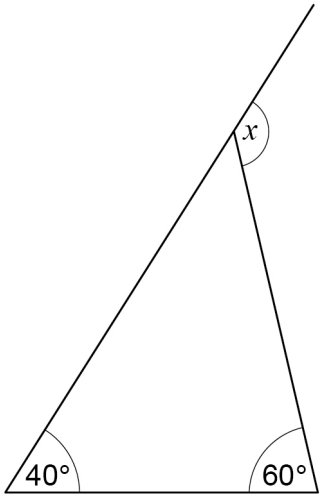
9 One side of a triangle is extended.



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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

6

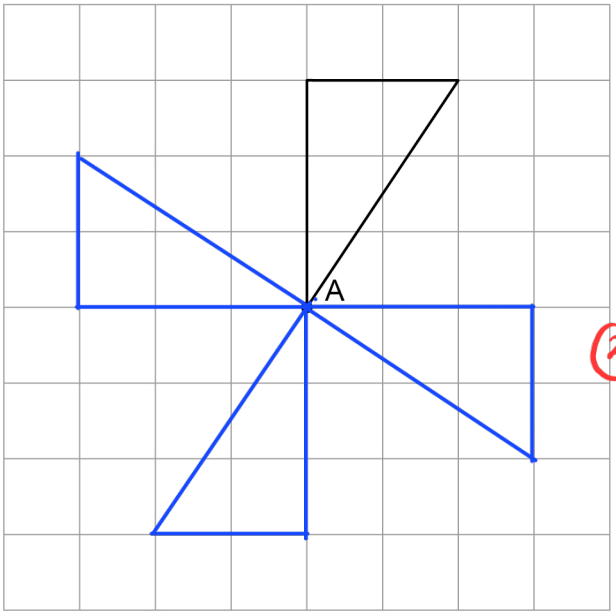
Do not write outside the box

11 Complete the diagram so that it has

rotational symmetry of order 4

centre of rotation at point A.

[2 marks]



2

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12 10% of 2100 is 210

Work out 43% of 2100

[3 marks]

2100 × 0.43 = 903

(2)

Answer 903 (1)

Turn over for the next question

5

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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 10 can go in two categories (1)

Criticism 2 No category for 53 (1)

Do not write outside the box

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

1 − 0.4 − 0.15 = 0.45 (1) (1)

Turn over for the next question

4

Do not write outside the box

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 31 (1)

15 (b) Work out 3.1×8.4

[1 mark]

Answer 26.04 (1)

15 (c) Work out 31×85

[2 marks]

2604 + 31 = 2635 (1)

(1)

Answer 2635

Do not write outside the box

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]

30 - 5 - 15 = 10

ratio = 5 : 15 : 10 ÷5

= 1 : 3 : 2

Answer 1 : 3 : 2 (2)

17 Work out $\frac{5}{6} + \frac{7}{12}$ (×2 on $\frac{5}{6}$)

Give your answer as a mixed number.

[3 marks]

(1) $\frac{10}{12} + \frac{7}{12} = \frac{17}{12}$ (1)

$= \frac{12}{12} + \frac{5}{12}$

$= 1\frac{5}{12}$ (1)

Answer $1\frac{5}{12}$

9

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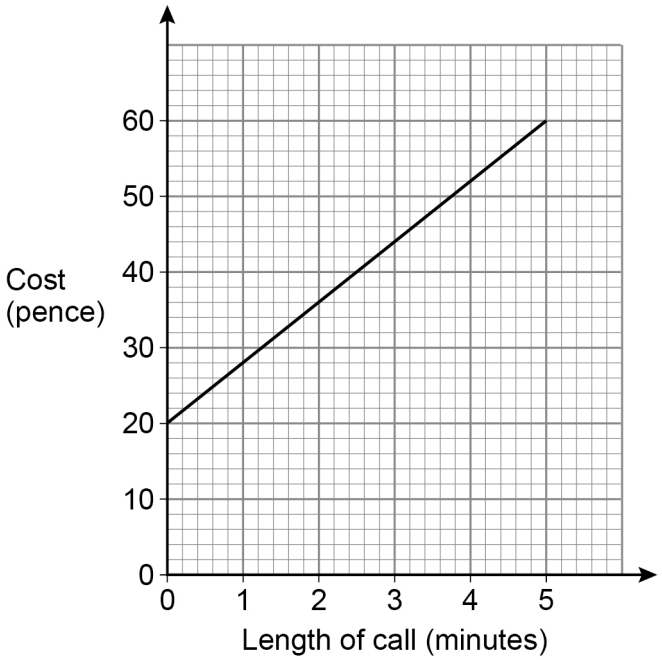
18 The cost of making a phone call is

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 20 (1) pence

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18 (b) Work out the charge per minute.

[2 marks]

$\frac{(60-20)}{5} = \frac{40}{5} = 8$ p/min (1) (1)

Answer 8 pence

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

[2 marks]

20 p + (8 × 7) p (1)

= 20 + 56

= 76 (1)

Answer 76 pence

Turn over for the next question

5

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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

49

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 Put the toffees in order (1)

47, 49, 49, 50, 50, (51), 54, 55, 55, 55, 57

(1)

Tick a box for toffees.

☑ Yes ☐ No

Mints $\frac{48 + 50}{2} = 49$ (1)

Tick a box for mints.

☐ Yes ☑ No (1)

Do not write outside the box

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

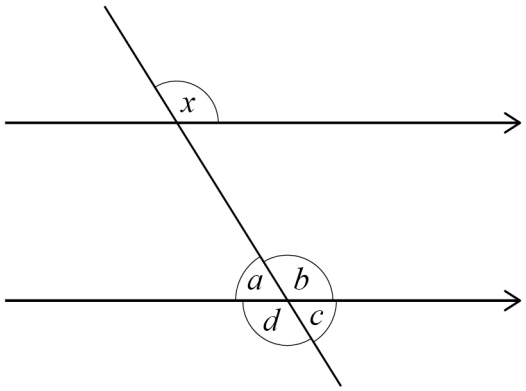
His answer is 37.65

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

[3 marks]

$\dfrac{30 + 80}{10} = \dfrac{110}{10} = 11$ (1) (1) (1)

21 A straight line passes through two parallel lines.



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

[1 mark]

a b (1) c d

8

Do not write outside the box

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]

: 6a - 7b + 2a

: 8a - 7b (1)

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	☐	☑
Add 2 and 7	☑	☐

(1)

Do not write outside the box

22 (c) Lucy thinks of a number.

10 × the number = 10 ÷ the number

Give a possible value of the number.

[1 mark]

Let number = n . $10n = \frac{10}{n}$

$n^2 = 1$

$n = \pm 1$

Answer 1 or −1 (1)

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]

Lily : $(2 \times 12) + 4 = 28$ months

Hugo : $(1 \times 12) + 8 = 20$ months

Fraction : $\frac{28 \div 4}{20 \div 4} = \frac{7}{5}$

Answer $\frac{7}{5}$ (2)

5

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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)

[1 mark]

No as it will be quicker than 8 hours.

Do not write outside the box

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

[3 marks]

$5x - 3x > 15 - 6$ (1)

$2x > 9$ (1)

$x > \frac{9}{2}$ (1)

Answer $x > \frac{9}{2}$

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

[2 marks]

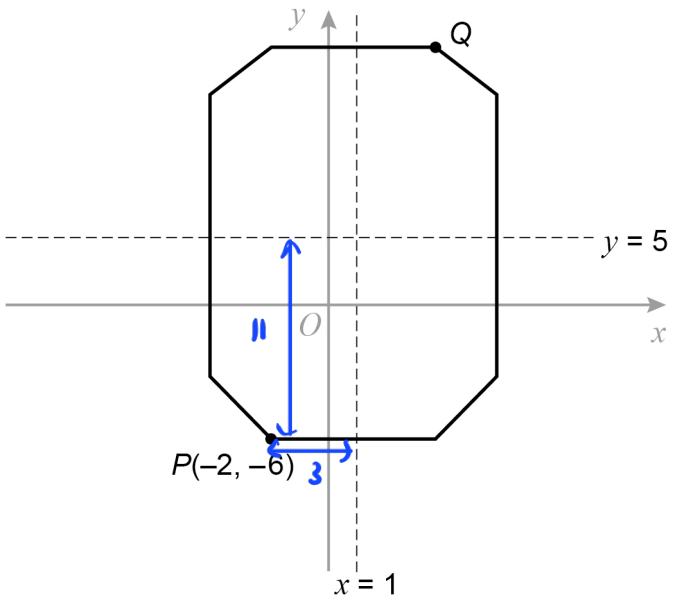
Answer $2 \leq x < 5$ (2)

6

Turn over ►

Do not write outside the box

26 The diagram shows an octagon.



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

Work out the coordinates of point Q.

[2 marks]

$x = 1 + 3 = 4$

$y = 5 + 11 = 16$

Answer (4 , 16) (2)

Do not write outside the box

27 (a) Work out $2000 \times 70\,000$

Give your answer in standard form.

[2 marks]

$2 \times 10^3 \times 7 \times 10^4$ (1)

$= 2 \times 7 \times 10^{3+4}$

$= 14 \times 10^7$

$= 1.4 \times 10^8$ (1)

Answer 1.4×10^8

27 (b) Work out $\dfrac{1.8 \times 10^2}{3 \times 10^{-1}}$

Give your answer as an ordinary number.

[2 marks]

$\frac{1.8}{3} \times 10^{2-(-1)}$

(1)

$= 0.6 \times 10^3$

$= 6 \times 10^2$

$= 600$ (1)

Answer 600

6

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

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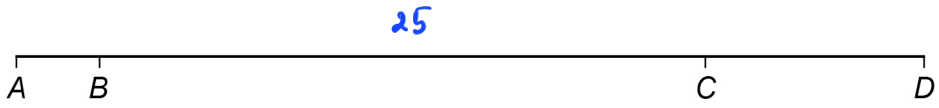


distance *CD* = 3 × distance *AB*

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]

$62 = \frac{25 + AB}{30 \div 60}$

(0.5) $62 = 25 + AB$ (1)

(1)

$31 = 25 + AB$

$AB = 6$ miles

$CD = 3 \times 6$ (1)

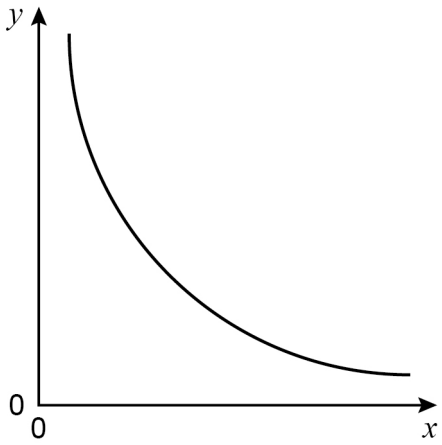
$= 18$

$AD = 6 + 25 + 18 = 49$ (1)

Answer 49 miles

Do not write outside the box

29 Here is a sketch of a graph.



Circle the equation of the graph.

k is a constant.

[1 mark]

$y = kx$ $\quad$ $y = k + x$ $\quad$ $y = k - x$ $\quad$ $y = \frac{k}{x}$ (1)

30 Write 200 as a product of prime factors.

Give your answer in index form.

[3 marks]

200
2 100
2 50 (1)
2 25
5 5

(1)

$2 \times 2 \times 2 \times 5 \times 5 = 200$

$2^3 \times 5^2$

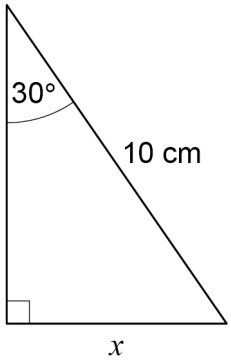
$2^3 \times 5^2$ (1)

Answer _____

8

Do not write outside the box

31 Here is a right-angled triangle.



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Use trigonometry to work out the value of x.

[3 marks]

$\sin 30^\circ = \frac{x}{10}$ (1)

$x = 10 \sin 30^\circ$

$= 10\,(0.5)$ (1)

$= 5$ (1)

Answer 5 cm

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

[2 marks]

$(x+a)(x+b)$ (1), where $a+b=7$, $a \times b = 10$

$(x+5)(x+2)$ (1)

Answer $(x+5)(x+2)$

END OF QUESTIONS

5

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