Full paper G1

Paper 1 style · Non-calculator · Foundation

80 marks
1 hour 30 minutes

Name	Date	Score / 80

Answer ALL questions. Write your answers in the spaces provided. You must write down all the stages in your working. You must **not** use a calculator. Diagrams are **NOT** accurately drawn unless it says so.

Help on the longer questions

Underlined words tell you what the question wants.

Remember reminds you of a fact you need.

1 **Change** 70 centimetres into millimetres.

..... millimetres

(1)

(Total for Question 1 is 1 mark)

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2 **Simplify** $g + g + g + g + g$

.....

(1)

(Total for Question 2 is 1 mark)

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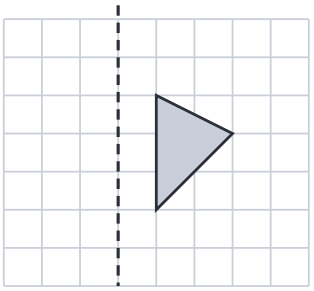
3 On the grid, reflect the shaded triangle in the mirror line.



(dashed line = mirror line)

(1)

(Total for Question 3 is 1 mark)

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4 **Write down** the value of the 8 in the number 18 053

.....

(1)

(Total for Question 4 is 1 mark)

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5 **Write** these numbers in order of size.
Start with the smallest number.

$\frac{3}{4}$ 0.7 72%

.....

(1)

(Total for Question 5 is 1 mark)

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6 The pictogram gives information about the number of hours of sunshine on a Monday and on a Tuesday.

Monday	● ● ● ◗
Tuesday	● ●

Key: ● represents 3 hours of sunshine

Work out the number of hours of sunshine on Monday.

..... hours

(1)

(Total for Question 6 is 1 mark)

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7 Max buys some pens.
Each pen costs £3
Max pays with a £50 note.
He gets £14 change.
Work out the number of pens Max buys.

> **Remember** Change = money paid − total cost. Add up all the costs first.

.....

(3)

(Total for Question 7 is 3 marks)

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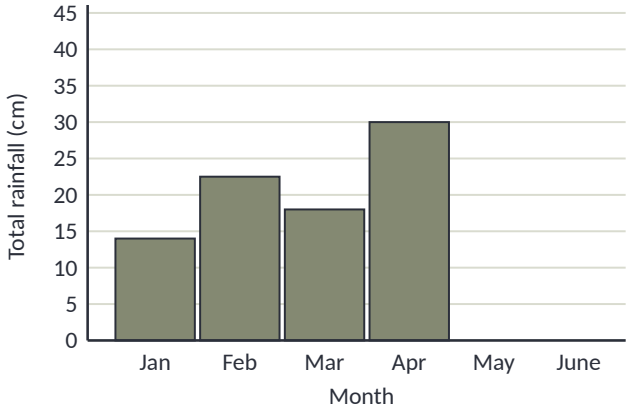
8 The bar chart shows information about the total rainfall each month for four months in a town.



Remember Check the scale on the axis: what does one square stand for? Label bars and use a ruler.

(a) In May, the total rainfall was 25 cm.
In June, the total rainfall was 10 cm.
Use this information to complete the bar chart.

(2)

(b) Kim says,

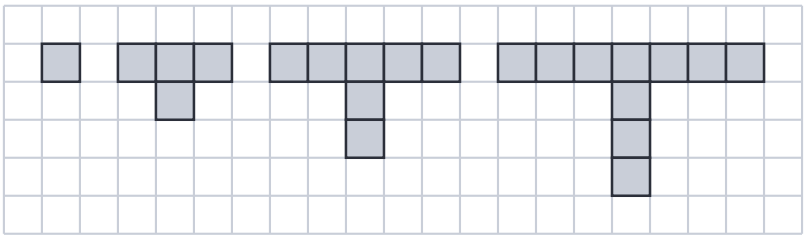
"In February there was 20.5 cm of rainfall because the bar is half way between the lines for 20 and 25"

Explain why Kim is incorrect.

(1)

(Total for Question 8 is 3 marks)

9 Here is a sequence of patterns made from grey square tiles.



(a) On the grid below, draw Pattern number 5

(1)

(b) **Complete** the table.

Pattern number	1	2	3	4	5	6
Number of squares	1	4	7	10		

(1)

(Total for Question 9 is 2 marks)

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10 In Finland last year, the lowest temperature was −18 °C.
In Finland last year, the highest temperature was 47 °C greater than the lowest temperature.
Work out the highest temperature in Finland last year.

.....°C

(2)

(Total for Question 10 is 2 marks)

---

11 At the end of March, Leo's gas meter reads 45 627 units.
At the end of April, his gas meter reads 46 112 units.
Each unit of gas Leo uses costs 12p
Work out how much Leo had to pay for the gas he used in April.

> **Remember** Units used = end reading − start reading. Then × the cost of each unit. 100p = £1.

.....

(4)

(Total for Question 11 is 4 marks)

12

> **Remember** Add/subtract: make the denominators the same. Multiply: top × top, bottom × bottom. Divide: flip the second fraction and multiply. Change mixed numbers to top-heavy first.

(a) **Work out** $\frac{7}{10} + \frac{1}{5}$

.....

(2)

(b) **Work out** $\frac{5}{6} \times \frac{3}{10}$
Give your answer as a fraction **in its simplest form**.

.....

(2)

(Total for Question 12 is 4 marks)

13 There are 20 sweets in a bag.
7 of the sweets are green.
Ali takes at random a sweet from the bag.

(a) **Write down** the probability that the sweet is green.

.....

(1)

(b) There are only red counters and blue counters in a box.
A counter is taken at random from the box.
The probability that the counter is red is 0.45
Find the probability that the counter is blue.

.....

(1)

(Total for Question 13 is 2 marks)

---

14 $y = 7x - 3$
Work out the value of y when $x = 5$

$y =$ .....

(2)

(Total for Question 14 is 2 marks)

15

> **Remember** Round every number to 1 significant figure first, then work it out. Say if you rounded up or down.

(a) **Work out** an estimate for the value of 61×2.87
You must show all your working.

.....

(2)

(b) Given that

$$3.14 \times 2.6 = 8.164$$

find the value of 31.4×26

.....

(1)

(Total for Question 15 is 3 marks)

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16 Nina leaves her home at 08 15 to drive to work.
She drives a distance of 45 miles.
Nina thinks she drives at an average speed of 30 miles per hour.

> **Remember** Speed = distance ÷ time. Distance = speed × time. Time = distance ÷ speed. Change minutes to hours: ÷ 60 (30 min = 0.5 h).

(a) If Nina is correct, at what time will she arrive at work?

.....

(3)

(b) In fact, Nina's average speed was greater than 30 miles per hour.
How does this affect your answer to part (a)?

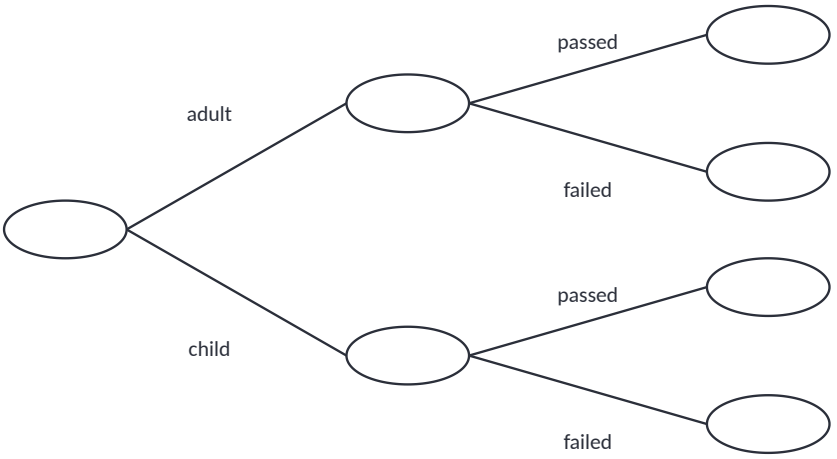
(1)

(Total for Question 16 is 4 marks)

17 80 people did a driving test.
24 of the 36 adults who did the test passed.
10 of the children who did the test failed.

> **Remember** Each pair of branches adds up to the number before it. Fill in the numbers you are given first.

(a) Use this information to complete the frequency tree.



(3)

(b) One of these people is picked at random.
Find the probability that this person is an adult who failed the test.

.....

(2)

(Total for Question 17 is 5 marks)

18 Here is a list of ingredients for making 12 pancakes.

Ingredients for 12 pancakes
50 g butter
200 g flour
300 ml milk
2 eggs

Zoe wants to make 30 pancakes.
Work out how much milk she needs.

..... ml

(2)

(Total for Question 18 is 2 marks)

19 **Increase** 360 by 15%

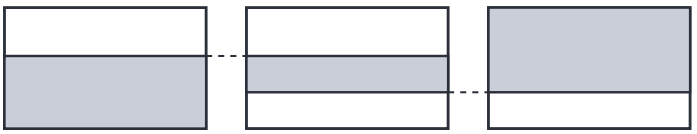
> **Remember** Percentage change = change ÷ original × 100. Multipliers: increase by 5% → × 1.05, decrease by 5% → × 0.95.

.....

(3)

(Total for Question 19 is 3 marks)

20 The diagram shows three identical rectangles **A**, **B** and **C**.



Rectangle A Rectangle B Rectangle C

$\frac{3}{5}$ of rectangle **A** is shaded.

$\frac{7}{10}$ of rectangle **C** is shaded.

Work out the fraction of rectangle **B** that is shaded.

> **Remember** Add/subtract: make the denominators the same. Multiply: top × top, bottom × bottom. Divide: flip the second fraction and multiply. Change mixed numbers to top-heavy first.

.....

(3)

(Total for Question 20 is 3 marks)

21 Here are the ages, in years, of 15 people.

23	31	36	42	28
35	31	48	24	39
41	33	26	37	52

Show this information in a stem and leaf diagram.



Key:

Remember Put the leaves in order and always write a key. Median = the middle value; range = biggest − smallest.

(3)

(Total for Question 21 is 3 marks)

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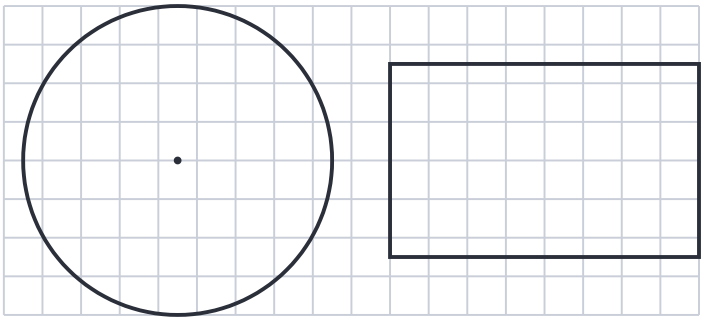
22 The grid shows the plan and the front elevation of a cylinder.
Each square on the grid represents 1 cm by 1 cm.



Plan Front elevation

Work out the volume of the cylinder.
Give your answer **in terms of π**

Remember Volume of a cylinder = π × radius² × height. Use the radius, not the diameter. 1 litre = 1000 cm³.

..... cm³

(3)

(Total for Question 22 is 3 marks)

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23 **Solve** $5x + 13 < 48$

.....

(2)

(Total for Question 23 is 2 marks)

24 **Write** 132 as a product of its prime factors.

.....

(2)

(Total for Question 24 is 2 marks)

25 A taxi company has a total of 200 cars and vans.

the number of cars : the number of vans = 2 : 3

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{4}$ of the cars use electricity.

35% of the cars use diesel.

The rest of the cars use petrol.

Work out the number of cars that use petrol.

You must show all your working.

> **Remember** Add the ratio parts to find the total number of parts. One part = amount ÷ total parts. Then multiply.

.....

(5)

(Total for Question 25 is 5 marks)

26

Remember A × 10^n where A is between 1 and 10. Big numbers: positive power. Small numbers: negative power.

(a) **Write** 2.48 × 10^{-2} as an ordinary number.

.....

(1)

(b) **Write** 61 500 **in standard form**.

.....

(1)

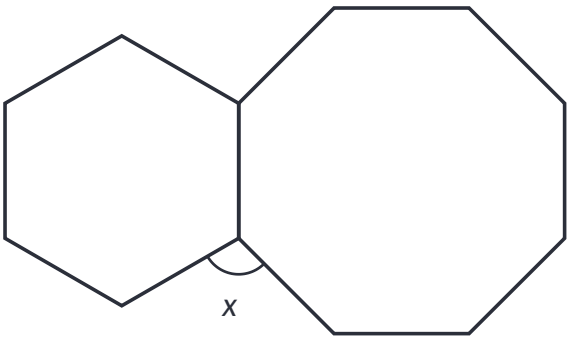
(c) **Work out** (3 × 10^4) × (5 × 10^{-7})
Give your answer in standard form.

.....

(2)

(Total for Question 26 is 4 marks)

27 Here is a regular hexagon and a regular octagon.



Work out the size of the angle marked *x*.
You must show all your working.

Remember Sum of interior angles = (n − 2) × 180°. Exterior angles add up to 360°. Interior + exterior = 180°.

.....°

(3)

(Total for Question 27 is 3 marks)

28

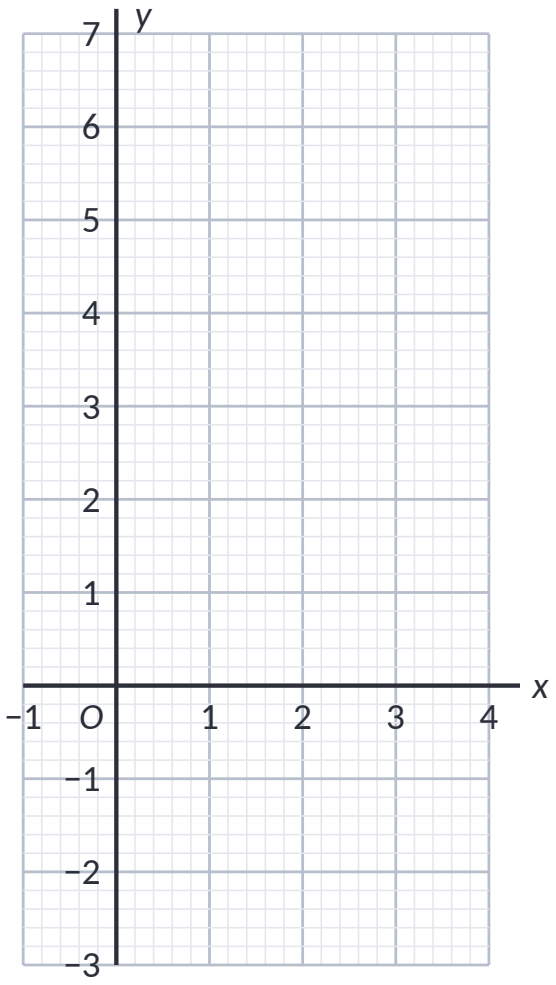
Remember Square first: $(-2)^2 = 4$. Plot each point and join with a smooth curve, not a ruler.

(a) **Complete** the table of values for $y = x^2 - 4x + 2$

x	−1	0	1	2	3	4
y		2	−1			

(2)

(b) On the grid, draw the graph of $y = x^2 - 4x + 2$ for values of x from −1 to 4



(2)

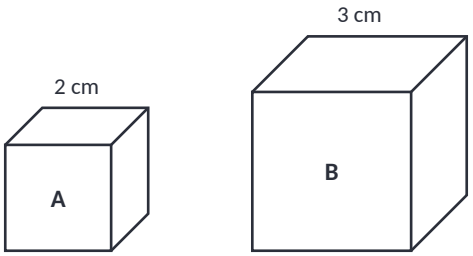
(c) **Using your graph**, find estimates for the solutions of the equation $x^2 - 4x + 2 = 0$

.....

(2)

(Total for Question 28 is 6 marks)

29 Here are two cubes, **A** and **B**.



Cube **A** has a mass of 40 g.
Cube **B** has a mass of 108 g.
Work out

the density of cube **A** : the density of cube **B**

Give your answer in the form $a : b$, where a and b are integers.

> **Remember** Density = mass ÷ volume. Mass = density × volume. Volume = mass ÷ density. Pressure = force ÷ area.

.....

(3)

(Total for Question 29 is 3 marks)

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30 **Write down** the value of tan 45°

.....

(1)

(Total for Question 30 is 1 mark)

TOTAL FOR PAPER IS 80 MARKS

G1 mark scheme

Q		Answer	Mark	Notes
1		700	B1	
2		$5g$	B1	
3		Triangle with vertices 1 square, 1 square and 3 squares to the left of the mirror line (at (2, 2), (2, 5), (0, 4))	B1	
4		8000	B1	
5		0.7, 72%, $\frac{3}{4}$	B1	
6		10.5	B1	
7		12	M1 M1 A1	M1 for 50 − 14 (= 36) M1 for 36 ÷ 3 A1 cao
8	(a)	Bars drawn at 25 for May and 10 for June	B2	B2 (B1 for one correct bar)
	(b)	Each square is 5 cm, so half a square is 2.5 cm; the rainfall was 22.5 cm	C1	C1
9	(a)	Row of 9 squares with a column of 4 squares below the middle square	B1	B1
	(b)	13, 16	B1	
10		29	M1 A1	M1 for −18 + 47 A1 cao

Mark scheme continues ►

Q		Answer	Mark	Notes
11		£58.20	M1 M1 M1 A1	M1 for 46 112 − 45 627 (= 485) M1 for 485 × 12 (= 5820) M1 for converting to pounds A1 for £58.20 or 5820p
12	(a)	$\frac{9}{10}$	M1 A1	M1 for $\frac{2}{10}$ A1 oe
	(b)	$\frac{1}{4}$	M1 A1	M1 for $\frac{15}{60}$ A1 cao
13	(a)	$\frac{7}{20}$	B1	
	(b)	0.55	B1	
14		32	M1 A1	M1 for 7 × 5 − 3 A1 cao
15	(a)	180	M1 A1	M1 for rounding to 60 and 3 A1 for 180
	(b)	816.4	B1	
16	(a)	09 45	M1 M1 A1	M1 for 45 ÷ 30 (= 1.5 hours) M1 for 08 15 + 1 h 30 min A1 cao
	(b)	She arrives earlier than 09 45	C1	C1
17	(a)	80; adult 36: passed 24, failed 12; child 44: passed 34, failed 10	B3	B3 all correct (B2 for 5 or 6 correct, B1 for 3 or 4 correct)
	(b)	$\frac{12}{80}$	M1 A1	M1 ft for a denominator of 80 A1 oe
18		750	M1 A1	M1 for 300 ÷ 12 × 30 or 300 × 2.5 A1 cao
19		414	M1 M1 A1	M1 for 10% = 36 and 5% = 18 M1 for 360 + 54 A1 cao
20		$\frac{3}{10}$	M1 M1 A1	M1 for $\frac{2}{5}$ or $\frac{3}{10}$ unshaded M1 for $1 - \frac{2}{5} - \frac{3}{10}$ A1 oe

Mark scheme continues ►

Q		Answer	Mark	Notes
21		2 | 3 4 6 8 3 | 1 1 3 5 6 7 9 4 | 1 2 8 5 | 2 Key: 2 | 3 = 23 years	B2 B1	B2 for a correct ordered diagram (B1 for unordered or one error) B1 for a correct key
22		80π	M1 M1 A1	M1 for radius 4 and height 5 M1 for $\pi \times 4^2 \times 5$ A1 for 80π
23		$x < 7$	M1 A1	M1 for $5x < 35$ A1 cao
24		$2 \times 2 \times 3 \times 11$	M1 A1	M1 for a factor tree or repeated division A1 for $2^2 \times 3 \times 11$ oe
25		32	M1 M1 M1 M1 A1	M1 for $200 \div 5 \times 2$ (= 80) M1 for $\frac{1}{4} \times 80$ (= 20) M1 for 35% of 80 (= 28) M1 for 80 − 20 − 28 A1 cao
26	(a)	0.0248	B1	
	(b)	6.15×10^4	B1	
	(c)	1.5×10^{-2}	M1 A1	M1 for 15×10^{-3} or 0.015 A1 cao
27		105	M1 M1 A1	M1 for interior angle of hexagon 120° or of octagon 135° M1 for 360 − 120 − 135 A1 cao
28	(a)	7, −2, −1, 2	B2	B2 all correct (B1 for 2 or 3 correct)
	(b)	Smooth curve through all points	B2	B2 (B1 for at least 5 points plotted correctly)
	(c)	0.6 and 3.4	B2	B2 for 0.5 to 0.7 and 3.3 to 3.5 (B1 for one correct)
29		5 : 4	M1 M1 A1	M1 for volumes 8 and 27 M1 for densities 5 and 4 A1 cao
30		1	B1	

Mark scheme continues ►

B1 = mark for a correct answer · **M1** = method mark · **A1** = accurate answer after M1 · **C1** = reason · **cao** = correct answer only

Score ____ / 80