

Mark Scheme

AQA Foundation Mock Set B Paper 1

For AQA GCSE Mathematics (8300)

Foundation tier • Paper 1 (Non-Calculator)

Total 80 marks

Key to the marks

M	Method mark: for a correct method that could lead to the correct answer.
A	Accuracy mark: for a correct value or answer that follows from a correct method. The method may be implied.
B	Independent mark: for a correct answer or statement; no method needs to be seen.
Q	Quality mark: for a clear, complete and correct explanation or conclusion.
ft	Follow through: credit correct work that uses a wrong value from an earlier step.
dep	Dependent: can only be given if the mark before it has been given.
SC	Special case: credit for a common misreading that still has some mathematical worth.
oe	Or equivalent: accept any equal value or form, e.g. 0.5 for $\frac{1}{2}$.
cao	Correct answer only.
$[a, b]$	Accept any value from a to b inclusive.
3.14 ...	Accept any answer that begins 3.14, e.g. 3.14, 3.142, 3.1416.
()	Working in brackets does not need to be seen.

Give credit for any correct method, including ones not listed here. A correct answer with no working scores full marks unless the question asks for working (for example “show that” or “you must show your working”). If a correct answer is followed by further work that does not change it, ignore the further work. Probabilities must be written as fractions, decimals or percentages.

Indicative grade boundaries

Grade	5	4	3	2	1
Whole set: Papers 1, 2 and 3 (out of 240)	186	156	115	75	36
This paper alone, rough guide (out of 80)	62	52	38	25	12

Indicative only. Based on the real AQA boundaries for June 2023 to June 2026 (median), adjusted for how this set compares in difficulty with the real papers. Grades are awarded on the total for all three papers; the single-paper guide is about one third of the set boundaries.

These are estimates to help you judge performance on a practice paper; real boundaries change every year.

Marking guidance

Q	Answer	Marks	Guidance
1(a)	64	B1	64
1(b)	11	B1	11 <i>Additional guidance:</i> Accept -11 or ± 11 .
1(c)	10^6	B1	10^6
Total for Question 1: 3 marks			
2(a)	3.86 metres	B1	3.86
2(b)	165 minutes	B1	165
Total for Question 2: 2 marks			
3(a)	$(-2, 4)$	B1	$(-2, 4)$
3(b)	D plotted at $(-2, -1)$	B1	cross at $(-2, -1)$ <i>Additional guidance:</i> Accept any clear mark, e.g. a dot, at $(-2, -1)$. Ignore labelling. Check the answer line if the grid is blank: $(-2, -1)$ written scores B1.
Total for Question 3: 2 marks			
4(a)	-40	B1	-40
4(b)	6	B1	6
Total for Question 4: 2 marks			
5	£1077	M1 A1 B1ft	complete method for 38×24 with no more than one arithmetic error, e.g. grid or column method 912 their 912 + 165 correctly evaluated, or 1077 <i>Additional guidance:</i> Methods for 38×24 : $38 \times 20 = 760$ and $38 \times 4 = 152$; or $30 \times 24 = 720$ and $8 \times 24 = 192$; or a grid with 600, 120, 160, 32. $38 \times 24 + 165 \times 38$ (coach cost per person) scores M1A1B0. 1077 with no working scores 3 marks.
6(a)	72, 108; 42; 45, 63	B2 (B1)	all correct: by car 72, not by car 108, car do not stay 42, not by car stay 45, not by car do not stay 63 at least two correct values in the correct boxes <i>Additional guidance:</i> For B1, accept values that are correct ft from their 72 (e.g. their $180 - 72$ and their $72 - 30$).
6(b)	$\frac{5}{12}$	M1 A1ft	$\frac{30}{72}$ oe fraction or $\frac{30}{\text{their } 72}$ $\frac{5}{12}$ or their fraction fully simplified

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> $\frac{30}{180}$ or $\frac{1}{6}$ scores MOA0. ft their 72 from part (a) for both marks, as long as their fraction can be simplified. $\frac{10}{24}$ or $\frac{15}{36}$ (not fully simplified) scores M1A0. $\frac{5}{12}$ followed by an incorrect decimal or percentage scores M1A0.
Total for Question 6: 4 marks			
7(a)	$x = 53^\circ$	B1	53
7(b)	$y = 52^\circ$	M1	180 – 2 × 64 or 64 + 64 or 128 or 64 marked as the other base angle
		A1	52 <i>Additional guidance:</i> 58 (from $(180 - 64) \div 2$, treating 64 as the apex angle) scores MOA0. 116 $(180 - 64)$ scores MOA0.
Total for Question 7: 3 marks			
8(a)	190.4	B1	190.4
8(b)	34	B1	34
8(c)	No, with a correct reason, e.g. the answer is 1.904	B1	No with a correct reason, e.g. the answer should be 1.904 or $1904 \div 1000$ or an estimate such as $3 \times 0.5 = 1.5$ or “there should be three decimal places” <i>Additional guidance:</i> Do not accept “she put the decimal point in the wrong place” on its own without the correct value or a valid reason why. No with “it should be 190.4” scores B0.
Total for Question 8: 3 marks			
9(a)	Median = 57, range = 55	B1	median 57
		B1	range 55 <i>Additional guidance:</i> 81 as the median (middle of the unordered list) scores B0 for the median. Range given as 26 to 81 or 26–81 scores B0 for the range.
9(b)	Yes, Eilidh’s range is smaller (31 and 55)	B1ft	Yes with a correct comparison of the ranges, e.g. “her range is smaller” or “31 is less than 55” <i>Additional guidance:</i> ft their range from part (a). Do not accept a reason based on the medians.
Total for Question 9: 3 marks			
10	Monthly plan with 52 and 44	M1	8×6.50 or 52

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Q	Answer	Marks	Guidance
		M1	$20 + 8 \times 3$ or 44
		A1	Monthly plan ticked with 52 and 44 <i>Additional guidance:</i> The number of visits may be seen as 8 or implied. Using 2 visits (13 and 26) or 4 visits (26 and 32) scores MOMOA0, unless the number of visits is clearly a misread. $20 \times 8 + 3 \times 8$ (£20 paid every visit) scores the first M1 only, if earned. Monthly plan ticked with no working, or working that does not support it, scores 0. Alternative: difference per visit $6.50 - 3 = 3.50$, and $8 \times 3.50 = 28 > 20$ scores M1M1, with Monthly plan A1.
11(a)	$14p - 21$	B1	$14p - 21$
11(b)	$6(2y + 3)$	B1	$6(2y + 3)$ <i>Additional guidance:</i> $2(6y + 9)$ or $3(4y + 6)$ scores B0.
11(c)	$7x + 7$	M1	$5x + 15$ or $2x - 8$ or four terms with three correct
		A1	$7x + 7$ <i>Additional guidance:</i> $7x + 7$ followed by incorrect further work, e.g. $14x$, scores M1A0. $7x + 23$ (from $2x + 8$) scores M1A0.
Total for Question 11: 4 marks			
12(a)	5:8:3	B1	5:8:3 <i>Additional guidance:</i> 5:3 (or any ratio with only two parts) scores B0. Do not accept the ratio in a different order.
12(b)	$\frac{4}{11}$	B1	$\frac{4}{11}$ oe <i>Additional guidance:</i> $\frac{4}{7}$ scores B0.
Total for Question 12: 2 marks			
13	Green 0.18, Yellow 0.36	M1	$1 - (0.35 + 0.11)$ or 0.54
		M1dep	their $0.54 \div 3$ or 0.18 or $x + 2x = 0.54$ oe
		A1	green 0.18 and yellow 0.36

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Accept fractions or percentages, e.g. $\frac{18}{100}$ and $\frac{36}{100}$, or 18% and 36%. Green 0.27 and yellow 0.27 (0.54 halved) scores M1MOA0. Green 0.36 and yellow 0.18 (reversed) scores M1M1A0. Values in the working but not in the table: check that the intention is clear.
14(a)	72 cm ²	M1 A1	$\frac{1}{2} \times 16 \times 9$ oe or $16 \times 9 \div 2$ 72 <i>Additional guidance:</i> 120 ($\frac{1}{2} \times 16 \times 15$) scores MOA0. 144 (16×9) scores MOA0.
14(b)	36 cm	M1 A1ft	their $72 \div 6$ or 12 36 or $2 \times (6 + \text{their } 12)$ correctly evaluated <i>Additional guidance:</i> ft their area from part (a) if it is divisible by 6 or the division is correct. 18 ($12 + 6$) scores M1A0.
Total for Question 14: 4 marks			
15	55	M1 M1dep A1	$15 \div (7 - 4)$ or 3 parts = 15 or $7k = 4k + 15$ oe 5 or 35 or 20 55 <i>Additional guidance:</i> 70 (the total after the adults join) scores M1M1A0. $15 \div 11$ or $15 \times 11 = 165$ scores MOMOA0. Trial and improvement: e.g. 35 and 20 seen, with $20 + 15 = 35$, scores M1M1.
16	No, with 378 and 364 (or 182 and 196)	M1 M1dep A1	560×0.75 or $560 - 140$ or 420 their 420×0.9 or their $420 - 42$ or 378 or 182 (total reduction) No with 378 and 364, or No with 182 and 196, or No with 32.5% and 35% <i>Additional guidance:</i> Alternative: $0.75 \times 0.9 = 0.675$ M1M1, so a 32.5% reduction; No with 32.5% A1. Yes with 364 only (35% off) scores MOMOA0. A tick with no working scores 0.
17	£68	M1 M1 M1dep	320×1.15 or 368 their $368 - 283$ or 85 their $85 \div 1.25$

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Q	Answer	Marks	Guidance
		A1	68 <i>Additional guidance:</i> Third M1 is dependent on the second M1. $85 \times 1.25 = 106.25$ scores M1M1MOA0. $283 \div 1.25 = 226.4$ and $320 - 226.4 = 93.6$ scores MOMOMOA0. $85 \div 1.15$ (wrong rate) scores M1M1MOA0.
18(a)	$x \leq 2.5$	M1 A1	$4x \leq 10$ or $4x = 10$ or $10 \div 4$ or 2.5 seen $x \leq 2.5$ oe <i>Additional guidance:</i> Accept $x \leq \frac{5}{2}$ or $x \leq 2\frac{1}{2}$. $x = 2.5$ or $x < 2.5$ or 2.5 as the final answer scores M1A0.
18(b)	Filled circle at 2.5 with an arrow to the left	B1ft	filled circle at 2.5 with a line or arrow to the left reaching at least -4 <i>Additional guidance:</i> ft their inequality from part (a), as long as it is an inequality with a non-integer or integer boundary. Condone an open circle only if their answer to (a) uses $<$.
			Total for Question 18: 3 marks
19(a)	$59 - 6n$	B2 (B1)	$59 - 6n$ oe $-6n + k$ ($k \neq 59$) or $59 - kn$ ($k \neq 0$) <i>Additional guidance:</i> Accept $-6n + 59$. $n = 59 - 6n$ scores B1. $6n + 47$ or $6n + 59$ scores B0.
19(b)	No, with $n = 25.5$ (or -91 and -97 are terms, or all terms are odd)	M1 A1	$59 - 6n = -94$ oe or $6n = 153$ or $153 \div 6$ or -91 and -97 seen as terms or states that all terms are odd No with 25.5 or No with -91 and -97 shown as consecutive terms or No with "all terms are odd and -94 is even" <i>Additional guidance:</i> ft their linear n th term from part (a) for M1 only. No with no working scores 0.
			Total for Question 19: 4 marks
20	7	M1 M1dep A1	$\frac{19}{2}$ and $\frac{5}{4}$ or $\frac{38}{4}$ and $\frac{5}{4}$ or 9.5 and 1.25 $\frac{19}{2} \times \frac{4}{5}$ or $38 \div 5$ or $\frac{76}{10}$ oe or 7.6 or $7 \times 1\frac{1}{4} = 8\frac{3}{4}$ and $8 \times 1\frac{1}{4} = 10$ 7

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> 7.6 or 8 as the final answer scores M1M1A0. Repeated addition of $1\frac{1}{4}$ to reach $8\frac{3}{4}$ with 7 counted scores M1M1A1. 7 with no working scores 3 marks.
21	$\begin{pmatrix} 2 \\ 9 \end{pmatrix}$	M1 A1	$\begin{pmatrix} -6 \\ 15 \end{pmatrix}$ or $\begin{pmatrix} 8 \\ -6 \end{pmatrix}$ or one correct component in their answer $\begin{pmatrix} 2 \\ 9 \end{pmatrix}$ <i>Additional guidance:</i> Do not accept coordinates (2, 9) for A1, but this scores M1. Condone a fraction line in the vector.
22	$\frac{1}{2}$	B1	$\frac{1}{2}$ oe <i>Additional guidance:</i> Accept 0.5
23(a)	$36\pi \text{ m}^2$	M1 A1	$\pi \times 12^2$ or 144π or $\frac{1}{4} \times \pi \times 144$ oe 36π <i>Additional guidance:</i> 6π ($\frac{1}{4} \times \pi \times 24$) scores M0A0. 113.04 or 113.1 (not in terms of π) scores M1A0.
23(b)	No, with $6\pi + 24$ and a value or comparison showing it is more than 41	M1 A1	$\frac{1}{4} \times 2 \times \pi \times 12 + 12 + 12$ oe or $6\pi + 24$ No with a value in [42.6, 42.9], or No with $6\pi + 24$ and $6\pi > 17$ (or $6\pi > 18$) shown <i>Additional guidance:</i> 6π alone (curved edge only, about 18.8) with Yes scores M0A0. Using $\pi = 3$: $18 + 24 = 42$, No, scores M1A1. $3\pi + 24$ (quarter of $\pi \times 12$) ≈ 33.4 with Yes scores M0A0. No with no working scores 0.
Total for Question 23: 4 marks			
24(a)	x^9	B1	x^9
24(b)	y^{12}	B1	y^{12}
24(c)	No, with w^8 or “subtract the powers”	B1	No with w^8 or No with “you subtract the powers” oe <i>Additional guidance:</i> Do not accept “you don’t divide the powers” on its own without saying what should be done or giving w^8 .

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Q	Answer	Marks	Guidance
Total for Question 24: 3 marks			
25(a)	$2^3 \times 3^2 \times 11$	M1	correct factor tree or repeated division with at least two correct prime factors, or 2, 2, 2, 3, 3, 11 seen
		A1	$2^3 \times 3^2 \times 11$ <i>Additional guidance:</i> $2 \times 2 \times 2 \times 3 \times 3 \times 11$ (not in index form) scores M1A0. Accept the factors in any order. Condone 11^1 . $2^3 + 3^2 + 11$ scores M1A0.
25(b)	36	M1	$2 \times 2 \times 3 \times 3 \times 5$ or $2^2 \times 3^2 \times 5$ or a Venn diagram with 2, 2, 3, 3 in the intersection or a common factor of 792 and 180 greater than 9 listed, e.g. 12 or 18
		A1	36 <i>Additional guidance:</i> 3960 (the LCM) scores M1A0 if $2^2 \times 3^2 \times 5$ seen, otherwise MOA0. 18 or 12 (a common factor but not the highest) scores M1A0. 36 with no working scores 2 marks.
Total for Question 25: 4 marks			
26	-4×9 should be -36 ; $x^2 + 5x - 36$	B1	identifies that -4×9 is -36 (not $+36$) oe, e.g. “the 36 should be negative”
		B1	$x^2 + 5x - 36$ <i>Additional guidance:</i> The two marks are independent. Do not accept “he got the signs wrong” or “the 36 is wrong” without saying it should be -36 (or negative). $x^2 + 5x - 36$ seen in working or on the answer lines scores the second B1.
27(a)	4	M1	8×9 or 72 or $9 \div 6 \times 8$ or 12
		A1	4 <i>Additional guidance:</i> 12 as the final answer scores M1A0. $8 \times 6 \div 9 = 5.33 \dots$ (direct proportion) scores MOA0.
27(b)	It is more than the answer to part (a)	B1	It is more than the answer to part (a)
Total for Question 27: 3 marks			