

GCSE Mathematics (1MA1) – Aiming for 4 Paper 2F

Student-friendly mark scheme

Please note that this mark scheme is not the one used by examiners for making scripts. It is intended more as a guide to good practice, indicating where marks are given for correct answers. As such, it doesn't show follow-through marks (marks that are awarded despite errors being made) or special cases.

It should also be noted that for many questions, there may be alternative methods of finding correct solutions that are not shown here – they will be covered in the formal mark scheme.

NOTES ON MARKING PRINCIPLES

Guidance on the use of codes within this mark scheme

M1 – method mark. This mark is generally given for an appropriate method in the context of the question. This mark is given for showing your working and may be awarded even if working is incorrect.

P1 – process mark. This mark is generally given for setting up an appropriate process to find a solution in the context of the question.

A1 – accuracy mark. This mark is generally given for a correct answer following correct working.

B1 – working mark. This mark is usually given when working and the answer cannot easily be separated.

C1 – communication mark. This mark is given for explaining your answer or giving a conclusion in context supported by your working.

Some questions require all working to be shown; in such questions, no marks will be given for an answer with no working (even if it is a correct answer).

Question 1 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	-11, -7, -2, 3, 8, 10	B1	This mark is given for the correct answer (accept numbers in reverse order)

Question 2 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	-7, -2, -1, 0, 7	B1	This mark is given for the correct answer only

Question 3 (Total 1 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
	For example: 125 or 250	B1	This mark is given for a correct 3-digit answer ending in 0 or 5

Question 4 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{37}{100}$	B1	This mark is given for a correct answer only

Question 5 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	40	B1	This mark is given for the correct answer only

Question 6 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	45×7	M1	This mark is given for a method to find the cost of hiring a van for 7 days
	315	A1	This mark is given for the correct answer only

Question 7 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes												
	<table border="1"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Day</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Mon</td> <td>9</td> </tr> <tr> <td>Tue</td> <td>10</td> </tr> <tr> <td>Wed</td> <td>8</td> </tr> <tr> <td>Thu</td> <td>6</td> </tr> <tr> <td>Fri</td> <td>3</td> </tr> </tbody> </table>	Day	Value	Mon	9	Tue	10	Wed	8	Thu	6	Fri	3	M1	This mark is given for days labelled or a linear scale
		Day	Value												
		Mon	9												
Tue	10														
Wed	8														
Thu	6														
Fri	3														
M1	This mark is given for correct bars showing information for at least 3 days														
A1	This mark is given for a fully correct bar chart														

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1428 - 150 = 1278$	P1	This mark is given for a process to find the cost of six monthly payments
	$1278 \div 6$	A1	This mark is given for a process to find the cost of one monthly payment
	213	A1	This mark is given for the correct answer only

Question 9 (Total 3 marks)

Part	Working an or answer examiner might expect to see				Mark	Notes
		Single	Double	King size	Total	C1 This mark is given for placing at least four pieces of given data in the two-way table
	With mattress			67		
	Without mattress	17			59	
	Total		45	83	198	
		Single	Double	King size	Total	C1 This mark is given for finding and correctly placing at least one unknown piece of given data in the two-way table (e.g. 16 or 139 or 70)
	With mattress			67	139	
	Without mattress	17		16	59	
	Total	70	45	83	198	
		Single	Double	King size	Total	C1 This mark is given for a fully correct table
	With mattress	53	19	67	139	
	Without mattress	17	26	16	59	
	Total	70	45	83	198	

Question 10 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$(28 \div 7) + 5 = 9$	B1	This mark is given for the correct answer only
(b)	$154 \div 11 = 14$	P1	This mark is given for a process to complete the number machine
	$8 + 14 = 6$	A1	This mark is given for the correct answer only

Question 11 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	1480	B1	This mark is given for the correct answer only

Question 12 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$214 - 14 = 200$	P1	This mark is given for a process to find the number of children
	$200 \times 0.35 =$	P1	This mark is given for a process to find the number of children wearing a hat
	70	P1	This mark is given for a finding the number of children wearing a hat
	$200 - 70 = 130$	A1	This mark is given for the correct answer only

Question 13 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$132 \div 8 \times 5$	M1	This mark is given for a method to find a solution
	82.5	A1	This mark is given for the correct answer only
(b)	For example: $\frac{3}{8} = \frac{24}{64}, \quad \frac{9}{32} = \frac{18}{64}, \quad \frac{1}{4} = \frac{16}{64}, \quad \frac{21}{64}$	M1	This mark is given for a method to represent the fractions with a common denominator
	$\frac{1}{4}, \frac{9}{32}, \frac{21}{64}, \frac{3}{8}$	A1	This mark is given for the correct answer only

Question 14 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	3	B1	This mark is given for the correct answer only

Question 15 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(i)	>	B1	This mark is given for the correct answer only
(ii)	=	B1	This mark is given for the correct answer only

Question 16 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	23	B1	This mark is given for the correct answer only
(b)	10 : 56	M1	This mark is given for one or both of 10 or 56 identified
		A1	This mark is given for the correct answer only (or equivalent, e.g. 5 : 28)

Question 17 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$08\ 09 - 07\ 20$	M1	This mark is given for a method to find the number of minutes between 07 20 and 08 09
	49	A1	This mark is given for the correct answer only
(b)	$08\ 00 + 7 = 08\ 07$ Catches the 08 09 bus to Bolton which arrives at 08 58	P1	This mark is given for a process to find the time of arrival in Bolton
	$08\ 58 + 15 = 09\ 13$	P1	This mark is given for a process to find the time of arrival from the bus stop in Bolton
	Yes, Alison will arrive by 09 20	C1	This mark is given for a valid answer supported by correct working

Question 18 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	13	B1	This mark is given for the correct answer only

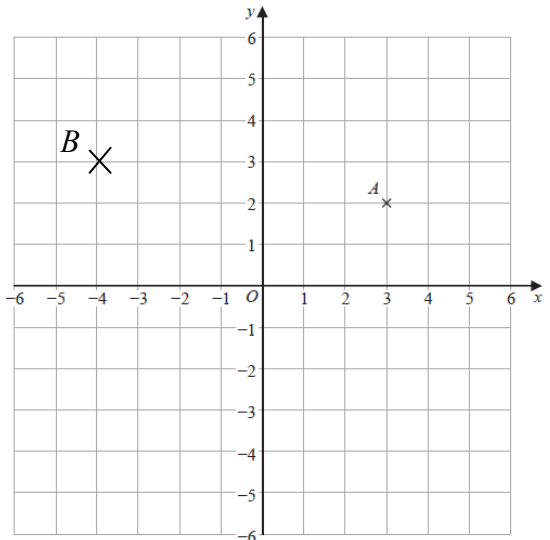
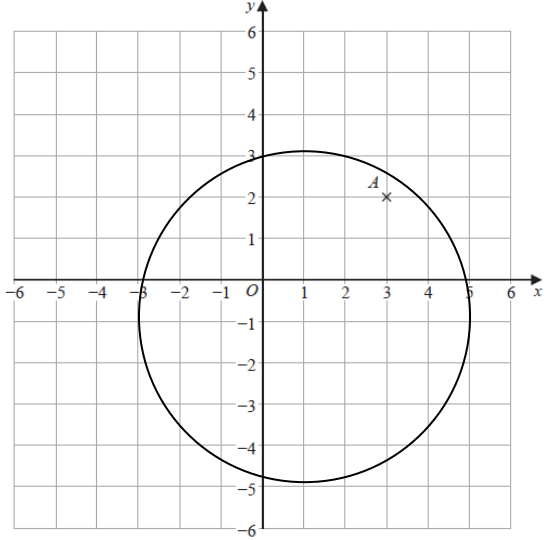
Question 19 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{7}{10}$	B1	This mark is given for the correct answer only

Question 20 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$12845 - 12468 = 377$	P1	This mark is given for a process to find the number of miles for the journey
	$377 \times 13 = 4901$	P1	This mark is given for a process to find the cost of the petrol
	$4901 \div 100$	B1	This mark is given for a conversion from pence to pounds
	49.01	A1	This mark is given for the correct answer only

Question 21 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	(3, 2)	B1	This mark is given for the correct answer only
(b)		B1	This mark is given for the correct answer only
(c)		B2	<p>These marks are given for a circle drawn with centre (1, -1)</p> <p>(B1 is given for a circle drawn with radius 4 cm and any centre or for any circle drawn with centre (1, -1))</p>

Question 22 (Total 7 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$7c + 6d$	M1	This mark is given for either $7c$ or $6d$ seen
		A1	This mark is given for the correct answer only
(b)	$10m - 30 = 40$	M1	This mark is given for a method to expand the left-hand side of the equation
	$10m = 70$	M1	This mark is given for forming an equation in terms on m
	$m = 7$	A1	This mark is given for the correct answer only
(c)	$3x + 2y$	M1	This mark is given for either $3x$ or $2y$ seen
		A1	This mark is given for the correct answer only

Question 23 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes																																
(a)	<table border="1" style="border-collapse: collapse; text-align: center; width: 100%;"> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">7</td> <td colspan="2"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td colspan="3"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">10</td> <td style="padding: 2px 5px;">3</td> <td colspan="6"></td> </tr> </table>	7	1	1	4	5	7			8	2	4	5	6	7	8	9	9	1	4	7	8				10	3							B2	These marks are given for a fully correct ordered diagram (B1 is given for a diagram with at most one error or omission)
	7	1	1	4	5	7																													
8	2	4	5	6	7	8	9																												
9	1	4	7	8																															
10	3																																		
	Key: $7 1 = 71$	B1	This mark is given for a correct key																																
(b)	For example: 9th number or 4th number on second line	M1	This mark is given for '6' identified on the '8' line																																
	86	A1	This mark is given for the correct answer only																																

Question 24 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	4.5 cm	B1	This mark is given for an answer in the range 4.3 to 4.7 cm
(b)	110	B1	This mark is given for an answer in the range 108 to 112

Question 25 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$180 - 116 - 25$	M1	This mark is given for a method to find the angle ACB
	$x = 39$	A1	This mark is given for the correct answer only
	Angles in a triangle add up to 180 and Vertically opposite angles are equal	C1	This mark is given for a two correct reasons stated

Question 26 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$62 \div 12.4 = 5$	P1	This mark is given for a process to find the scale factor
	5×9.4	P1	This mark is given for a process to find the width of the building
	47	A1	This mark is given for the correct answer only

Question 27 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		<p>B3</p>	<p>This mark is given for a correct line between $x = -2$ and $x = 4$</p> <p>(B2 is given for a correct straight line segment through at least 3 of $(-2, 6)$, $(-1, 5)$, $(0, 4)$, $(1, 3)$, $(2, 2)$ $(3, 1)$ $(4, 0)$)</p> <p>or</p> <p>all points plotted but not joined</p> <p>or</p> <p>a line with negative gradient drawn through $(0, 4)$</p> <p>(B1 is given for at least two points stated or plotted)</p> <p>or</p> <p>a line with negative gradient drawn through $(0, 4)$</p> <p>or</p> <p>a line with gradient -1)</p>

Question 28 (Total 1 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
	530	B1	This mark is given for the correct answer only

Question 29 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$18 \div 4.5 = 4$ or $8 \times 4.5 = 36$ (18 litres = 4 gallons or 8 gallons = 36 litres)	P1	This mark is given for a process to convert between litres and gallons
	$40.8 \div 0.85 = 48$ or $27 \times 0.85 = 22.95$ (£40.80 = €48 or €27 = £22.95)	P1	This mark is given for a process to convert between euros and pounds
	Sam pays £22.95 for 4 gallons Leo pays £20.40 for 4 gallons or Sam pays €27 for 18 litres Leo pays €24 for 18 litres	P1	This mark is given for a process to make a comparison between petrol prices
	For example: Sam is wrong, petrol is cheaper in Wales	C1	This mark is given for the valid conclusion supported by correct working

Question 30 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	Hexagon	B1	This mark is given for the correct answer only
(b)	AF	B1	This mark is given for the correct answer only (accept FA)
(c)	AB or EF	B1	This mark is given for the correct answer only (accept BA or EF)

1MA1 – Aiming for 4 Paper 2F					Edexcel averages: mean scores of students who achieved grade						
Qn	Skill tested	Mean score	Max score	Mean %	ALL	5	4	3	2	1	U
1	Order numbers	0.96	1	96	0.96	0.99	0.99	0.98	0.97	0.90	0.64
2	Order numbers	0.98	1	98	0.98	0.99	0.99	0.98	0.97	0.92	0.76
3	Primes, factors, multiples	0.93	1	93	0.93	0.99	0.98	0.96	0.94	0.84	0.53
4	Percentages and problems involving percentage change	0.95	1	95	0.95	0.98	0.98	0.97	0.93	0.83	0.55
5	Percentages and problems involving percentage change	0.84	1	84	0.84	0.99	0.96	0.89	0.76	0.57	0.35
6	Substitute values into formulae and expressions	1.97	2	99	1.97	1.99	1.99	1.98	1.97	1.92	1.57
7	Bar charts	2.80	3	93	2.80	2.91	2.90	2.84	2.73	2.52	2.01
8	Apply four operations	2.52	3	84	2.52	2.93	2.86	2.72	2.43	1.70	0.65
9	Two way tables	2.42	3	81	2.42	2.93	2.86	2.69	2.29	1.31	0.32
10	BIDMAS and inverse operations	2.39	3	80	2.39	2.92	2.83	2.62	2.20	1.36	0.51
11	Rounding; Inequality notation to specify error interval	0.86	1	86	0.86	0.97	0.94	0.90	0.83	0.69	0.44
12	Percentages and problems involving percentage change	3.13	4	78	3.13	3.88	3.69	3.35	2.55	1.39	0.69
13	Terminating decimals and their corresponding fractions	3.13	4	78	3.13	3.92	3.68	3.25	2.67	1.90	1.24
14	Measures of central tendency (median, mean, mode and modal class)	0.81	1	81	0.81	0.96	0.91	0.84	0.76	0.62	0.39
15	Order numbers	1.58	2	79	1.58	1.91	1.82	1.66	1.43	1.11	0.67
16	Ratio in real context	2.21	3	74	2.21	2.80	2.62	2.34	1.96	1.35	0.73
17	Change between standard units and compound units	3.89	5	78	3.89	4.60	4.33	4.03	3.51	2.58	1.51
18	Primes, factors, multiples	0.77	1	77	0.77	0.89	0.84	0.79	0.71	0.56	0.38
19	Apply four operations	0.68	1	68	0.68	0.92	0.83	0.71	0.55	0.38	0.21
20	Change between standard units and compound units	2.66	4	67	2.66	3.72	3.27	2.78	2.16	1.26	0.71
21	Circle definitions and properties	2.64	4	66	2.64	3.59	3.19	2.68	2.18	1.64	1.01
22	Concepts and vocabulary of algebra	4.31	7	62	4.31	6.55	5.47	4.45	3.35	2.33	1.16
23	Measures of central tendency (median, mean, mode and modal class)	3.01	5	60	3.01	4.17	3.75	3.17	2.34	1.38	0.52
24	Use standard units of measure and related concepts	1.20	2	60	1.20	1.75	1.47	1.23	0.99	0.66	0.44
25	Properties of angles	1.65	3	55	1.65	2.59	2.20	1.73	1.19	0.56	0.13
26	Scale factors, scale diagrams and maps	1.43	3	48	1.43	2.71	2.18	1.43	0.68	0.19	0.05
27	Graphs of linear functions	1.33	3	44	1.33	2.78	2.17	1.22	0.46	0.10	0.03
28	Change between standard units and compound units	0.57	1	57	0.57	0.89	0.71	0.59	0.45	0.34	0.27
29	Solve problems involving direct and inverse proportion	2.00	4	50	2.00	3.33	2.82	2.14	1.25	0.46	0.10
30	Conventional geometrical terms and notation	1.59	3	53	1.59	2.47	2.05	1.60	1.18	0.78	0.34
		56.21	80	70	56.21	74.02	67.28	58.52	47.39	33.15	18.91

Suggested grade boundaries

Grade	5	4	3	2	1
Mark	71	63	53	40	26