

GCSE Mathematics (1MA1) – Aiming for 4 Paper 3F(B) (Set 4)

Spring 2022 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
	10 45	B1	This mark is given for the correct answer only

Question 2 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$200 \div 25 = 8$	P1	This mark is given for a process to find the number of boxes of tiles
	8×9.75	P1	This mark is given for a process to find the total cost of the boxes of tiles
	78	A1	This mark is given for a correct answer only

Question 3 (Total 1 mark)

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

Question 4 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	80	B1	This mark is given for the correct answer read off the graph
(b)	8	B1	This mark is given for the correct answer only
(c)	For example: Yes, because 27 is greater than 7 Yes, because the drop is 20 more Yes, the gradient is steeper (in the first 3 minutes) and is then less steep (in the last 3 minutes) Yes, because the drop is 20 less in the last 3 minutes	C1	This mark is given for a conclusion and reason

Question 5 (Total 1 mark)

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

Question 6 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes																				
	<table border="1"> <thead> <tr> <th></th> <th>Red</th> <th>Blue</th> <th>Black</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Plastic</td> <td></td> <td>5</td> <td></td> <td>32</td> </tr> <tr> <td>Not plastic</td> <td>8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>12</td> <td>14</td> <td></td> <td>56</td> </tr> </tbody> </table>		Red	Blue	Black	Total	Plastic		5		32	Not plastic	8				Total	12	14		56	B1	This mark is given for the given values correctly placed in the table
	Red	Blue	Black	Total																			
Plastic		5		32																			
Not plastic	8																						
Total	12	14		56																			
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	Red	Blue	Black	Total																			
Plastic	4	5		32																			
Not plastic	8	9		24																			
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	Red	Blue	Black	Total																			
Plastic	4	5	23	32																			
Not plastic	8	9	7	24																			
Total	12	14	30	56																			

Question 7 (Total 1 mark)

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

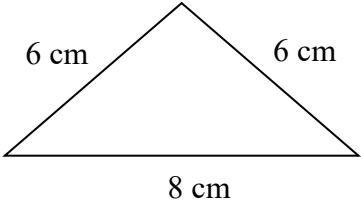
Question 8 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$5x + y$	M1	This mark is given for $5x$ or y seen
		A1	This mark is given for the correct answer only
(b)	$5p = 15$	M1	This mark is given for subtracting 7 from both sides of the equation
	3	A1	This mark is given for the correct answer only

Question 9 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$300 \div 4.85$	P1	This mark is given for a process to find the number of books that can be bought
	61.8...	A1	This mark is given for the a correct non-integer answer
	61	A1	This mark is given for the correctly rounding down to the nearest whole number

Question 10 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: 	M1	This mark is given for one line drawn with length 6 cm
		A1	This mark is given for an isosceles triangle correctly drawn

Question 11 (Total 4 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	25	A1	This mark is given for the correct answer only
(b)	For example: Simon; he uses more trials Simon; he does 10 times more Simon, since $100 > 10$	C1	This mark is given for a valid conclusion with a correct reason

Question 12 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$4ab$	B1	This mark is given for the correct answer only
(b)	$4x - x = 3x, \quad 3 + 5 = 8$	M1	This mark is given for a method to collect terms
	$3x + 8$	A1	This mark is given for the correct answer only

Question 13 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$196 - 60 - 60 - 60 = 16$	P1	This mark is given for a process to find 196 minutes in hours and minutes
	3 hours and 16 minutes	A1	This mark is given for the correct answer only
(b)	$\frac{x}{2}$	B1	This mark is given for a correct answer only

Question 14 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{300}{10} = 30$	B1	This mark is given for a correct answer only
(b)	$3.5 \times 12 = 42$	B1	This mark is given for a correct answer only
(c)	$\frac{1}{20}$	B1	This mark is given for a correct answer only (accept 0.05)

Question 15 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{13}{15} \times 600 = 520$ or $1 - \frac{13}{15} = \frac{2}{15}$	P1	This mark is given for a first step of a process to find the cost of the land
	$600 - 520$ or $\frac{2}{15} \times 600$	P1	This mark is given for a full process to find the cost of the land
	80	A1	This mark is given for the correct answer only

Question 16 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$3 \times 80 = 240$	P1	This mark is given for a process to find the total amount of money shared
	$240 - 100 - 65 = 75$	P1	This mark is given for a process to find out how much money Carl has
	$75 - (3 \times 5) - 20 = 40$	P1	This mark is given for a process to find out how much money Carl has in ten pound notes
	$40 \div 10 = 4$	A1	This mark is given for the correct answer only

Aiming for 4 - Paper 3F(B)
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	Units of mass, length, time, money and other measures (including standard compound measures)	0.93	1	93	0.93	0.98	0.97	0.95	0.92	0.83	0.68
2	Apply four operations	2.77	3	92	2.77	2.97	2.96	2.89	2.65	1.82	0.57
3	Percentages and problems involving percentage change	0.90	1	90	0.90	0.97	0.97	0.94	0.89	0.75	0.49
4	Roots and powers	0.88	1	88	0.88	0.98	0.96	0.91	0.81	0.65	0.31
5	Graphs of functions in real contexts	2.58	3	86	2.58	2.79	2.72	2.63	2.45	2.15	1.38
6	Two way tables	2.53	3	84	2.53	2.92	2.85	2.75	2.44	1.65	0.73
7	Calculate exactly with fractions	0.82	1	82	0.82	0.99	0.95	0.87	0.70	0.50	0.27
8	Solve linear equations	3.16	4	79	3.16	3.80	3.66	3.37	2.66	1.62	0.58
9	Units of mass, length, time, money and other measures (including standard compound measures)	2.35	3	78	2.35	2.93	2.78	2.58	2.17	1.44	0.68
10	Constructions and loci	1.50	2	75	1.50	1.84	1.73	1.57	1.29	0.88	0.36
11	Samples and theoretical probability distributions	1.33	2	67	1.33	1.65	1.51	1.38	1.16	0.79	0.27
12	Simplify and manipulate algebraic expressions and fractions	1.96	3	65	1.96	2.82	2.50	2.15	1.74	1.25	0.68
13	Change between standard units and compound units	1.86	3	62	1.86	2.59	2.16	1.95	1.75	1.39	0.82
14	BIDMAS and inverse operations	1.75	3	58	1.75	2.23	1.95	1.78	1.61	1.37	0.91
15	Calculate exactly with fractions	1.56	3	52	1.56	2.90	2.54	1.93	1.01	0.42	0.11
16	Apply four operations	1.67	4	42	1.67	3.14	2.52	1.71	0.94	0.57	0.24
		28.55	40	71	28.55	36.50	33.73	30.36	25.19	18.08	9.08

Aiming for 4 – Set 4 (B) (Spring 2022)

Suggested grade boundaries

	Max	5	4	3	2	1
1F(B)	40	34	31	26	21	15
2F(B)	40	35	31	26	20	13
3F(B)	40	35	32	28	22	14
Total	120	104	94	80	63	42

Grade boundaries are based on the average performance data for students answering these questions who gained grades 1-5 in the November 2020 & 2021 GCSE Mathematics examinations at Foundation tier.

Students did not answer these questions as 45-minute tests, of course; so there is some scope for adjustment. These boundaries are for guidance only.