GCSE Mathematics (1MA1) – Aiming for 4 Paper 3F(A) (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 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 \times 600 = 1200$ $7 \times 120 = 840$ $2 \times 250 = 500$	M1	This mark is given for a method to find the cost of at least one item
	$1200 + 840 + 500$	M1	This mark is given for a method to find the total cost
	2540 $(2540 > 2500)$	A1	This mark is given for the correct answer only

Question 2 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	5	B1	This mark is given for the correct answer only
(b)	5 and 6	B1	This mark is given for the correct answer only

Question 3 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	–6, –4, –3, 0, 1, 2, 7	B1	This mark is given for the correct answer only

Question 4 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{40}{100}$	B1	This mark is given for the correct answer only

Question 5 (Total 1 mark)

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

Question 6 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Any two from 1, 5, 7, 35	B1	This mark is given for two correct answers

Question 7 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{12}{16}$	M1	This mark is given for a method to find the number of shaded squares as a fraction of the total
	$\frac{3}{4}$	A1	This mark is given for the correct answer only

Question 8 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	EJ, *EK*, *FJ*, *FK*, *GJ*, *GK*	B2	These marks are given for a fully correct list with no repeats (B1 is given for at least four correct outcomes)

Question 9 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{5}{5+4+2}$	M1	This mark is given for a method to find the probability where $\frac{5}{n}$ seen ($n > 5$) or $\frac{m}{11}$ seen ($m < 11$)
	$\frac{5}{11}$	A1	This mark is given for the correct answer only
(b)	$1 - 0.3 = 0.7$	B1	This mark is given for the correct answer only

Question 10 (Total 1 mark)

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

Question 11 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	Shop A: 30 ÷ 4 = 7.5 so 8 packets needed Shop B: 30 ÷ 6 = 5, so 5 packets needed	P1	This mark is given for a method to find the number of packets of batteries needed from each shop
	Shop A: 8 × 1.60 = 12.80 Shop B: 5 × 2.70 = 13.50	P1	This mark is given for a method to find the cost of the packets of batteries from one shop
		P1	This mark is given for a method to find the cost of the packets of batteries from both shops
	Harry should buy batteries from Shop A	C1	This mark is given for a valid conclusion following correct working
(b)	For example: No, since A is 12 and B is 13.50 No, since A is just 80p less and B is the same. No, since A is less and B has not changed. No, since A is 1.50 less No, since 40p is less than 45p	C1	This mark is given for a valid conclusion following correct working

Question 12 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{300}{100} = 3$	B1	This mark is given for the correct answer only

Question 13 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$10 + 7 + 4 + 5 + (10 – 4) + (7 – 5)$ $= 26 + 6 + 2$	M1	This mark is given for a method to find the length of the perimeter
	34	A1	This mark is given for the correct answer only

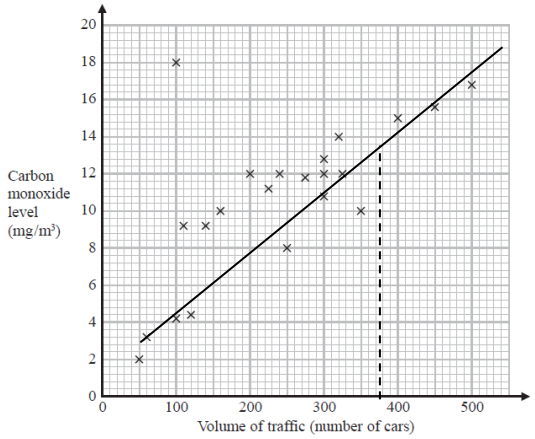
Question 14 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: The angles do not add to 360° The angles only add to 260° She is missing a 100° angle (At least) one of the angles has been measured incorrectly	C1	This mark is given for a correct explanation

Question 15 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)(i)	20, 15	B1	This mark is given for a correct answer only
(a)(ii)	45, 40, 35, 30, 25, 20, 15, 10, 5, 0, –5 11th term	B1	This mark is given for a correct answer only
(b)	$(4 \times 9) + 3 = 39$	B1	This mark is given for a correct answer only

Question 16 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	(100, 18)	B1	This mark is given for the correct answer only
(b)		M1	This mark is given for a method to read off a line of best fit or to find a point on the grid at (370, y), where y is in the range 12.8 to 14.6
	13.7	A1	This mark is given for a correct answer in the range 12.8 to 14.6
(c)	For example: No, this point can be disregarded from the general trend	C1	This mark is given for a correct reason

Question 17 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	360 – 130 – 95 – 65 = 70	M1	This mark is given for a method to find the missing angle of the quadrilateral
	180 – 70	M1	This mark is given for a method to find the angle y
	110	A1	This mark is given for the correct answer only

Question 18 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	450 000	B1	This mark is given for a correct answer only
(b)	7×10^{-3}	B1	This mark is given for a correct answer only
(c)	$4200 + 530 = 4730$	M1	This mark is given for a method to find the calculation as an ordinary number
	4.73×10^{3}	A1	This mark is given for the correct answer only

Aiming for 4 - Paper 3F(A)					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	Apply four operations	2.90	3	97	2.90	2.98	2.97	2.95	2.91	2.69	1.78
2	Vertical line charts	1.85	2	93	1.85	1.93	1.91	1.88	1.79	1.60	1.03
3	Order numbers	0.92	1	92	0.92	0.97	0.96	0.94	0.90	0.78	0.51
4	Percentages and problems involving percentage change	0.89	1	89	0.89	0.98	0.97	0.93	0.83	0.64	0.29
5	Use standard units of measure and related concepts	0.88	1	88	0.88	0.97	0.93	0.90	0.86	0.80	0.66
6	Primes, factors, multiples	0.86	1	86	0.86	0.97	0.95	0.91	0.83	0.66	0.31
7	One quantity as a fraction of another	1.66	2	83	1.66	1.90	1.85	1.73	1.51	1.09	0.48
8	Listing strategies/Product rule for counting	1.61	2	81	1.61	1.89	1.86	1.76	1.51	1.03	0.52
9	Probabilities of an exhaustive set of outcomes	2.36	3	79	2.36	2.91	2.78	2.51	1.97	1.19	0.30
10	Fractions, decimals and percentages as operators	0.77	1	77	0.77	0.98	0.94	0.86	0.68	0.49	0.23
11	Apply four operations	3.61	5	72	3.61	4.30	4.15	3.84	3.12	1.87	0.43
12	Change between standard units and compound units	0.66	1	66	0.66	0.91	0.79	0.68	0.55	0.40	0.32
13	Perimeters of 2D shapes	1.29	2	65	1.29	1.69	1.53	1.34	1.07	0.76	0.54
14	Properties of angles	0.59	1	59	0.59	0.89	0.78	0.68	0.49	0.26	0.09
15	Linear and non-linear sequences of diagrams and numbers	1.73	3	58	1.73	2.51	2.11	1.75	1.42	1.12	0.62
16	Correlation and causation	2.00	4	50	2.00	2.97	2.69	2.25	1.70	1.02	0.51
17	Properties of angles	1.45	3	48	1.45	2.73	2.18	1.47	0.83	0.53	0.16
18	Standard form	1.86	4	47	1.86	3.15	2.52	2.04	1.60	1.12	0.55
		27.89	**40**	**70**	**27.89**	**35.63**	**32.87**	**29.42**	**24.57**	**18.05**	**9.33**

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

Suggested grade boundaries

	Max	5	4	3	2	1
1F(A)	40	34	31	26	21	16
2F(A)	40	33	32	27	21	13
3F(A)	40	34	31	27	21	14
Total	**120**	**101**	**94**	**80**	**63**	**43**

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.