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

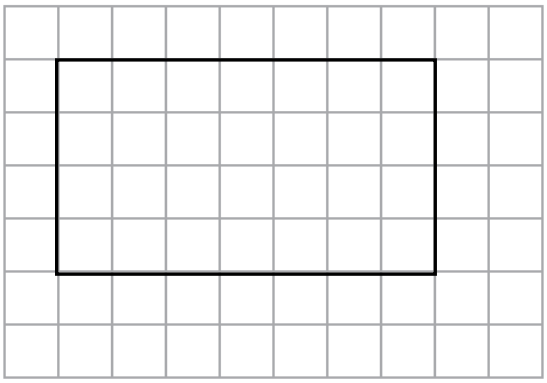
Question 1 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Alec should multiply 3×4 before adding 2	P1	This mark is given for a correct explanation

Question 2 (Total 1 mark)

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

Question 3 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$35 \div 5 = 7$ $20 \div 5 = 4$ For example: 	B2	These marks are given for a fully correct 7 cm by 4 cm rectangle (B1 is given for a rectangle with one correct dimension)

Question 4 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	25	B1	This mark is given for the correct answer only
(b)	24	B1	This mark is given for the correct answer only

Question 5 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	105 + 20 = 125 minutes 2 hours and five minutes	M1	This mark is given for converting the length of the film and the walk to the bus stop into hours and minutes
	14 30 + 2 05 = 16 45	A1	This mark is given for finding the time Liz reaches the bus stop
	Yes, Liz will get to the stop in time to catch the bus	C1	This mark is given for the correct answer only

Question 6 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(i)	180 – 75 – 84	M1	This mark is given for a method to find the value of x
	21	A1	This mark is given for the correct answer only
(ii)	Angles on a straight line add up to 180	C1	This mark is given for correct explanation

Question 7 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: There is no label for the mark The vertical axis jumps from 0 to 71 The bars are not all the same width	C2	These marks are given for two correct reasons stated (C1 is given for one reason correctly stated)

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)(i)	30	B1	This mark is given for the correct answer only
(a)(ii)	Angles on a straight line add up to 180°	C1	This mark is given for a correct reason stated
(b)	For example: 90 + 280 = 370 The two angles don't add up to 360 280 should be 270	C1	This mark is given for a correct reason stated

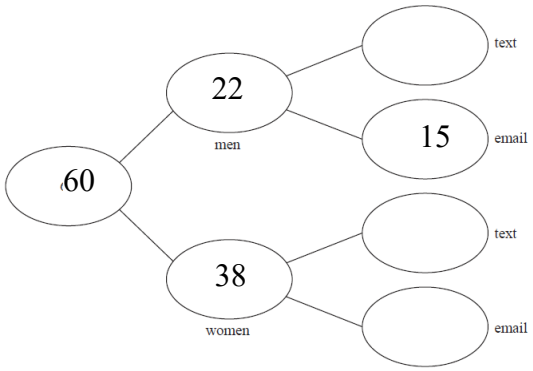
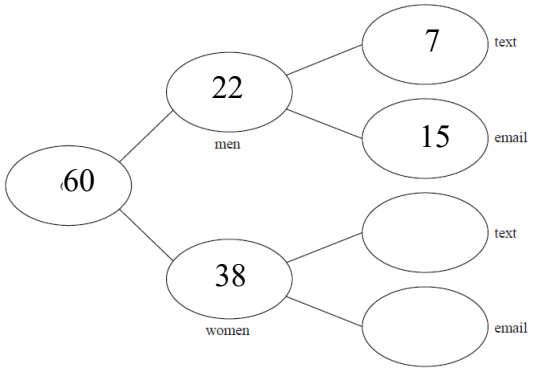
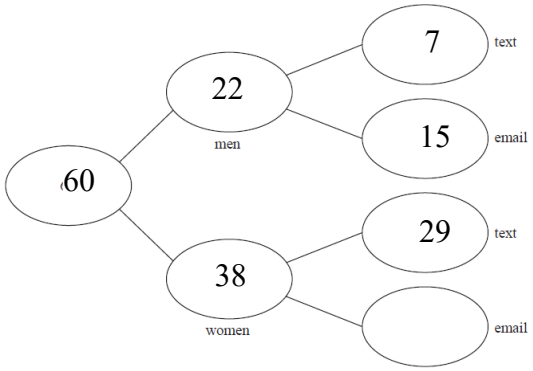
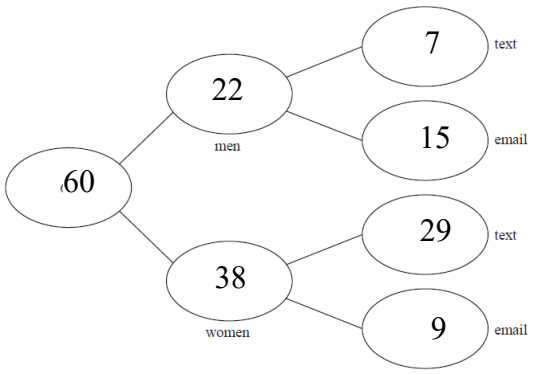
Question 9 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$4m$	B1	This mark is given for the correct answer only
(b)	$3p$	B1	This mark is given for the correct answer only

Question 10 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$6e$	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
		C1	This mark is given for adding 22 (men) in the correct part of the frequency tree
		C1	This mark is given for adding 7 (men texting) in the correct part of the frequency tree
	$60 \times 0.6 = 36$	M1	This mark is given for a method to find how many people in total prefer to text
		M1	This mark is given for adding 29 (women texting) in the correct part of the frequency tree
		A1	This mark is given for adding 9 (women emailing) in the correct part of the frequency tree

Question 12 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	29 000	B1	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
	$6 + 4 + 5 + 8 + 7 + 5 = 35$	P1	This mark is given for a process to find how often the dice was thrown
	$35 \div 5$	P1	This mark is given for a process to find how often each student throws the dice
	7	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
	27	B1	This mark is given for the correct answer only

Question 15 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(60 + 90) \times \frac{2}{3} = 100$	P1	This mark is given for a process to find the pass mark
	$60 \times \frac{70}{100} = 42$	P1	This mark is given for a process to find the mark scored on paper 1
	$100 – 42$	P1	This mark is given for a process to find the mark needed on paper 2 to pass
	58	A1	This mark is given for the correct answer only

Question 16 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$c^{5-2} = c^3$	B1	This mark is given for the correct answer only
(b)	$d^{4\times 3} = d^{12}$	B1	This mark is given for the correct answer only

Question 17 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	For example: $60 = 2 \times 2 \times 3 \times 5$ $84 = 2 \times 2 \times 3 \times 7$	M1	This mark is given for a method to find the highest common factor (HCF)
	$HCF = 2 \times 2 \times 3 = 12$	A1	This mark is given for a correct answer only
(b)	For example: $24 = 2 \times 2 \times 2 \times 3$ $40 = 2 \times 2 \times 2 \times 5$	M1	This mark is given for a method to find the lowest common multiple (LCM)
	$LCM = 2 \times 2 \times 2 \times 3 \times 5 = 120$	A1	This mark is given for a correct answer only

Aiming for 4 - Paper 2F(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	BIDMAS and inverse operations	0.90	1	90	0.90	0.97	0.95	0.93	0.88	0.76	0.47
2	Conversion between fractions, decimals and percentages	0.87	1	87	0.87	0.97	0.96	0.91	0.78	0.62	0.34
3	Scale factors, scale diagrams and maps	1.66	2	83	1.66	1.93	1.91	1.81	1.58	1.13	0.63
4	Primes, factors, multiples	1.65	2	83	1.65	1.94	1.86	1.74	1.57	1.35	0.95
5	Change between standard units and compound units	2.44	3	81	2.44	2.83	2.73	2.57	2.20	1.50	0.85
6	Properties of angles	2.39	3	80	2.39	2.81	2.72	2.59	2.32	1.63	0.60
7	Bar charts	1.55	2	78	1.55	1.75	1.69	1.60	1.43	1.17	0.82
8	Properties of angles	2.29	3	76	2.29	2.79	2.68	2.44	1.96	1.20	0.61
9	Algebraic manipulation	1.51	2	76	1.51	1.80	1.66	1.53	1.45	1.38	1.14
10	Simplify and manipulate algebraic expressions and fractions	0.68	1	68	0.68	0.89	0.80	0.70	0.56	0.43	0.29
11	Probability outcomes	3.19	5	64	3.19	4.73	4.37	3.59	2.62	2.02	1.22
12	Approximation and estimation	0.62	1	62	0.62	0.81	0.75	0.66	0.50	0.31	0.23
13	Vertical line charts	1.74	3	58	1.74	2.37	2.24	1.98	1.50	0.99	0.49
14	Roots and powers	0.55	1	55	0.55	0.86	0.74	0.58	0.39	0.24	0.17
15	Fractions, decimals and percentages as operators	2.11	4	53	2.11	3.66	3.23	2.32	1.05	0.36	0.16
16	Simplify and manipulate expressions using laws of indices	0.97	2	49	0.97	1.73	1.40	1.12	0.79	0.48	0.16
17	Primes, factors, multiples	1.94	4	49	1.94	3.38	2.66	2.17	1.63	1.04	0.39
		27.06	**40**	**68**	**27.06**	**36.22**	**33.35**	**29.24**	**23.21**	**16.61**	**9.52**

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.