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

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 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	30	B1	This mark is given for the correct answer only
(b)	Add 7 each time or nth term is $7n - 5$	C1	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
	4000	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
	$9 \div 10 = 0.9$	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
	9743	B1	This mark is given for the correct answer only

Question 5 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	B = 2N D = 2B N = 6 so B = 12	M1	This mark is given for a complete method to find a value for D (the number of cousins David has)
	D = 24	A1	This mark is given for the correct answer only

Question 6 (Total 5 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$7.80 + 5.80 \times 3 = 25.20$	M1	This mark is given for finding the cost of 4 separate tickets
	$25.20 – 24.30$	M1	This mark is given for a method to find out how much cheaper the family ticket is
	90p or £0.90	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
	$8 \times 11.20 = 89.60$ $12 \times 8.40 = 100.80$	M1	This mark is given for a method to find how much Bronwin is paid on weekdays and at the weekend
	$89.60 + 100.80 = 190.40$	M1	This mark is given for a method to find how much Bronwin is paid in total
	Bronwin was paid less than £200	C1	This mark is given for a correct conclusion supported by correct working

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(2.58)^2 – 4.096$ $= 6.6564 – 4.096$ $= 2.5604$	B2	These marks are given for the correct answer only (B1 is given for 6.6564 seen of for the digits 25604 with no decimal point)

Question 9 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Any pair of numbers from: 16 + 28 28 + 16 18 + 26 26 + 18	B1	This mark is given for a fully correct pair of numbers adding to 44

Question 10 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2y$	B1	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
	2500	B1	This mark is given for the correct answer only

Question 12 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\sqrt{5.1984} = 2.28$	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
	6.45 + 60 = 7.45 7.45 + 42 = 7.45 + (15 + 27)	M1	This mark is given for a method to add 102 minutes to 6.45 p.m.
	8.27 p.m.	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
	$7n - 5$, so 10th term = $(7 \times 10) - 5$ 65	B1	This mark is given for the correct answer only

Question 15 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	09 05 – 08 25 = 40 minutes	B1	This mark is given for the correct answer only

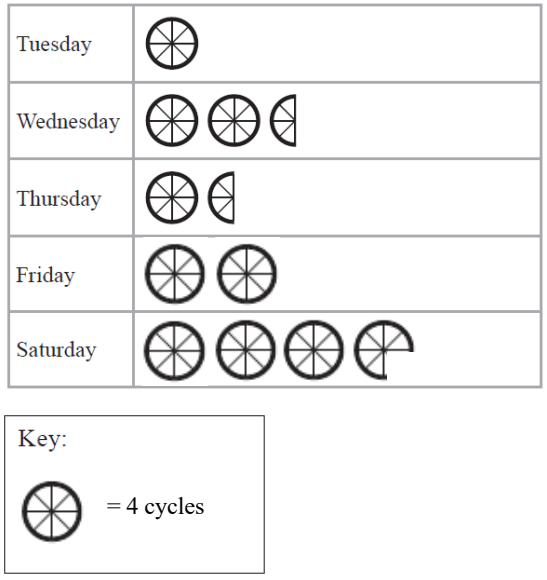
Question 16 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$0.3 \times 100 = 30$	B1	This mark is given for the correct answer only

Question 17 (Total 5 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	1.5, –1, –0.5, 0.5	B2	These marks are given for the correct values only (1 mark is given for 1, 2 or 3 correct values seen)

Question 18 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	1 wheel = 4 cycles	B1	This mark is given for deducing the one wheel = 4 cycles
		B1	This mark is given for either 2 wheels shown for Friday or $3\frac{3}{4}$ wheels for Saturday
		B1	This mark is given for a fully correct pictogram, including a key

Question 19 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	2 litres = 2000 ml	M1	This mark is given for converting between ml and l
	2000 ÷ 150 = 13.3333	M1	This mark is given for finding out how many small bottles can be filled
	13	A1	This mark is given for the correct rounded answer only

Question 20 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(12 - 1) \times 24 = 264$	M1	This mark is given for finding the total cost of Offer 1
	$24 \times 0.05 = 1.20$ $24 - 1.20 = 22.80$ $12 \times 22.80 = 273.60$	M1	This mark is given for finding the total cost of Offer 2
	Offer 1 is the cheapest	C1	This mark is given for a correct conclusion supported by working

Question 21 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Rehan should put the numbers in order first so that he subtracts the smallest number from the largest number	C1	This mark is given for a statement that the range is the difference between the greatest and least values

Question 22 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	08 45 + 17 = 09 02 Daniel takes to 09 04 bus from Whitefield to Manchester	P1	This mark is given for a process to find out what time Daniel gets to the bus stop and which bus he then takes
	The bus from Whitefield arrives in Manchester at 09 35 09 35 + 15 = 09 50	P1	This mark is given for finding out what time Daniel's bus arrives and what time he arrives at work
	Yes, Daniel gets to work by 10 a.m.	C1	This mark is given for a correct conclusion supported by correct working

Question 23 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	Negative	B1	This mark is given for the correct answer only
(b)	The point is far away from the line of best fit	C1	This mark is given for a correct explanation

Question 24 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	1, 2, 3, 6, 9, 18	B2	These marks are given for all six factors with none incorrect (1 mark is given for at least 3 factors)

Question 25 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	1, 2, 3, 5, 6, 10, 15, 30	B2	These marks are is given for the correct answers only (B1 is given for at least three correct factors shown)

Question 26 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	6 | 4 7 9 9 7 | 0 0 1 5 6 6 7 8 | 0 0 1 1 2 4 7 9 | 1 4	B2	These marks are given for a correctly ordered stem and leaf diagram
	Key: 6 | 4 = 64 units	B1	This mark is given for a correct key

Question 27 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Two from 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 or one from 1, 4, 9, 16, 25	1	This mark is given for identifying any two prime numbers or a square number
	2, 7 or 3, 13 or 5, 11 or 2, 23	1	This mark is given for two correct prime numbers which add to a square number

Question 28 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$3.60 \div 2.5 = 1.44$	1	This mark is given for finding the cost of 1 kg of apples
	$3.4 \times 1.44 = 5.04$	1	This mark is given for the correct answer only

Question 29 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$4(m + 3)$	1	This mark is given for the correct answer only

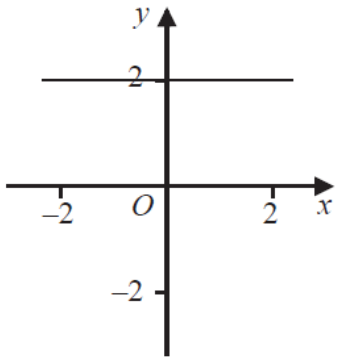
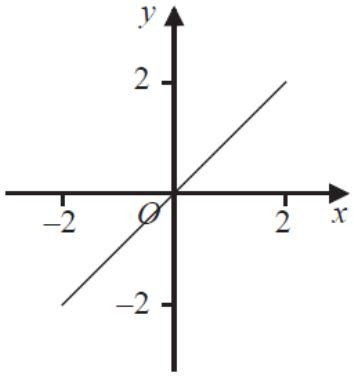
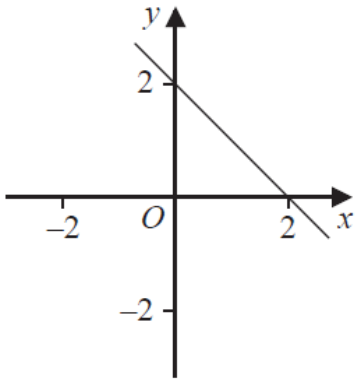
Question 30 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{2.645}{1.15} \times \frac{10^9}{10^3} = \frac{2.645}{1.15} \times 10^{(9-3)}$	M1	This mark is given for a method to find the value in standard form
	2.3×10^6	A1	This mark is given for the correct answer only

Question 31 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2.50 \times 8 = 20$	M1	This mark is given for a method to find the total sum of money
	$\frac{1}{2} \times 20 = 10$	A1	This mark is given for the correct answer only

Question 32 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	<table><tr><th>Equation</th><th>Graph</th></tr><tr><td>$y = 2$</td><td>  Graph **D**</td></tr><tr><td>$y = x$</td><td>  Graph **F**</td></tr><tr><td>$x + y = 2$</td><td>  Graph **A**</td></tr></table> D, F, A	C2	These marks are given for all three graphs correct (C1 is given for 1 or 2 graphs correct)

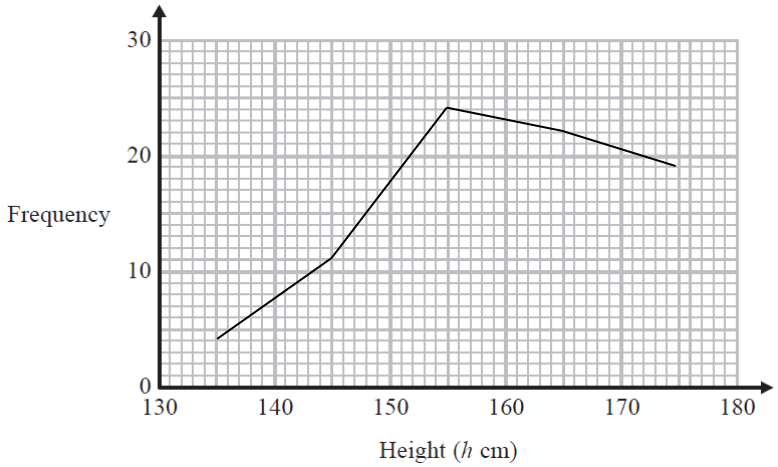
Question 33 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Jenny should multiply first so that she gets $12 - (2 \times 4) = 4$, not $(12 - 2) \times 4 = 40$	C1	This mark is given for a statement identifying the incorrect order of operation

Question 34 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$600 - 560 = 40$	M1	This mark is given for finding the amount of the increase of the cost of a season ticket
	$\frac{40}{560} = \frac{1}{14}$	A1	This mark is given for the correct answer or an equivalent fraction

Question 35 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B2	These marks are given for a fully correct frequency polygon with line segments joining the points (135, 4), (145, 11), (155, 24), (165, 22) and (175, 19) (1 mark is given if any points are incorrect)

Question 36 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	180 – 117 = 63 Angles on a straight line add up to 180	1	This mark is given for finding angle *ACB*
	180 – 63 – 54 = 63 Angles in a triangle add up to 180	1	This mark is given for finding angle *BAC*
	Angle *ACB* = angle *BAC*	1	This mark is given for stating that two angles in the triangle are equal
	Thus triangle is isosceles	1	This mark is given for stating that the triangle is isosceles, supported by correct reasons given

Question 37 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		1	This mark is given for evidence of finding that the height of the building is 2.5 times the length of the bus
	30	1	This mark is given for an answer in the range 27 – 30

Question 38 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Probabilities for the first throw should add up to 1 (rather than 0.9)	C1	This mark is given for a correct statement
	0.35 and 0.65 have been reversed on one set of the branches for the second throw	C1	This mark is given for a correct statement

Question 39 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$5p + 15 – 2 + 4p$	M1	This mark is given for a method to expand the brackets in the expression
	$9p + 13$	A1	This mark is given for the correct answer only

Question 40 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$13.8 \times 5.4 \times 10^7 \times 10^{-12}$ $= 74.52 \times 10^{-5}$ $= 7.452 \times 10^{-4}$	1	This mark is given for the digits 7452 seen
	0.000 745 2	1	This mark is given for the correct answer only

Question 41 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	6 students failed their French test	C1	This mark is given for using the stem-and-leaf diagram to find out how many students failed their French test (scoring less than 71)
	Omar is wrong since $\frac{6}{20} \neq \frac{1}{4}$	C1	This mark is given for a correct conclusion with a comparison of fractions

Question 42 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{3}{2} \times 48 = 72$	1	This mark is given for a method to fins Jim's number
	$\frac{5}{6} \times 72 = 60$	1	This mark is given for the correct answer only

Suggested Grade Boundaries for Aiming for 4: Paper 3F

Grade	5	4	3	2	1
Mark	65	58	48	36	20

For example:
A student aiming for Grade 4 would be expected to score at least 58 marks on this practice paper.