

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

### 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
	-6, -5, 0, 6, 12	B1	This mark is given for the correct answer only

**Question 2 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	Point marked at (2, 9)	B1	This mark is given for the correct answer only

**Question 3 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	100	B1	This mark is given for the correct answer only
(b)	260 - 100 = 160 340 - 120 = 200 440 - 160 = 280	M1	This mark is given for finding the number of laptops sold in at least two of the years shown on the graph
	160 + 220 + 280	M1	This mark is given for a method to find the total number of laptops sold in the three years 2015–2017
	660	A1	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
	D	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
	6000	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 style="border-collapse: collapse; width: 100%;"> <tr> <td style="padding: 5px;"><b>12</b></td> <td style="padding: 5px;">7</td> <td style="padding: 5px;">19</td> </tr> <tr> <td style="padding: 5px;">18</td> <td style="padding: 5px;"><b>8</b></td> <td style="padding: 5px;">26</td> </tr> <tr> <td style="padding: 5px;"><b>30</b></td> <td style="padding: 5px;">15</td> <td style="padding: 5px;"><b>45</b></td> </tr> </table>	<b>12</b>	7	19	18	<b>8</b>	26	<b>30</b>	15	<b>45</b>	B1	This mark is given for values (in bold) entered on the table
<b>12</b>	7	19										
18	<b>8</b>	26										
<b>30</b>	15	<b>45</b>										
		B1	This mark is given for a complete row of column									
		B1	This mark is given for a fully correct table									

**Question 7 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(23 \times 2) + 1 = 47$	B1	This mark is given for the correct answer only

**Question 8 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$12t$	B1	This mark is given for the correct answer only

**Question 9 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	14	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
	$\frac{3}{9}$	B1	This mark is given for the correct answer only

**Question 11 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1280 + 640 + 220 =$	P1	This mark is given for a process to find the total cost of the holiday for 4 friends
	$2140 \div 4 =$	P1	This mark is given for a process to find the total cost of the holiday for 1 friend
	535	A1	This mark is given for the correct answer only

**Question 12 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$30 \div 8 = 3.75$	M1	This mark is given for dividing 30 by 8
	3.75 to the next whole number (of adults) is 4	A1	This mark is given for the correct answer only
(b)	No, since $32 \div 8 = 4$	C1	This mark is given for a correct explanation

**Question 13 (Total 1 mark)**

Part	Working an or answer examiner might expect to see	Mark	Notes
	-9, 2	B1	This mark is given for the correct answers only (regardless of order)

**Question 14 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	(6, -2)	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
	$\frac{20}{100}$	B1	This mark is given for the correct answer only (or an equivalent fraction)

**Question 16 (Total 1 mark)**

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

**Question 17 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	7a	B1	This mark is given for the correct answer only

**Question 18 (Total 3 marks)**

Part	Working an or answer examiner might expect to see	Mark	Notes
	$240 - 45 - 45 = 150$	P1	This mark is given for a process to find the length of the remainder of the wire
	$150 \div 40 = 3.75$	P1	This mark is given for a process to find how many 40 cm lengths can be cut from the remainder of the wire
	3 (lots of 40 cm lengths)	A1	This mark is given for the correct answer only

**Question 19 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	0.078, 0.708, 0.78, 0.87	B1	This mark is given for the correct answer only

**Question 20 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
		B1	This mark is given for any rectangle drawn where the length is twice the width
	4 × 8 rectangle correctly drawn	B1	This mark is given for the correct answer only

**Question 21 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1 \text{ kg} = \frac{54}{3} = 18$	M1	This mark is given for finding the cost of 1 kg of meat
	$2 \times 18 = 36$	A1	This mark is given for the correct answer only

**Question 22 (Total 1 mark)**

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

**Question 23 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$160 \times 0.15$	M1	This mark is given for a method to find 15% of 160
	24	A1	This mark is given for the correct answer only

**Question 24 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 + (7 \times 10) = 72$	B1	This mark is given for the correct answer only

**Question 25 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: the odd number 23 has an even numbered digit (2)	C1	This mark is given for a correct counterexample

**Question 26 (Total 1 mark)**

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

**Question 27 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	No, since stem not used – it should be 26	B1	This mark is given for a correct explanation

**Question 28 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$450 \div (2 + 5 + 3) = 45$	P1	This mark is given for a process to find how many parts the amount should be divided into
	$3 \times 45 = 135$	A1	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
	$\frac{24}{16} = 1.5$	P1	This mark is given for a process to find how much to multiply by
	$120 \times 1.5, 140 \times 1.5, 250 \times 1.5, 2 \times 1.5$	M1	This mark is given for a method to scale up at least one ingredient
	180, 210, 375, 3	A1	This mark is given for the four correct answers only

**Question 30 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	Both values given are overestimates, so the actual cost will be less than £240	B1	This mark is given for a correct explanation

**Question 31 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$(4 \times 5) + (3 \times -2)$	M1	This mark is given for substituting the values of $x$ and $y$
	$20 - 6 = 14$	A1	This mark is given for the correct answer only
(b)	$4e^2 + 8e$	B1	One mark given for $4e^2$
		B1	One mark given for $8e$

**Question 32 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$3 + 9 = 12, 3 + 2 = 5, 3 + 3 = 6$ $4 + 9 = 13, 4 + 2 = 6, 4 + 3 = 7$ $5 + 9 = 14, 5 + 2 = 7, 5 + 3 = 8$	B1	This mark is given for a sample space or listed outcomes
	$\frac{4}{9}$	B1	This mark is given for the correct answer only

**Question 33 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$12 - (3 + 1 + 2) = 6$	M1	This mark is given for finding the number of green counters in the bag
	$6 + 2 = 8$	M1	This mark is given for finding the number of green and yellow counters in the bag
	$\frac{8}{12} = \frac{2}{3}$	C1	This mark is given for a correct conclusion supported by accurate figures

**Question 34 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	2700	B1	This mark is given for the correct answer only



**Question 35 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: the odd number 3 is a factor of the even number 12	C1	This mark is given for a correct counterexample

**Question 36 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$35 \times 5.80 = 203$	P1	This mark is given for a process to find the cost of 35 shirts before the discount is applied
	$203 \times 10\% = 20.30$	P1	This mark is given for a process to find 10% of the cost
	$203 - 20.30$	P1	This mark is given for a complete process to find actual cost of 35 T-shirts
	182.70	A1	This mark is given for the correct answer only

**Question 37 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$A \cap B = \{15, 25\}$ Odd multiples of five between 14 and 26	C1	This mark is given for a correct description

**Question 38 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{5 \times 1000}{250} = 20$	P1	This mark is given for a process to find out the number of bags of sweets sold
	$20 \times 0.65 = 13$	P1	This mark is given for a process to find the amount of money made from selling the bags of sweets
	$\frac{(13 - 10)}{10} \times 100$	P1	This mark is given for a process to find percentage profit from selling the sweets
	30	A1	This mark is given for the correct answer only

**Question 39 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
		M1	This mark is given for a drawing of an isosceles diagram
		A1	This mark is given for a fully correct diagram with correct dimensions

**Question 40 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{8}{20} + \frac{5}{20}$ or $0.4 + 0.25$	M1	This mark is given for a suitable common denominator with one fraction out of two correct or decimal equivalents
	$\frac{13}{20}$ or 0.65	A1	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
	36 2, 18 2, 2, 9 2, 2, 3, 3	M1	This mark is given for a complete method to find prime factors, which could be shown on a complete factor tree with no more than one arithmetic error
	$2 \times 2 \times 3 \times 3$	A1	This mark is given for the correct answer only

**Question 42 (Total 6 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$3m - 12 = 21$	M1	This mark is given correctly expanding brackets
	$3m = 33$ $m = 11$	A1	This mark is given for the correct answer only

**Question 43 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{9}{7+4+9} \times 100$	M1	This mark is given representing the fraction or orange buttons in the jar
	45	A1	This mark is given for the correct answer only

**Question 44 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{1}{4} : \frac{3}{4}$ or $25 : 75$	M1	This mark is given for finding a correct but unsimplified ratio
	1 : 3	A1	This mark is given for the correct answer in the form 1 : $n$

**Suggested Grade Boundaries for Aiming for 4: Paper 1F**

Grade	5	4	3	2	1
Mark	67	59	48	34	23

**For example:****A student aiming for Grade 4 would be expected to score at least 59 marks on this practice paper.**