

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

Summer 2019: 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.

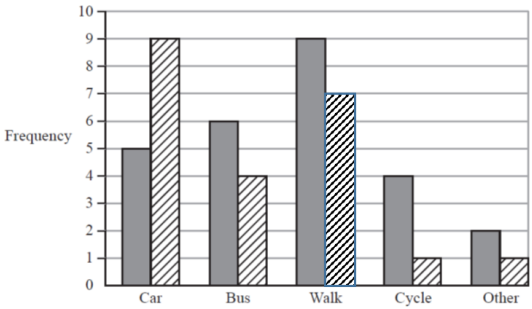
A1 – accuracy mark. This mark is generally given for a correct answer following correct working.

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 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	Walk	B1	This mark is given for the correct answer only
(b)		B1	This mark is given for a bar of height 7 drawn for girls walking
(c)	$(5 + 9) - (6 + 4) = 14 - 10 = 4$	B1	This mark is given for the correct answer only
(d)	$(5 + 9) + (6 + 4) + (9 + 7) + (4 + 1) + (2 + 1) = 48$ or $14 + 10 + 16 + 5 + 3 = 48$	M1	This mark is given for a method to find the number of Year 6 students in the survey
	$48 \times 2 = 96$	A1	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
	24	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
	$\frac{31}{100}$	B1	This mark is given for the correct answer (or an equivalent fraction)

Question 4 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	There is a difference in tally marks (11) and frequency (12) for Monday	C1	This mark is given for a correct comment

Question 5 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{30}{100} \times 80 = 24$	M1	This mark is given for a method to calculate Adam's bonus
	$28 - 24$	M1	This mark is given for a method to find the difference between Adam's and Katy's bonus
	4	A1	This mark is given for the correct answer only

Question 6 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$49 - 20 = 29$	P1	This mark is given for $\frac{29}{a}$ where $a > 29$ or $\frac{b}{49}$ where $b < 49$
	$\frac{29}{49}$	A1	This mark is given for the correct answer (or equivalent fraction)

Question 7 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	25	B1	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
	$\frac{2}{5} = \frac{12}{30}, \frac{11}{30}, \frac{1}{2} = \frac{15}{30}, \frac{7}{15} = \frac{14}{30}$ or $\frac{2}{5} = 0.4, \frac{11}{30} = 0.3666\dots,$ $\frac{1}{2} = 0.5, \frac{7}{15} = 0.4666\dots$	M1	This mark is given for converting fractions to a common form; for example, fractions with a denominator of 30 or decimals
	$\frac{11}{30}, \frac{2}{5}, \frac{7}{15}, \frac{1}{2}$	A1	This mark is given for writing the fractions in the correct order, starting from the smallest

Question 9 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Cement: $10 \text{ bags} \times 25 \text{ kg} = 250 \text{ kg}$ Sand: $20 \text{ bags} \times 22.5 \text{ kg} = 4500 \text{ kg}$ Stone: $20 \text{ bags} \times 50 \text{ kg} = 1000 \text{ kg}$	P1	This mark is given for working out what Adrian already has
	80 kg of stone needed	P1	This mark is given for working out what Adrian still needs
	Two bags of stone	C1	This mark is given for a correct conclusion supported by working

Question 10 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$8 \times 5 - 2 = 38$	B1	This mark is given for the correct answer only
(b)	$\text{input} \times 5 - 2 = 28$ $(28 + 2) \div 5$	M1	This mark is given for a method to find the input
	6	A1	This mark is given for the correct answer only

Question 11 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	1H, 2H, 3H, 4H, 5H, 6H 1T, 2T, 3T, 4T, 5T, 6T	B2	This mark is given for a full and correct set of outcomes (B1 is given for at least six correct)

Question 12 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2m^3$	B1	This mark is given for the correct answer only

Question 13 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	34200	B1	This mark is given for the correct answer only

Question 14 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	14×18.8	M1	This mark is given for a method to find the real distance
	263.2	A1	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
	$4m$	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
	0.47	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
	$3x - 12 = 12$ $3x = 24$	M1	This mark is given for a method to solve the equation
	8	A1	This mark is given for the correct answer only

Question 18 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	An extra picture is needed for Tuesday (it shows 15 televisions, not 18 televisions) or 7.5 televisions shown for Wednesday is not possible	C1	This mark is given for a correct comment

Question 19 (Total 1 mark)

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

Question 20 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	29 (inches)	B1	This mark is given for an answer in the range 29 to 30

Question 21 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example 9, 25, 49, 81...	B1	This mark is given for a correct odd square number

Question 22 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example, 0.75, 0.7142..., 0.76, 0.73333....	M1	This mark is given for at least three fractions in order or fractions converted into decimals
	$\frac{5}{7}, \frac{11}{15}, \frac{3}{4}, \frac{19}{25}$	A1	This mark is given for a correct answer only

Question 23 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		B2	<p>These two marks are given for a fully correct rotation with vertices at $(-4,-1)$, $(-3,-1)$, $(-4,-4)$, $(-1,-2)$</p> <p>(One mark is given for the quadrilateral in correct orientation and size or rotated 90° anticlockwise about the origin)</p>

Question 24 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{3.4496376}{47.0596}$	M1	This mark is given for a correct numerator or a correct denominator
	0.0733035	A1	This mark is given for a correct answer only

Question 25 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1 - 0.015 = 0.985$	B1	This mark is given for the correct answer only

Question 26 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Letters2send: $150 \div 25 = 6$ Stationery World: $150 \div 10 = 15$, so only 10 packs to be paid for	P1	This mark is given for the start of a process to find comparable costs at each shop
	Letters2send: $6 \times 3.49 = 20.94$	P1	This mark is given for a process to find the cost of envelopes from Letters2send
	Stationery World: $10 \times 2.10 = 21.00$	P1	This mark is given for a process to find the cost of envelopes from Stationery World
	Suha should buy envelopes from Letters2send	C1	This mark is given for a correct conclusion with correct supporting values

Question 27 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	No; the probability is the same for each number.	C1	This mark is given for a correct statement

Question 28 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$495 \div 3 = 165$	P1	This mark is given for a process find the value of the £1 coins
	$124 \times 0.50 = 62$	P1	This mark is given for a process to find the value of the 50p coins
	$495 - 165 - 124 = 206$ $206 \times 0.20 = 41.20$	P1	This mark is given for a process to find the value of the 20p coins
	$165 + 62 + 41.20 = 268.20$	A1	This mark is given for the correct answer only

Question 29 (Total 1 mark)

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

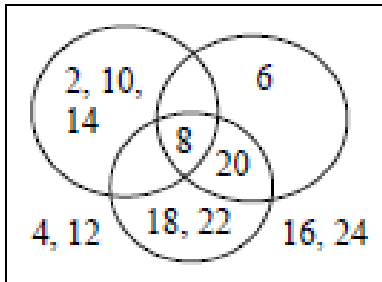
Question 30 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$-4c$ or $6d$	M1	This mark is given for a method to collect c or d terms
	$10 - 4c + 6d$	A1	This mark is given for the correct answer only

Question 31 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{1}{2} \times 16 \times 9 = 72$	M1	This mark is given for finding the area of the triangle
	$72 \times 5 = 360$	M1	This mark is given for finding the area of the parallelogram
	$h = 360 \div 30$ $= 12$	A1	This mark is given for the correct answer only

Question 32 (Total 4 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)		C4	<p>Four marks are given for a fully correct Venn diagram</p> <p>(3 marks for at least 6 numbers in the correct position)</p> <p>(2 marks for at least 4 numbers in the correct position)</p> <p>(1 mark for at least 2 numbers in the correct position)</p>

Question 33 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$90 + 2x + 3x = 360$	M1	This mark is given for a method to form an equation
	$2x + 3x = 360 - 90$ $5x = 270$	M1	This mark is given for a method to solve the equation formed
	54	A1	This mark is given for the correct answer only

Question 34 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{2.3 \times 6.7}{5} \times \frac{10^4 \times 10^3}{10^{-8}}$	M1	This mark is given for a method to work out the calculation
	3.082×10^{15}	A1	This mark is given for any number equal to 3.082×10^{15}

Question 35 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$4560 \div 1000 = 4.56$	B1	This mark is given for the correct answer only

Question 36 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Bill has increased 150 by 30% rather than 3%. He should have used 1.03, not 1.3	B1	This mark is given for a correct explanation

Question 37 (Total 3 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$6 \text{ feet } 3 \text{ inches} = (6 \times 12) + 3 = 75 \text{ inches}$	M1	This mark is given for finding 6 ft 3 inches in inches
	$25 \text{ inches} = 63 \text{ cm}$	M1	This mark is given for finding a method to convert to cm
	$75 \text{ inches} = 189 \text{ cm}$	A1	This mark is given for an answer in the range 186 to 195

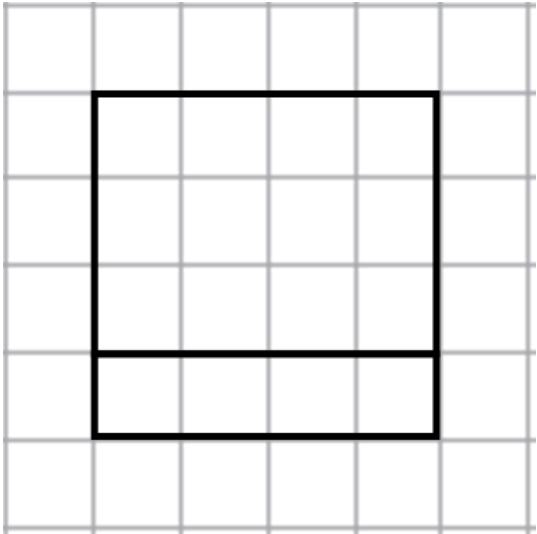
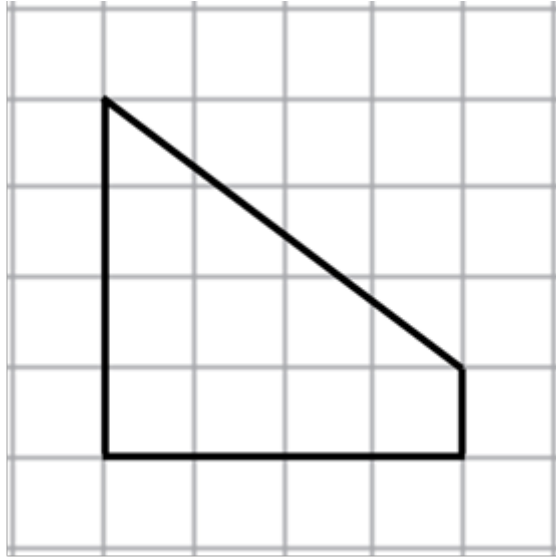
Question 38 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	7, 11 or 8, 16	B1	This mark is given for two correct numbers
	Add one more each time or Double the number each time	C1	This mark is given for a correct explanation

Question 39 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\sqrt{81} = 9$	P1	This mark is given to find the length of the side of the square
	$9 \times 4 = 36$	A1	This mark is given for the correct answer only

Question 40 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	<p>Side elevation</p> 	C2	<p>These two marks are given for a side elevation (4 cm by 2 cm rectangle with a solid line drawn 1 cm from the 2 cm edge, and correct orientation)</p> <p>(One mark is given for the side elevation drawn as a rectangle)</p>
	<p>Front elevation</p> 	C2	<p>These two marks are given for a front elevation as a trapezium in correct orientation with base 4 cm, parallel sides 1 cm and 4 cm</p> <p>(One mark is given for the front elevation as a trapezium with two right angles)</p>

Suggested Grade Boundaries for Aiming for 4: Paper 2F

Grade	5	4	3	2	1
Mark	68	60	49	36	21

For example:

A student aiming for Grade 4 would be expected to score at least 60 marks on this practice paper.