

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

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).

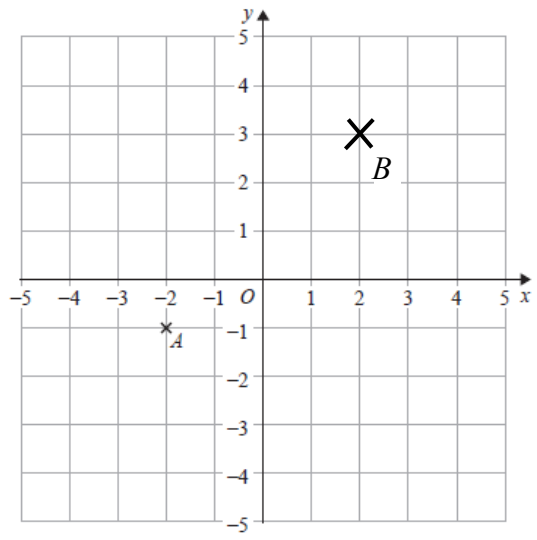
Question 1 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	0 out of 4, so × marked at 0	B1	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
	$(2 \times 9) + (3 \times 4) = 18 + 12$	M1	This mark is given for a method to substitute values in the expression
	30	A1	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
		B1	This mark is given for the correct answer only

Question 4 (Total 1 mark)

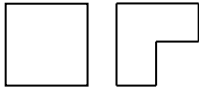
Part	Working an or answer examiner might expect to see	Mark	Notes
	8000	B1	This mark is given for the correct answer only

Question 5 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
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	$2 \times 2 \times 2 = 8$	B1	This mark is given for the correct answer only
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Question 6 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Apple = 12, Cherry = 5, Pear = 6	M1	This mark is given for method to find out how many of each tree there is
	$30 - (12 + 5 + 6) =$ $30 - 23 = 7$	M1	This mark is given for a method to find out how many plum trees are in the orchard
		C1	This mark is given for a completely correct pictogram

Question 7 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	0.6×70 or $\frac{60}{100} \times 70$	M1	This mark is given for a method to convert percentage to a decimal of fraction
	42	A1	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
	$(3 \times 5) + 7 = 22$	B1	This mark is given for the correct answer only

Question 9 (Total 1 mark)

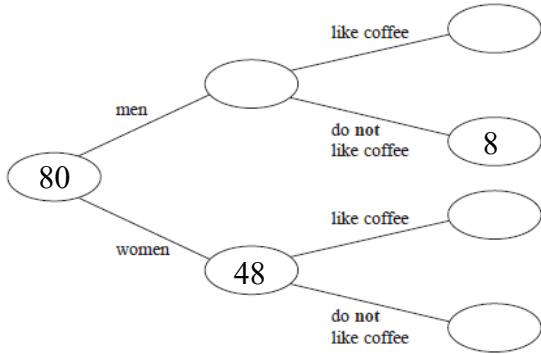
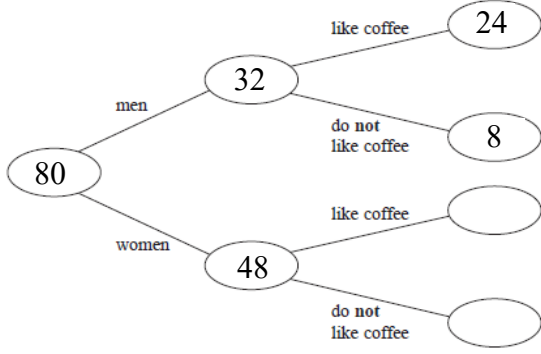
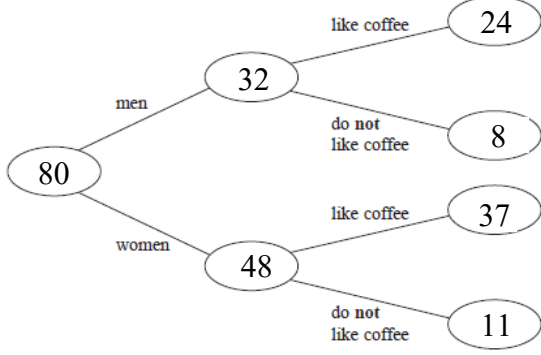
Part	Working or answer an examiner might expect to see	Mark	Notes
	$(-2, -1)$	B1	This mark is given for the correct answer only

Question 10 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
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	$\frac{10}{16}$	B1	This mark is given for the correct answer only
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Question 11 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		C1	This mark is given for placing 48 or 8 in the correct position on the frequency tree
		C1	This mark is given for calculating $80 - 48 = 32$ and $32 - 8 = 24$ and placing them in the correct position on the frequency tree
		C1	This mark is given for calculating $61 - 24 = 37$ and $48 - 37 = 11$ and placing them in the correct position on the fully complete frequency tree

Question 12 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$7 \times (2 + 3) = 35$	B1	This mark is given for the correct answer only

Question 13 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
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	$\frac{a}{17}$ where $a \neq 7$ and < 17 or $\frac{7}{b}$ where $b \neq 17$ and > 7	M1	This mark is given for a method to start finding the probability with a correct numerator or denominator
	$\frac{7}{17}$	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
	$0.6 \times 100 = 60$	B1	This mark is given for the correct answer only

Question 15 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	(10, 19)	B1	This mark is given for the correct answer only
(b)	Positive (correlation)	C1	This mark is given for a correct comment
(c)	Line drawn from 16.4 up to (16.4, y)	M1	This mark is given for an appropriate line of best fit drawn, or a point marked at (16.4, y) or a vertical line
	Answer in the range 12 – 13	A1	This mark is given for an answer of hours in the range 12 to 13
(d)	Yes, the graph appears to justify this since the majority of points for high temperature appear when there are more hours of sunshine (positive correlation)	C1	This mark is given for a correct explanation

Question 16 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 \times 2 \times 2 \times 2 = 16$	B1	This mark is given for the correct answer only

Question 17 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$£10 - 30p - £1.60 - (2 \times £1.50) = £5.10$	P1	This mark is given for a process to find money spent on 3 packets of sausages
	$£5.10 \div 3$	P1	This mark is given for a process to find the cost of one packet of sausages
	Fahama is wrong, a packet of sausages costs £1.70	C1	This mark is given for a correct conclusion with supporting working

Question 18 (Total 1 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$\frac{4}{5} = 0.8 = 80\%$	B1	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
	Number of circular tiles are 4 (1×4) in pattern 1, 8 (2×4) in pattern 2, 9 (3×4) in pattern 3, ...	M1	This mark is given finding a method that could lead to the answer
	80 (20×4) in pattern 20	A1	This mark is given for the correct answer only

Question 20 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$1500 \times 0.03 = 45$	M1	This mark is given for a method of calculating a 3% increase
	$1500 + 45 = 1545$	A1	This mark is given for the correct answer only

Question 21 (Total 1 mark)

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

Question 22 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	<p>first bag</p> <p>second bag</p> <p>red: $\frac{3}{10}$</p> <p>green: $\frac{7}{11}$</p> <p>red: $\frac{5}{9}$</p> <p>green: $\frac{4}{9}$</p> <p>red: $\frac{5}{9}$</p> <p>green: $\frac{4}{9}$</p>	B2	<p>These marks are given for all four probabilities correct</p> <p>(1 mark is given for two or three probabilities correct)</p>

Question 23 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1750 \div 5 = 350$	M1	This mark is given for a method to find the weight of 1 tin of soup
	$1490 - (4 \times 350) = 90$	M1	This mark is given for a method to find the weight of 3 packets of soup
	$90 \div 3 = 30$ $(3 \times 350) + (30 \times 2)$	M1	This mark is given for a method to find the weight of 3 tins of soup and 2 packets of soup
	1110 (grams)	A1	This mark is given for the correct answer only

Question 24 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	10	B1	This mark is given for the correct answer only

(b)		M1	This mark is given for a method to use the graph to show the difference in costs of deliveries 20 miles apart
	£30	A1	This mark is given for the correct answer only

Question 25 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	-2, -1, 0, 1, 2	B2	This mark is given for the correct answer only (B1 is given for the numbers -2, -1, 0, 1)

Question 26 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	0.02, 0.152, 0.2, 0.37. 0.4	B1	This mark is given for the correct numbers in order of size

Question 27 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 \times \frac{1}{4} = \frac{1}{2}$	P1	This mark is given for a process to find out how many tins of cat food are needed each day
	$8 \div \frac{1}{2} = 16$	P1	This mark is given for a process to find out how many days 8 tins will last
	16 > 14 Yes, Sue has bought enough cat food to last for 14 days	C1	This mark is given for a conclusion supported by working

Question 28 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Number of square tiles are 1 (1^2) in pattern 1, 4 (2^2) in pattern 2, 9 (3^2) in pattern 3, ...	M1	This mark is given finding a method that could lead to the answer
	36 (6^2) in pattern 6	A1	This mark is given for the correct answer only

Question 29 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{2}{24} + \frac{20}{24} = \frac{22}{24}$	M1	This mark is given for finding a common denominator
	$\frac{11}{12}$	A1	This mark is given for the correct answer (or an equivalent fraction)

Question 30 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	4 : 1 or 1 : 2 seen	M1	This mark is given for a method to find a ratio
	4 : 1 : 2	A1	This mark is given for the correct answer only

Question 31 (Total 2 marks)

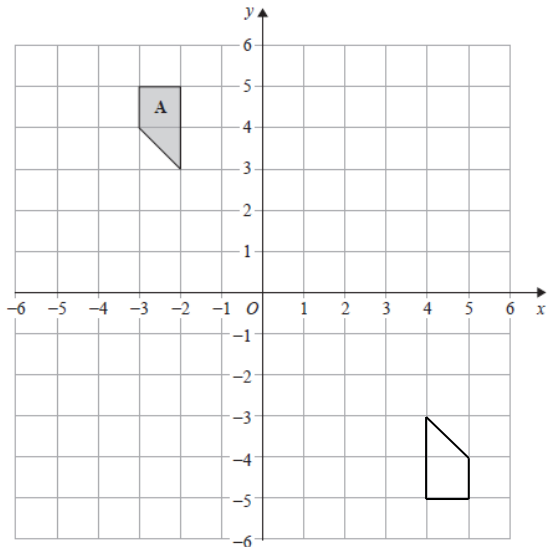
Part	Working or answer an examiner might expect to see	Mark	Notes
	Any one of 2 + 30, 3 + 29, 5 + 27, 7 + 25, 11 + 21, 13 + 19, 17 + 15, 23 + 9 seen	M1	This mark is given for finding two numbers with a sum of 32 (at least one of which is prime)
	3 and 29 or 13 and 19	A1	This mark is given for a correct answer only

Question 32 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1 \frac{1}{4} \times £12 = £15$	P1	This mark is given for a process to find Sean's overtime rate of pay

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(8 \times 12) + (2 \times 15)$	P1	This mark is given for a process to find out how much Sean was paid for 10 hours
	$= 96 + 30$	P1	This mark is given for a process to find out how much Sean was paid for his normal hours added to the amount he was paid overtime
	126	A1	This mark is given for the correct answer only

Question 33 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B2	<p>These marks are given for a correct shape with vertices at $(4, -3)$, $(5, -4)$, $(5, -5)$ and $(4, -5)$</p> <p>(B1 is given for a rotation of 180° about the wrong centre)</p>

Question 34 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{5}{8} \times \frac{3}{4} = \frac{5 \times 3}{8 \times 4} = \frac{15}{32}$	B1	This mark is given for the correct answer only

Question 35 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(b)		M1	<p>This mark is given for $\frac{a}{61}$ with $a < 61$ or $\frac{37}{b}$ with $b > 37$</p>

	$\frac{37}{61}$	A1	This mark is given for the correct answer only (or an equivalent fraction)
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Question 36 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(b)	$\frac{2}{3} \times \frac{1}{4} = \frac{8}{12} - \frac{3}{12}$	M1	This mark is given for a method to uses a common denominator
	$\frac{5}{12}$	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
	7.265	B1	This mark is given for the correct answer only

Question 38 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	56 2×28 $2 \times 2 \times 14$	M1	This mark is given for a complete method to find prime factors
	$2 \times 2 \times 2 \times 7$ or $2^3 \times 7$	A1	This mark is given for the correct answer only

Question 39 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	2 out of 4, so \times marked at $\frac{1}{2}$	B1	This mark is given for the correct answer only

Question 40 (Total 4 marks)

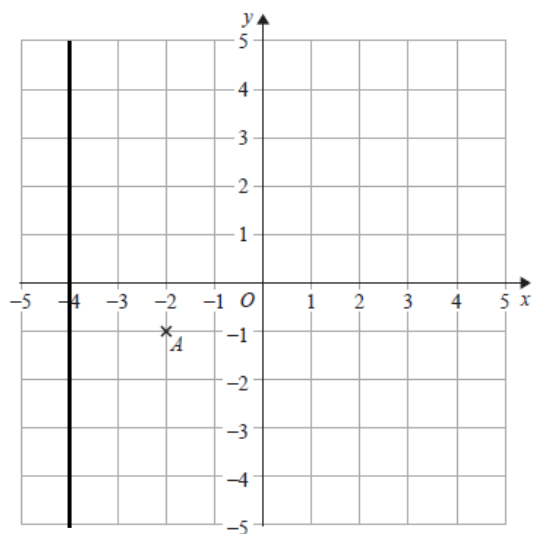
Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{1}{2} \times 8 \times 9 = 36 \text{ (cm}^2\text{)}$	P1	This mark is given for a process to find the area of the triangle

Part	Working or answer an examiner might expect to see	Mark	Notes
	$6 \times 36 = 216 \text{ (cm}^2\text{)}$	P1	This mark is given for a process to calculate the area of 6 such triangles
	$216 \div 16$	P1	This for process shown of dividing the area of the rectangle by the length of the given side to find the length of the other side
	13.5 (cm)	A1	This mark is given for the correct answer only

Question 41 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$7 \times 8 \times e \times f = 56ef$	B1	This mark is given for the correct answer only

Question 42 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B1	This mark is given for the line $x = -4$ drawn in the correct position

Suggested Grade Boundaries for Aiming for 4: Paper 1F

Grade	5	4	3	2	1
Mark	67	59	48	36	24

For example:

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