

GCSE Mathematics (1MA1) – Foundation Tier Paper 1F

Spring 2017 mock paper (Set 2); Student-friendly 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.

In some cases full marks can be given for a question or part of questions where no working is seen. However, it is wise to show working for one small slip could lead to all marks being lost if no working is shown.

Some questions (such as QWC) 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).

Note that in some cases a correct answer alone will not score marks unless supported by working; these situations are made clear in the mark scheme. Examiners are prepared to award zero marks if the student's response is not worthy of credit according to the mark scheme.

Question 1 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	-10, -7, -5, 0, 4	B1	This mark is given for the correct answer only
(b)	0.2, 0.205, 0.25, 0.52	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
	$\frac{7}{10} = 0.7 = 70$	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
	5.55	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
	$(3 \times 60) + (\frac{1}{2} \times 60) = 210$	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
(a)	33	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
	No labels on horizontal axis	C1	This communication mark is given for a correct statement
	No 0 on vertical axis	C1	This communication mark is given for a correct statement
	Middle column has incorrect height	C1	This communication mark is given for a correct statement

Question 7 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$120 \div 8$	M1	The mark is given for a method to find rate of pay
	15	A1	This mark is given for the correct answer only
(b)	$550 - (120 + 100) (= 330)$	M1	The mark is given for a method to find the total earned on Wednesday, Thursday and Friday
	$330 \div 3$	M1	The mark is given for a method to find the amount for one day
	110	A1	This mark is given for the correct answer only

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$3 + 8 = 11$	B1	This mark is given for a correct example (which may be different to the one shown here)
(b)	$2 \times 7 = 14$	B1	This mark is given for a correct example (which may be different to the one shown here)
(c)	$9 \times 9 = 81$	B1	This mark is given for a correct example (which may be different to the one shown here)

Question 9 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$4 \times 9 (= 36)$	P1	This mark is given for a process to find an the area of the garage floor
	$36 \div 12$ (3 tins) or $36 \div 10$ (3.6, so 4 tins)	P1	This mark is given for a process to find the number of tins needed from each paint store
	$3 \times \text{£}3.70$ and $4 \times \text{£}3$ (where the number of tins is an integer)	P1	This mark is given for a process to find the costs of buying paint from each paint store
	£11.10 and £12, so Decor U is the cheapest option	A1	This mark is given for stating Decor U and giving costs as £11.10 and £12

Question 10 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$4 \times 2 - 3 = 5$	B1	This mark is given for the correct answer only
(b)	$11 - 3 = 14,$ $14 \div 2 =$	M1	The mark is given for a method to find a solution using inverse operations
	7	A1	This mark is given for the correct answer only
(c)	$2x - 3 = x$ $x - 3 = 0$	M1	The mark is given for a method to find a solution by using inverse operations or algebraic expressions
	3	A1	This mark is given for the correct answer only

Question 11 (Total 6 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	1300	B1	This mark is given for the correct answer only
(b)	5	B1	This mark is given for the correct answer only
(c)	$2 - 0.6 =$	M1	This mark is given for taking readings from graph
	1.4 (km)	A1	This mark is given for the correct answer only
(d)	Horizontal line on the graph from (13 40, 3.5) to (13 50, 3.5)	B1	This mark is given for a correct line drawn on the graph
	Line that starts from (13 50, 3.5) and ends at (14 15, 0)	B1	This mark is given for a correct line drawn on the graph

Question 12 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	700 pen sets to buy at 90p each	P1	This mark is given for a process to estimate
	$700 \times 90p =$	P1	This mark is given for a process to estimate the total cost
	£630 (or 63000p)	A1	This mark is given for the correct answer only
(b)	An overestimate, since all the figures have been rounded up	C1	This communication mark is given for a correct statement with reasons

Question 13 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	100 : 120	M1	The mark is given for a method to start writing as a ratio
	5 : 6	A1	This mark is given for the fully simplified correct answer only

Question 14 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$0 \times 15 = 0$ $1 \times 8 = 8$ $2 \times 3 = 6$ $3 \times 3 = 9$ $4 \times 1 = 4$	M1	The mark is given for a method to multiplying lates by frequency
	$27 \div 30 =$	M1	The mark is given for a method to show the total number of lates divided by the total number of students ($\sum fx \div \sum f$)
	0.9	A1	This mark is given for the fully simplified correct answer only

Question 15 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$210 \div 7$ $= 30$	P1	This mark is given for a process to find the weight of a jar of paprika
	$290 - (3 \times 30) = 200$ $200 \div 4 =$ 50	P1	This mark is given for a process to find the weight of a packet of sage
	$(2 \times 30) + (2 \times 50) =$	P1	This mark is given for a process to find the weight of 2 jars of paprika and 2 packets of sage
	160	A1	This mark is given for the correct answer only

Question 16 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$50 \times 100 \times 60 = 300\,000$	P1	This mark is given for a process to find the volume of the tank
	$60 \div 3 = 20$ (cm)	P1	This mark is given for a process to find the depth of water already in the tank
	$18\,000 \div (50 \times 100) = 3.6$ (cm)	P1	This mark is given for a process to find the depth of water the contents of the barrel would fill in the tank
	$20 + 3.6 = 23.6$	A1	This mark is given for the correct answer only
(b)	The depth of water will be less.	C1	This communication mark is given for a correct statement

Question 17 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	3 is placed in Q	B1	This mark is given for the figure 3 correctly placed in the diagram
	6 is placed where P and Q overlap	B1	This mark is given for the figure 6 correctly placed in the diagram
(b)	There are 7 numbers not in set Q There are 11 numbers in all	M1	This mark is given for an indication of at least one of the two statement
	$\frac{7}{11}$	A1	This mark is given for the correct answer only

Question 18 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$280 \div (2 + 5) = 40$	M1	This mark is given for a method to find the amount of money represented by one part
	$40 \times 2 = 80$ (Ali); $40 \times 5 = 200$ (Beth)	A1	This mark is given for the correct answer only

Question 19 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$ABE = 180^\circ - 142^\circ = 38^\circ$	M1	This mark is given for a method to find one angle
	Angles on a straight line add up to 180°	C1	This communication mark is given for a correct statement allied to the calculation made
	$BAE = 71^\circ$	M1	This mark is given for a method to find further angle(s)
	Base angles of an isosceles triangle are equal Angles in a triangle add up to 180°	C1	This communication mark is given for a correct statement allied to the calculation made
	$BAE = AED = x = 71^\circ$ Alternate angles are equal	A1	This mark is given for the correct answer only with a correct supporting statement

NB: There are other ways to arrive at the solution for this question.

Question 20 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$2x + 3 + 5x - 2 + 5x + 3 =$	P1	This mark is given for stating the perimeter algebraically
	$\frac{12x + 4}{4} =$	P1	This mark is given for a process to simplify to $12x + 4$ and divide by 4
	$3x + 1$	A1	This mark is given for the correct answer only

Question 21 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(\frac{1}{2} \times 2 \times 5) + (1 \times 15) = 20 \text{ (m}^2\text{)}$	P1	This mark is given for a process to find the volume by finding the complete cross-sectional area
	$20 \text{ (m}^2\text{)} \times 10 \text{ (m)} = 200 \text{ m}^3$	P1	This mark is given for a process to find the volume of the pool
	$200 \text{ m}^3 = 200 \text{ 000 litres}$	P1	This mark is given for a process to convert between m ³ and litres.
	$\frac{200 \text{ 000}}{5} = 40 \text{ 000 seconds}$	A1	This accuracy mark is given for finding out the time taken to fill the pool
	10 hours = 36 000 seconds 10 hours is not enough time to fill the pool	C1	This communication mark is given for a correct statement with correct supporting figures

Question 22 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{12}{3} \times 5 =$	M1	This mark is given for a method to find proportion statement
	20	A1	This mark is given for the correct answer only
(b) (i)	The work rate of each man is the same; The work rate of each man does not change over time	C1	This communication mark is given for a correct statement
(ii)	If the work rate slower it takes longer; If the work rate faster takes less time	C1	This communication mark is given for a correct statement

Question 23 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{1}{6}$ and $\frac{5}{6}$ on left hand branches	B1	This mark is given for the correct answers only,
	$\frac{1}{8}$, $\frac{7}{8}$, $\frac{1}{8}$ and $\frac{7}{8}$ on right hand branches	B1	This mark is given for the correct answers only
(b)	$\frac{5}{6} \times \frac{7}{8} =$	M1	This mark is given for a method to find the probability that neither dice will land on 6
	$\frac{35}{48}$	A1	This mark is given for the correct answer only

Question 24 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	3 6 11 18 27 38 51 3 5 7 9 11 13 Next term = $51 + 15 = 66$	B1	This mark is given for the correct answer only
(b)	$(2 \times 62) + 5 = (2 \times 36) + 2 = 77$	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
	$8 \times 10^3 \times 10 = 8 \times 10^4$	B1	This mark is given for the correct answer only