GCSE Mathematics (1MA1) – Foundation Tier Paper 2F

October 2016 mock paper 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.

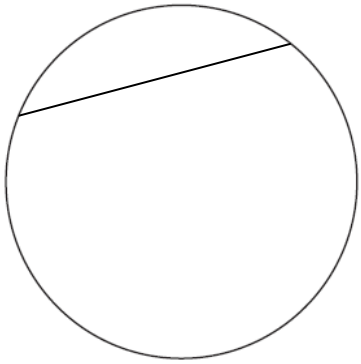
Question 1 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$1.7 \times 1.7 \times 1.7 = 4.913$	B1	This mark is given for a correct answer only

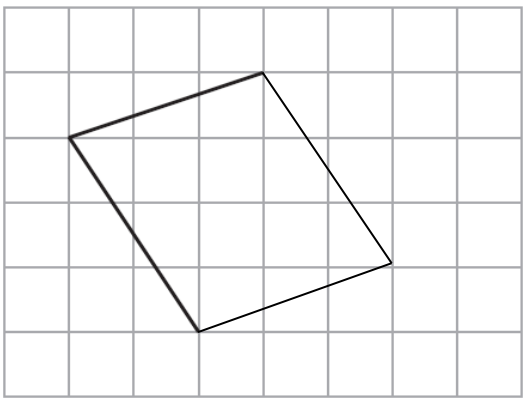
Question 2 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	2:3	B1	This mark is given for a 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 a chord correctly drawn

Question 4 (Total 1 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
		B1	This mark is given for a complete parallelogram drawn

Question 5 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		M1	This mark is given for at least 3 correct combinations
	AB, AO, AP, BO, BP, OP	A1	This mark is given for a fully correct lst with no extras or permutations

Question 6 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	No, because: numbers in the sequence are even and 603 is not even or numbers in the sequence are multiples of 6 and 603 is not a multiple of 6 or $6n + 12 = 603$ means n is not an integer	C1	This mark is given for a correct statement with an explanation
(b)	42 (or multiple of 42) is a term in the sequence	B1	This mark is given for a correct answer only

Question 7 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Shape A has 14 sides, shape B has 12 sides or Shape A has 4 missing edges, shape B has 6 missing edges	P1	This mark is given for a process to find the total perimeter of both shapes
	Shape A	A1	This mark is given for a correct answer with supporting working

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	8.5 × 50 000 (= 425 000)	M1	This mark is given for a method using a scale
	425 000 ÷ 100 or 425 000 ÷ 1000 or 425 000 ÷ 100 000	M1	This mark is given for a method to start a conversion to from cm to km
	4.25	A1	This mark is given for a correct answer only

Question 9 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	146° + 32° (= 178°)	M1	This mark is given for using angles on a straight line to add up to 180°
	Angles on a straight line add up to 180° and 178° ≠ 180°	C1	This mark is given for a full explanation

Question 10 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	120 ÷ 8 (= 15)	M1	This mark is given for a method to find the number of packs needed
	15 × 4.35	M1	This mark is given for a method to find the total cost
	65.25	A1	This mark is given for a correct answer only

Question 11 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	34 is not a multiple of 3	C1	This mark is given for a correct statement
(b)	The order of operations is not correct	C1	This mark is given for a correct explanation
	The inverse of ×2 is not used	C1	This mark is given for a correct explanation

Question 12 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\sqrt{2.7} = 1.6431677\ldots$ $\sqrt{2.7} + 6.5 = 8.1431677\ldots$	M1	This mark is given for a method to find 1.643… or 8.143…
	$\frac{8.1431677}{3.74} = 2.1773176$	M1	This mark is given for a method to find the value of the expression
	2.18	B1	This mark is given for a correct answer rounded to 2 decimal places

Question 13 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	1.50 + 1.75 + 1.60 = 4.85	P1	This mark is given for a process to add the price of any 3 items
	4.85 – 3.99 =	P1	This mark is given for a complete process to find the difference
	£0.86 or 86p	A1	This mark is given for a correct answer only

Question 14 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{3}{8} \times 100 \, (= 37.5)$ or $\frac{27}{100} + \frac{3}{8} \left(= \frac{129}{200} \right)$	M1	This mark is given for a method to find a common way to express the proportions
	$100 - 27 - 37.5$ or $1 - \frac{129}{200} = \frac{71}{200}$	M1	This mark is given for a method to find the proportion of children at the match
	35.5	A1	This mark is given for a correct percentage answer only

Question 15 (Total 6 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$6 \div 1.5$ or $1.5 \div 5$ and $1.5 \div 3$	P1	This mark is given for a process to find the number of stones or attempts to draw a repeat of the pattern
	$(5 + 5) \times 4 \, (= 40)$ and $3 \times 4 \, (= 12)$ or $(10 \times 2.30) + (3 \times 3.65)$	P1	This mark is given for a complete process to find total number of stones or to find the cost of 1.5m of the path
	$(40 \times 2.30) + (12 \times 3.65)$ or $4 \times [(10 \times 2.30) + (3 \times 3.65)]$	P1	This mark is given for a process to find the total cost of the stones
	135.80	A1	This mark is given for a correct answer only
(b)	$6 \times 4 \times 3.65 \, (= 87.60)$ and $135.80 \div 2 \, (= 67.90)$	M1	This mark is given for a method to find costs of Harry's path and making a comparison
	No; $87.60 > 67.90$	C1	This mark is given for correct conclusion supported by correct working

Question 16 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	780 – 565 = 215	P1	This mark is given for a process to find the profit made in September
	$\frac{13}{100} \times 215 = 27.95$	P1	This mark is given for a complete process to find the extra profit made in October
	No; £27.95 is less than £30	C1	This mark is given for a correct statement

Question 17 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$x = \frac{100}{5}$; $x = 20$	B1	This mark is given for a correct answer of $x = 20$ only

Question 18 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Integer > 21	B1	This mark is given for any integer greater than 21 given
	e.g. "answer" > 21, "answer" ÷ 21 > 1 "answer" ÷ 6 > 3.5 Could be shown by conversion to decimals with explanation	C1	This mark is given for a correct explanation

Question 19 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{32}{100} \times 675$ (= 216) or 100 − 32 (= 68)	M1	This mark is given for a method to find 32% of 675
	675 – 216 or 0.68 × 675	M1	This mark is given for a method to find the price of the television in the sale
	459	A1	This mark is given for a correct answer only

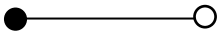
Question 20 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	25, 75, 75 or 25 + 75 + 75 (= 175) or $\frac{1}{4}+\frac{3}{4}+\frac{3}{4}\ \left(=1\frac{3}{4}\right)$ or ratio e.g. 3 : 3 : 1	P1	This mark is given for a process to start solving the problem
	25 ÷ 175 or $\frac{1}{4}\div 1\frac{3}{4}$	P1	This mark is given for a complete process
	$\frac{1}{7}$	A1	This mark is given for a correct answer only

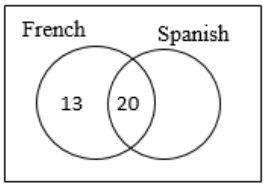
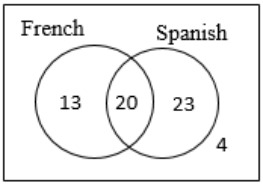
Question 21 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{177}{360}\times 240$ (= 118)	P1	This mark is given for a process to find the total number of girls in Year 7
	240 + 8 − 32 (= 216) or number of girls in Year 8 = 118 + 8 (= 126)	P1	This mark is given for a process to process for total students in Year 8
	$\frac{118+8}{216}\times 360$	P1	This mark is given for a complete method to find the angle for Year 8 girls
	210	A1	This mark is given for a correct answer only

Question 22 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		M1	This mark is given for a line of the correct length line or one correct end and line
	 −2 3	A1	This mark is given for a correct answer only
(b)	$5n > 24$ or $\frac{5n+3}{5} > \frac{27}{5}$	M1	This mark is given for a first step of a method to solve the inequality
	$n > 4.8$	A1	This mark is given for a correct answer only

Question 23 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		B1	This mark is given for 13 and 20 in the correct positions in the Venn diagram
	43 − 20 (= 23) 60 − 43 − 13 (= 4)	M1	This mark is given for a method to find the number of students who study only Spanish, , or the number of students who study neither French nor Spanish,
		A1	This mark is given for a fully correct Venn diagram
(b)	$\frac{4}{60}$	B1	This mark is given for $\frac{4}{60}$

Question 24 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Rotation, 90° anti-clockwise (or 270° clockwise, centre (0, –1)	M1	This mark is given for seeing one of these terms used.
	Rotation 90° anti-clockwise with centre (0, –1)	A1	This mark is given for the correct answer only

Question 25 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	e.g. rain, school day, measurement error	C1	This mark is given for a correct reason for low attendance in hot weather
(b)	Positive	B1	This mark is given for the correct answer only
(c)		B1	This mark is given for answer in range 15 – 25
(d)	e.g. data out of range, number of children will be negative	C1	This mark is given for a correct explanation of why it would not be sensible to use the scatter graph

Question 26 (Total 5 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$FE = (28 – 6 – 6) \div 2$ (= 8) or $AB = (28 – 6 – 6 – 3 – 3) \div 2$ (= 5)	P1	This mark is given for a process to process to find the distance *FE* or *AB*
	$AFE = \frac{4 \times 8}{2}$ (= 16) $CDE = \frac{6 \times 3}{2}$ (= 9) $\frac{5 \times 4}{2}$ (= 10) $\frac{2 \times 3}{2}$ (= 3)	P1	This mark is given for a process to process to find area of a triangle in the diagram
	$8 \times 4 + 2 \times 3 – (16 + 9)$ or $\frac{5 \times 4}{2} + \frac{2 \times 3}{2}$ or $(6 \times 8) – (5 \times 2) – (16 + 9)$	P1	This mark is given for a process to complete process for shaded area
	13	A1	This mark is given for the correct answer only
	m^2	C1	This mark is given independently for stating the correct units

Question 27 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$4x + y = 10$ $4x - 20y = 52$ $21y = -42$ or $20x + 5y = 50$ $x - 5y = 13$ $21x = 63$	M1	This mark is given for a method to correct process to eliminate one variable (allowing one arithmetic error)
	$4x - 2 = 10$ or $x + 10 = 13$ or $12 + y = 10$ or $3 - 5y = 13$	M1	This mark is given for a method for substituting the found value in one of the equations or an appropriate method after starting again
	$x = 3, y = -2$	A1	This mark is given for the correct answer only

Question 28 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		M1	This mark is given for a method to 2 or 3 entries correct entries in the table
	<table><tr><td>x</td><td>0.5</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>y</td><td>**6**</td><td>3</td><td>1.5</td><td>**1**</td><td>0.75</td><td>**0.6**</td><td>**0.5**</td></tr></table>	A1	This mark is given for the correct answer with all 4 table entries correct
(b)		M1	This mark is given (dependent on the first method mark being given) for 6 or 7 points plotted from the table
		A1	This mark is given for the correct graph drawn

Question 29 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$350 \times 1.02 \times 1.02 \times 1.02$ or 350×1.02^3	M1	This mark is given for a method to find an increase of 2% for three years
	371.42	A1	This mark is given for a correct answer only