Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE
In Mathematics A (1MA0)
Foundation (Calculator) Paper 2F

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NOTES ON MARKING PRINCIPLES

1 All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

2 Mark schemes should be applied positively.

3 All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e if the answer matches the mark scheme. 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 should be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

4 Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

5 Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

6 Mark schemes will award marks for the quality of written communication (QWC).
The strands are as follows:

i) *ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear*
Comprehension and meaning is clear by using correct notation and labelling conventions.

ii*) select and use a form and style of writing appropriate to purpose and to complex subject matter*
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) *organise information clearly and coherently, using specialist vocabulary when appropriate*.
The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

If there is no answer on the answer line then check the working for an obvious answer.

Partial answers shown (usually indicated in the ms by brackets) can be awarded the method mark associated with it (implied).

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks; transcription errors may also gain some credit. Send any such responses to review for the Team Leader to consider.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

8   Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

9   Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

10   Probability

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

12   Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

13   Range of answers

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

14   The detailed notes in the mark scheme, and in practice/training material for examiners, should be taken as precedents over the above notes.

Guidance on the use of codes within this mark scheme

M1 – method mark for appropriate method in the context of the question
A1 – accuracy mark
B1 – Working mark
C1 – communication mark
QWC – quality of written communication
oe – or equivalent
cao – correct answer only
ft – follow through
sc – special case
dep – dependent (on a previous mark or conclusion)
indep – independent
isw – ignore subsequent working

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
1	(a)		17.1	1	B1 cao
	(b)		1.3	1	B1 cao
	(c)		10.24	1	B1 cao
2	(a)		Hexagon	1	B1 cao
	(b)		8	1	B1 cao
3		$4 \times 17 + 3$	71	2	M1 for a complete method seen or 68 given as the answer A1 cao
*4			D C F S R 7 5 3 1 4 Suitable chart or diagram	3	M1 bar chart or other suitable chart with sections for at least 2 pets M1 sections for each pet and vertical axis correctly scaled / 2 correct frequencies C1 fully correct chart or diagram, including correct frequencies and all labels
5	(a)		$5e$	1	B1 cao
	(b)		$7gh$	1	B1 cao
	(c)		$a + 6d$	2	M1 for a or $6d$ A1 cao

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
6			9	3	M1 for two correct operations seen or implied M1 for a complete method A1 cao OR M1 for 13 + 5 (= 18) and 4 + 7 (= 11) M1 for a complete method A1
7	(a)(i)		95	2	B1 cao
	(ii)		Reason		B1 <u>angles</u> in a <u>triangle</u> add to <u>180˚</u>
	(b)		Drawing	3	B3 for a fully correct triangle (B2 for a triangle with 2 of the 3 aspects: line of 8cm; angle of 40º; angle of 45º) (B1 for 1 of the 3 aspects)
8	(a)		15 minutes	2	B1 15 B1 (indep) minutes
	(b)		3 05	2	M1 for intention to add 10 minutes and 55 minutes to 2 o'clock A1 3 05 oe
	*(c)		No with reason	2	M1 for a method to add 75 minutes to '3 05' or to work out the difference between '3 05' and 4 pm or to subtract 75 minutes from 4 pm C1(dep M1) for conclusion based on appropriate working and correct time calculations, ft from (b)

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
9	(a)		12.5	1	B1 cao
	(b)		500	2	M1 for a complete method to find $\dfrac{5}{6}$ of 600 or 600 ÷ 6 (= 100) A1 cao
10	(a)		$\dfrac{68}{105}$	1	B1 oe
	(b)		22	2	M1 for 105 – 15 – 68 oe A1 cao
	(c)		14.3	2	M1 15 ÷ 105 × 100 oe A1 for answer in range14.2 – 14.3
11	(a)		300	1	B1 cao
	(b)		100	3	M1 for intention to find the total number of adults or the total number of children M1(dep) for subtracting the two totals A1 for answer in range 90 to 110 OR M1 for intention to find the difference between the number of adults and the number of children for two months M1 (dep) for correctly processing all the differences A1 for answer in range 90 to 110

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
*12			£52.74 or 5274p	4	M1 for subtracting to find the units used (= 293) M1 for '293' × 18 or '293' × 0.18 A1 for 52.74 or 5274 C1 (dep M2) for identifying their answer with the correct monetary units OR M1 for 2968 × 18 (= 53424) or 2675 × 18 (= 48150) or 2968 × 0.18 (= 534.24) or 2675 × 0.18 (= 481.50) M1 for subtracting their two costs (consistent in pence or pounds) A1 for 52.74 or 5274 C1 (dep M2) for identifying their answer with the correct monetary units
13	(a)(i)		19	2	B1 cao
	(ii)		Reason		B1 explanation, e.g. add 4 each time
	(b)		43	1	B1 cao
	(c)		Yes with reason	1	B1 reason eg 1 less than 80 and 80 is a multiple of 4, or generate series to 79, or 79 is the 20th term, oe

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
14	(a)		12	1	B1 cao
	(b)		6	2	M1 for 18 –12 or 12 –18 or 12 to 18 A1 cao
	(c)		15	2	M1 for listing the numbers in order or identifying the middle two numbers as 15 or an answer of 14 A1 cao
	(d)	174÷12	14.5	2	M1 for adding the numbers and dividing by 12 A1 cao
*15			65 km is not enough	4	M1 for intention to add the four distances M1 for adding with consistent and correct use of units A1 65(km) oe [can work in other units eg metres] C1 (dep on M2) correct conclusion comparing their figure to 70 with supporting working eg 18.2+14.25+20.5+12.05 = 65km or 18+14+20+12 = 64; 0.2+0.25+0.5+0.05 = 1; 64+1 = 65km

16			Suitable data collection sheet	3	B3 for a table with all 3 aspects:
					     column/row heading 'colour' or list of at least three colours
					     column/row heading 'tally' or tally marks
					     column/row heading 'frequency' or totals oe
					 (B2 for a table with 2 of the 3 aspects)
					 (B1 for a table with 1 of the 3 aspects)
					
					 NB: Do not accept questionnaires or graphs

PAPER: 1MA0_2F					
Question		Working	Answer	Mark	Notes
17			$T = 6d + 15f$	3	M1 for $6d$ or $15f$ or $T = $ a linear expression in d and/or f M1 for $6d + 15f$ oe or $T = 6d$ $(+ kf)$ oe or $T = 15f$ $(+ kd)$ A1 $T = 6d + 15f$ oe
18	(a)	2,5	2 or 5	1	B1 cao
	(b)	1, 4, 9, 16 1 + 4 + 16	1, 4, 16	2	M1 for identifying at least 2 different square numbers from the list A1 cao
19	(a)		–0.5	2	M1 for intention to subtract 19 from both sides or divide all terms by 8 as a first step A1 for –0.5 oe
	(b)		3	2	M1 for a correct operation to collect the c terms or the number terms on one side of the equation e.g. $2c - c + 5 = 8$, $2c + 5 - 5 = c + 8 - 5$ A1 cao
20			4	3	M1 for method to find 6% of 2000 (= 120) M1 (dep) for 480 ÷ '120' or for repeated addition of '120' to 480 A1 cao
21			45	4	M1 for finding the price of 1 kg or 0.5 kg of oranges M1 for using their value to find the price of 4.5 kg of oranges M1 (dep M2) for a complete method to find the price of 1 kg of apples A1 oe

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
22 (a)		$\dfrac{1}{30}$	1	B1 oe
(b)		$\dfrac{3}{10}$	2	M1 for method to sum number of white chocolates, eg 4 + 4 + 1 (= 9) A1 $\dfrac{3}{10}$ or $\dfrac{9}{30}$ oe
(c)		0.48	2	M1 for 1 – (0.35 + 0.17) oe A1 0.48 oe
*23	$1155 \div 15 = 77$ $x + 2x + x - 7 = 77$ $4x - 7 = 77$ $4x = 84$ $x = 21$ OR $15x + (15 \times 2x) + 15(x - 7)$ $=1155$ $60x - 105 = 1155$ $60x = 1260$ $x = 21$	Redlands 21 St Samuels 42 Francis Long 14	5	M1 for $2x$ or $x-7$ M1 for $1155 \div 15$ (= 77) M1 (dep M2) for equation summing their three expressions to '77' A1 for 21,42 and 14 C1 for fully correct answer with correct labels OR M1 an expression for the cost of the pupils from Redlands M1 for expression for the cost of the pupils from either St Samuels or Francis Long M1 (dep M2) for equation summing their three expressions to 1155 A1 for 21,42 and 14 C1 for fully correct answer with correct labels
24		Loci drawn	3	B1 line parallel to BC and 3 cm from BC B1 arc drawn centre C with radius 4 cm B1 ft for shading a region below their horizontal line **and** inside their arc

PAPER: 1MA0_2F				
Question	**Working**	**Answer**	**Mark**	**Notes**
*25		No supported by working	4	M1 for $\pi \times 7$ (= 21.9 to 22) or $\pi \times 7 \times 2.54$ (= 55.5 to 56) M1 (dep) for a complete method that could lead to two figures that are comparable e.g. $\pi \times 7 \times 2.54$; $\pi \times 7$ and $50 \div 2.54$ A1 for correct comparable figures e.g. 55.5 to 56 (cm); 21.9 to 22 (in) and 19.6 to 19.7 (in) C1 (dep M2) for a correct conclusion based on their comparable figures OR M1 for $50 \div \pi$ (= 15.9 to 15.92) or $50 \div 2.54\pi$ (= 6.26 to 6.27) M1 (dep) for a complete method that could lead to two figures that are comparable e.g. $(50 \div \pi) \div 2.54$; $50 \div \pi$ and 7×2.54 A1 for correct comparable figures e.g. 6.26 to 6.27 (in); 15.9 to 15.92 (cm) and 17.7 to 17.8 (cm) C1 (dep M2) for a correct conclusion based on their comparable figures
26		172.1	4	M1 for $30^2 + 20^2$ or $900 + 400$ or 1300 M1 for $\sqrt{30^2 + 20^2}$ or $\sqrt{1300}$ (= 36(.0555)) M1 for a complete method to find the length of wire required e.g. $2 \times `36.1` + 2 \times 30 + 2 \times 20$ A1 172 – 172.2

Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5°
Measurements of length: ±5 mm

PAPER: 1MA0_2F			
Question		Modification	Notes
2	(a)	Diagram is enlarged.	
4		Diagram is enlarged.	
5	(c)	MLP only: *a* changed to *p*, *d* changed to *q*.	M1 for *p* or 6*q* A1 cao
7	(a)	Diagram enlarged. Angle arc put inside the angle size.	
	(b)	Diagram enlarged. Angle arc put inside the angle size. Braille only: base line given on diagram sheet. Part (c) added: 'Draw a line 8 cm long.'	

PAPER: 1MA0_2F			
Question		**Modification**	**Notes**
11		Diagram enlarged. Label for vertical axis placed above the axis. Right axis is labelled. 'Number of children': shading changed to dotty shading. Key moved to the top left.	
19	(b)	MLP only: c changed to p.	M1 for a correct operation to collect the c terms or the number terms on one side of the equation e.g. $2p - p + 5 = 8$, $2p + 5 - 5 = p + 8 - 5$ A1 cao
24		Rectangle has been widened so that AD and BC are 12 cm. In text, 8 metres has been changed to 10 metres.	B1 line parallel to BC and 3 cm from BC B1 arc drawn centre C with radius 5 cm B1 ft for shading a region below their horizontal line **and** inside their arc
25		Diagram is enlarged.	
26		Diagram is enlarged. 20 cm moved to the left. 30 cm moved to the top.	