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Mark Scheme (Results)

Summer 2016

Pearson Edexcel GCSE
In Mathematic A (1MA0)
Foundation (Non-Calculator) Paper 1F

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Summer 2016
Publications Code 1MA0_1F_1606_MS

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. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

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. Examiners should also 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 indicate within the table where, and which strands of QWC, are being assessed. 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.

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

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.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

10 Probability

Probability answers must be given a 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.

11 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.

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)

Guidance on the use of codes within this mark scheme
M1 – method mark 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: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		February	1	B1 cao
	(b)		Onions	1	B1 cao
	(c)		Lettuces	1	B1 cao
2	(a)		0.5	1	B1 cao
	(b)		$\frac{3}{10}$	1	B1 for $\frac{3}{10}$ or equivalent fraction
	(c)		80	1	B1 cao
	(d)		57.6	1	B1 cao
	(e)		$\frac{1}{3}$	2	M1 for writing over a single denominator eg $\frac{7-3}{12}$ or for $\frac{4}{12}$ A1 cao
3	(a)		A, D	1	B1 cao
	(b)		B	1	B1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*4	(a)		Statement (supported)	3	M1 for method to find total visitors for 2009 or for 2010 eg 185+108+133+231+124 (=781) or 177+120+128+230+118 (=773) A1 for 781 **and** 773 (or 781000 **and** 773000) C1 ft (dep on M1 and two totals) for clearly stating 2009 as their answer or ft from their two totals. OR M1 for method to find difference in the number of visitors for each castle eg 8, −12, 5, 1, 6 or −8, 12, −5, −1, −6 A1 for correct total net difference 8 or −8 C1 (dep M1 and a net difference) for clearly stating 2009 as their answer or ft from their net difference.
	(b)(i)		09 36	2	B1
	(ii)		54		B1 cao
	(c)		09 21	1	B1
5	(a)		unlikely	1	B1 cao
	(b)		cross at $\frac{1}{2}$	1	B1 for cross at $\frac{1}{2}$
	(c)		cross at O	1	B1 for cross at O

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
6	(a)		30	3	M1 for 21 × 6 (= 126) or 32 × 6 ÷ 2 (=96) M1 for 21 × 6 – (32 × 6 ÷ 2) A1 cao OR M1 for 21 × 2 – 32 (= 10) M1 (21 × 2 – 32) × 6 ÷ 2 A1 cao
	(b)	(C, F) (C, E) (C, T) (L, F) (L, E) (L, T)	list of 6 pairs	2	B2 for six correct and distinct pairs with no repeats (B1 for at least 3 correct pairs and no incorrect pairs)
7	(a)		parallelogram	1	B1 cao
	(b)		Sketch of cuboid	1	B1 for sketch of cuboid
8	(a)		15	1	B1 cao
	(b)		6	1	B1 cao
	(c)		3	2	M1 for intention to subtract 7 from both sides or divide all terms by 2 as a first step A1 cao
*9			1 cm^2	3	M1 for method to find the area of A or area of B eg for A 6 + 3 (=9), 12 – 3 (=9) eg for B 4 + 4 (=8), 12 – 4 (=8) A1 for 9 and 8 C1 (dep M1) for 1cm^2 or ft from their 2 areas

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
10	(a)		6	1	B1 cao
	(b)		44	1	B1 cao
	(c)		33, 11, 4 or 4, 11, 33 or 8, 4, 6 or 6, 4, 8	1	B1 cao
11	(a)		24	3	M1 for 4 × 10 (= 40) M1 for operations –"40" then ÷ 7 in correct order or 20 A1 cao
	(b)		35*e*	2	M1 for 7 × *e* or 5 × *e* or 7 × 5 × *e* oe A1 for 35*e* (ignore £ signs)
12			40 m*l* or 0.04 *l*	3	M1 for 12 × 330 (= 3960) M1 for 4 × 1000 – (12 × 330) (= 40) A1 for 40 m*l* OR M1 for 12 × $\frac{330}{1000}$ (= 3.96) or digits 396 M1 for 4 – (12 × $\frac{330}{1000}$) (= 0.04) A1 0.04 *l*

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
13	(a)		42	5	M1 for 300 × 3 (= 900) or 150 ÷ 3 (= 50) M1 (dep) for "900" ÷ 150 (= 6 jars) or 300 ÷ "50" (= 6 jars) M1 for 500 ÷ 160 (= 4 boxes) M1 for "6" × 4.00 (=24) + "4" × 4.50 (18) A1 cao
	(b)		168	3	M1 for 6 × 30 M1 (dep) for "180" – 12 A1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*14	(a)		4.5	1	B1 cao
	(b)		Comparison (supported)	3	M1 for correct use of graph to convert 0°F into °C A1 for –17.5 to –18 C1 (dep M1) for correct comparison of relative temperatures with units correct. eg freezer is warmer with –18°C or ft using their converted temperature with correct units. OR M1 for correct use of graph to convert −10°C into °F A1 for 14 C1 (dep M1) for correct comparison of relative temperatures with units correct. eg freezer is warmer with 14°F or ft using their converted temperature with correct units.
15			Data collection sheet	3	B1 for a fruit type column. B1 for tally column. B1 for frequency column.
16	(a)		30	1	B1 cao
	(b)		120	2	M1 for $\frac{15}{100} \times 800$ oe A1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
17	(a)		3 (5) 7 (9) 11, 13	2	B2 for 3, 7, 11, 13 (B1 for 2 or 3 correct values)
	(b)		Graph drawn	2	M1 (may ft from (a) if B1 awarded) for at least 5 points correctly plotted A1 for correct graph from $x = 0$ to $x = 5$
18	(a)		$\frac{120}{360}$	2	M1 for 360 – 45 – 105 – 90 (= 120) oe A1 for $\frac{120}{360}$ oe OR M1 for measuring angle as 118 – 122 A1 ft for $\frac{"120"}{360}$ oe
	(b)		18000	2	M1 for 4500 × 4 oe A1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
19	(a)(i) (ii)		12 8	2	B1 cao B1 cao
	(b)		Sketch of net	2	M1 for attempt to draw net with 2 of the following 3 features: 6 rectangles 2 polygon faces with at least 5 edges a net with correct connections to give at least one vertex with 3 faces meeting. A1 for a correct net
	c)		750 cm^3	3	M1 for 30 × 25 A1 for 750 B1 (indep) for cm^3
20	(a)		p^7	1	B1 cao
	(b)		$-5m + 10$	2	M1 for $3m + 12$ or $-8m - 2$ or $8m + 2$ A1 for $-5m + 10$ or $10 - 5m$ or $-5(m - 2)$ or $5(2 - m)$
	(c)		$n(n - 7)$	1	B1 cao

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
21	(a)		250	2	M1 for 400 ÷ 8 or $\frac{5}{8}$ oe A1 cao
	(b)		60	3	M1 for $\frac{16}{80}$ or $\frac{300}{80}$ oe M1 (dep) for "$\frac{16}{80}$" × 300 or "$\frac{300}{80}$" × 16 A1 cao
22	(a)		Correct shape	2	B2 for correct reflection with vertices (–4, 2) (–6, 3) (–6, 7) (–4, 6) (B1 for reflection in a vertical or horizontal line)
	(b)		Correct shape	2	B2 for correct rotation with vertices (–1, 3) (–5, 3) (–6, 5) (–2, 5) (B1 for rotation of 90° clockwise about (0,1) **or** correct orientation fully in correct quadrant)
23	(a)		Reasons	2	B2 for 2 reasons from: no time frame, vague response boxes, not exhaustive eg "always" (B1 for 1 reason)
	(b)		Question written	2	B1 for a suitable question which includes a time frame (the time frame could appear with the response boxes) B1 for at least 3 non-overlapping exhaustive response boxes with no use of inequality symbols

PAPER: 1MA0/1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*24			Conclusion (supported)	5	M1 for finding the area of one rectangle which is not 6 × 10 eg 2×2.5 (=5) or 4×10 (=40) or 2.5 × 6 or 5 × 2 M1 for a complete method to find the total area eg 5+5+40 or 60−10 (=50) M1 for a complete method to find the number of tins needed eg "50" ÷ 5 ÷ 2.5 (=4) OR for a complete method to find the number of litres needed. eg "50" ÷ 5 (=10) OR for a complete method to find the area covered by 3 tins eg 3×2.5×5 (=37.5) A1 for 50 (m^2) **and** (4 tins needed) **or** for 10 (litres) **and** 7.5 (litres) **or** for 50(m^2) **and** 37.5(m^2) C1 (dep M2) for a conclusion supported by their calculations

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: ±5º
Measurements of length: ±5 mm

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
1		3rd row in table for beans removed	Standard mark scheme
3	(a)	Background grid has been removed. Labels added above the shapes. MLP only: Shape B and D exchanged.	B1 for A, B
3	(b)	Background grid has been removed. Labels added above the shapes. MLP only: Shape B and D exchanged.	B1 for D cao
4	(b)	Braille only: Coombe Florey row removed.	B1 cao
5		Diagram enlarged.	Standard mark scheme
	(b)	Probability scale enlarged. The wording 'with a cross (x)' has been removed.	Standard mark scheme
	(c)	Probability scale enlarged. The wording 'with a cross (x)' has been removed	Standard mark scheme
7	(a)	Diagram enlarged	Standard mark scheme
	(b)	Model of a cuboid provided for all candidates. Diagram enlarged and also provided for MLP. Wording changed 'Name the solid shape shown.' Answer line added	B1 for cuboid

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
9		Grid enlarged. Shading changed to dotty shading. Label added above the shapes. 'centimetre grid' replaced by'grid of squares'. Wording added 'Each square on the grid represents a one centimetre square.'	Standard mark scheme
13	(a)	Diagrams removed.	Standard mark scheme
	(b)	Diagrams removed.	Standard mark scheme
14		Grid enlarged. Small squares removed.	Standard mark scheme
17	(a)	Wording added above the table 'There are four spaces to fill.'	Standard mark scheme
	(b)	Grid enlarged. Right axis labelled.	Standard mark scheme
18	(a)	Diagram enlarged.	Standard mark scheme
	(b)	Diagram enlarged.	Standard mark scheme
19	(a)	Model provided for all candidates. Diagram enlarged and also provided for MLP	Standard mark scheme
	(b)	Question changed: 4 nets drawn A, B, C and D. Wording removed 'In the space below, sketch a net of the prism.' Wording added 'Which shape A, B, C or D shows the net of the prism.'	B2 for B cao
	(c)	Model provided for all candidates. Diagram enlarged and also provided for MLP.	Standard mark scheme
21		Diagram enlarged. Dot added to the centre. Arrow head changed to an open headed arrow. Left side of arrow removed.	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
22	(a)	Reflection drawn on the diagram. Shading changed to dotty shading. Wording changed 'It shows shape P and shape Q given on a grid. Describe fully the transformation that maps shape P onto shape Q.' Grid enlarged. y axis is cut at -4. 3 answer lines given.	B1 for reflection B1 for $x = -1$
	(b)	Rotation drawn on the diagram. Wording changed 'It shows shape P and shape S given on a grid. Describe fully the single transformation that maps shape P onto shape S.' 3 answer lines given.	B2 for all three of: Rotation 90° anti-clockwise Centre (0, 1) (B1 for two)
24		Diagram enlarged. Braille only: Plan of floor labelled ABCDEFGH as 1F Q24.	Standard mark scheme

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