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Mark Scheme (Results)

November 2014

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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)		6	1	B1 cao
	(b)		14	1	B1 cao
	(c)		Reflection	1	B1 cao
2	(a)		5	1	B1 cao
	(b)		Saturday	1	B1 cao
	(c)	4+6+5+2+4+7+6 = 34 5+3+4+3+4+6+3 = 28 34 – 28 -1 + 3 + 1 + -1 + 0 + 1 + 3	6	2	M1 for intention to find the total hours for Skegness or for Blackpool. A1 cao OR M1 for intention to find differences for each day. A1 cao
3	(a)		0.7	1	B1
	(b)		45	1	B1 cao
	(c)		$\frac{3}{10}$	2	M1 for $\frac{30}{100}$ or equivalent fraction A1 cao
	(d)		2.74	1	B1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		Perpendicular	1	B1 for a perpendicular line drawn
	(b)		Circle radius 4cm	1	B1 for a circle of radius 4 cm drawn
	(c)		Isosceles triangle	1	B1 for an isosceles triangle
	(d)		Quadrilateral	1	B1 for quadrilateral with exactly two right angles
5	(a)		winter	1	B1 cao
	(b)		amaryllis	1	B1 cao
	(c)(i)		Mark at 0	2	B1 for mark at 0
	(ii)		Mark at $\frac{1}{2}$		B1 for mark at $\frac{1}{2}$
6	(a)		85.50	2	M1 for 2×12.75 + 3×20 or 12.75+3×20 (=72.75) A1 for 85.5(0)
	(b)		16	3	M1 (ft from (a)) for subtracting cost of 1 or 2 or 5 lessons from 305.50 305.50 – "2×12.75" (= 280) or 305.50 – "85.50" (=220) or 305.50 – 12.75 (=292.75) M1 for "280" ÷ 20 (= 14) or "220 ÷ 20 (= 11) or 292.75 ÷ 20 A1 cao OR M1 for adding 20s to cost of 1 or 2 or 5 lessons eg 12.75 or "2×12.75" or "85.50" and intention to add on 20s or 14×20 or 11×20 M1 for "2×12.75" or "85.50" and adding 20s to within 20 of 305.50 A1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
7	(a)		Newcastle	1	B1 cao
	(b)		3	1	B1 cao
	(c)		–1	2	M1 for intention to find middle of –5 and 3 eg, may see –5 and 3 identified on a correct number line **or** (–5 + 3) ÷ 2 **or** –5 + (3 – –5) ÷ 2 **or** 3 – (3 – –5) ÷ 2 A1 cao
8	(a)		5, 3	1	B1 cao
	(b)		2, 4	1	B1 cao
	(c)		Point marked	1	B1 cao
9	(a)		14 cm or 0.14 m	3	M1 for 3 × 32 + 2 × 45 (=186) oe M1 (indep) for subtraction of "wood needed" from 2 m using consistent units eg 200 – "186" (=14) or 2 – "1.86" (=0.14) A1 for 14 cm, 0.14 m or 140 mm
	(b)		44	3	M1 for 320 ÷ 14 (= 22.8... or 23) or 2 × 320 ÷ 14 (= 45.7... or 46) M1 (dep) for evidence of truncating "total DVDs" **down** to integer value, e.g. 22.8... to 22 or 45.7... to 45 A1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
10	(a)		1	1	B1 cao
	(b)		1.8	2	M1 for adding all 10 scores **and** dividing by 10 eg 18 ÷10 A1 cao
	*(c)		Greater and explanation	2	M1 (ft from (b)) adding all 12 scores and dividing by 12 or for comparing 4 and 2 with '1.8' or comparing 4 + 2 with 2 × '1.8' C1 (ft from (b)) for correct conclusion and correct explanation NB: if M1 A1 awarded in (b) comparison must be with 1.8
11		06 57 06 57 07 19 07 19 07 10 07 10 07 33 07 33 07 45 07 58 07 45 07 58 08 50 09 27 08 50 09 27 0920 09 57 09 20 09 57	Fully correct schedule	3	B1 for 06 57 or 07 19 with correct arrival time in Peterborough **or** for 07 45 or 07 58 with associated arrival time in York B1 for fully correct departure times and arrival times for 2 train journeys that enable travel from Stamford to York to arrive by 0930 B1 ft for arrival time at meeting 30 mins after York arrival
12	(a)		22	1	B1 cao
	(b)		18	1	B1 cao
	(c)		3.4	2	M1 for intention to subtract 7 from both sides or divide all terms by 5 as a first step. A1 for 3.4 oe
13			Triangle drawn	2	M1 for angle of 35° or for line 5.5 cm long A1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
14	(a)			1	B1 cao
	(b)		17, 21	1	B1 for 17, 21 cao
	(c)		$4n + 1$	2	B2 for $4n + 1$ oe (B1 for $4n + k$, $k \neq 1$, or k is absent or $n = 4n + 1$)
	(d)		12	2	M1 for $(50 - 1) \div 4$ **or** evidence of using their formula from part (c) if in the form an+b **or** repeated addition of 4 (at least 3) ft table in part (b) **or** 49 seen A1 cao
*15			148°	4	M1 for (angle BDC =) 360 – 250 (=110) M1 (dep) for 180 – (180 – '110' – 38) (= 148) or for '110' + 38 (= 148) C2 (dep on M2) for $x = 148$ with full reasons, relevant to the complete correct method used, for example: Angles at a point add up to 360° **and** angles in a triangle add up to 180° **and** angles on a straight line add up to 180°; Or Angles at a point add up to 360° **and** exterior angle of a triangle is equal to the sum of the interior opposite angles or (C1 (dep on at least M1) for one reason relevant to correct method)

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
16			89.3855	2	M1 for 3.8 or 23.5225 or 18.43 or 36.86 or 89.3855 seen only rounded or truncated to at least 3 sig figs A1 cao
17	(a)		**14** 13 **20** 47 **12** **7** 34 **53** 26 20 **54** 100	3	B3 for fully correct table (B2 for 3 or 4 or 5 correct entries) (B1 for 1 or 2 correct entries)
	(b)		$\frac{13}{47}$	2	M1 for $\frac{13}{n}$, $n > 13$ or for $\frac{n}{47}$, $n < 47$ A1 for $\frac{13}{47}$ (or 0.27 - 0.28 or 27% - 28%)
18			80	3	M1 for intention to find missing side length 10 – 4 (= 6) or perimeter of 4 rectangles eg 4 × (10 + 4 + 10 + 4) (=112) M1 for complete method to find perimeter eg 4 × (10 + 4 + '6') or '112' – 8 × 4 A1 cao

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
19			36	4	M1 for $\frac{3}{5} \times 240$ (= 144) M1 for $\frac{1}{4} \times 240$ (= 60) M1 (dep on M2) for 240 – ('144' + '60') A1 cao OR M1 for $\frac{3}{5} + \frac{1}{4}$ or $\frac{17}{20}$ oe M1 for 1 – '$\frac{17}{20}$' (=$\frac{3}{20}$) or '$\frac{17}{20}$'× 240 (= 204) M1 (dep on M2) for '$\frac{3}{20}$'× 240 or 240 – '204' A1 cao
20	(a)		360	2	M1 30 ÷ 10 (= 3) or 120 ÷ 10 (=12) or 120 + 120 + 120 oe A1 cao
	(b)		25	2	M1 for $\frac{750}{300}$ (=2.5) oe A1 cao
21	(a)		Relationship	1	B1 for description of relationship eg "As the length of the pine cone increases the width increases" oe (accept positive correlation)
	(b)		6.1 to 6.4	2	M1 for a single straight line segment with positive gradient that could be used as a line of best fit or a vertical line from 8.4 or a point at (8.4, *y*) where *y* is from 6.1 to 6.4 A1 for given answer in the range 6.1 to 6.4

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
22			2.10 euros or £1.81	3	M1 for 2.5 × 1.16 (= 2.9) M1 (dep) for 5 – "2.9" (=2.1) A1 for 2.1(0) euros OR M1 for 5 ÷ 1.16 (= 4.31...) M1 (dep) for "4.31" – 2.50 (=1.81) A1 for £1.81
23	(a)		$3(x + 2)$	1	B1 cao
	(b)		$7y – 16$	2	M1 for any intention to expand a bracket eg $5y – 10$ or $2y - 6$ A1 cao
*24			Decision (No the attendance target was not met)	3	M1 for attempting to find total number of students or 1210 seen M1 for $\frac{'1092'}{'1210'} \times 100$ oe or $\frac{'118'}{'1210'} \times 100$ oe C1 for correct decision with 90.(2479...) or correct decision with 6 and 9.(752...) **OR** M1 for attempting to find total number of students or 1210 seen M1 for $\frac{94}{100} \times$ '1210' oe C1 for correct decision with 1137 (.4) and 1092 or correct decision with 72(.6) and 118 **OR** M1 for a correct % method for one year, e.g. $\frac{192}{208} \times 100$ or $\frac{94}{100} \times 208$ M1 for a correct % method for each year C1 for correct decision with 92.(30...), 90.(87...), 89.(31...), 89.(27...), 89.(91...) or 195(.5..), 226.(9…), 246.(2..), 245.(3…), 223.(7…)

PAPER: 1MA0_2F					
Question	**Working**	**Answer**	**Mark**	**Notes**	
25	<table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>y</td><td>-7</td><td>-5</td><td>-3</td><td>-1</td><td>1</td><td>3</td></tr></table>	Straight line from (–2, –7) to (3, 3)	4	**(Table of values)** C1 for axes scaled and labelled M1 for at least 2 correct attempts to find points by substituting values of x M1 ft for plotting at least 2 of their points (any points plotted from their table must be plotted correctly) A1 for correct line between $x = -2$ and $x = 3$ **(No table of values)** C1 for axes scaled and labelled M1 for at least 2 correct points with no more than 2 incorrect points M1 for at least 2 correct points (and no incorrect points) plotted OR line segment of $y = 2x - 3$ drawn A1 for correct line between $x = -2$ and $x = 3$ **(Use of $y = mx+c$)** C1 for axes scaled and labelled M1 for line drawn with gradient of 2 OR line drawn with a y intercept of –3 M1 for line drawn with gradient of 2 AND with a y intercept of –3 A1 for correct line between $x = -2$ and $x = 3$ [SC B2 (indep of C1) for the correct line between $x = 0$ and $x = 3$, ignore any additional incorrect line segment(s)]	

PAPER: 1MA0_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*26			No + reason	4	M1 for intention to find the circumference eg 140 × π (= 439.82...) A1 for circumference = 439 – 440 M1 (dep on previous M1) for a complete method shown that could arrive at two figures that are comparable, eg "C"÷60×12 (=87.96..), 90÷12×60 (=450) , 90×60 ÷ C"(=12.27), "C"÷90×12 (=58.64..) C1 (dep on both M marks) for No and explanation that shows a correct comparison eg only 84 people could sit around the tables or that 13 tables are needed or that 480 cm is needed.

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_2F			
Question		**Modification**	**Notes**
1		2 cm grid – wording added 'each square represents a one centimetre square' –this is also on diagram	
2		Right axis labelled	
4	(a) (b (c) (d)	2 cm grid 4 cm changed to 5 2 cm grid 2 cm grid	
5	(c)	Probability scales lengthened	
7		No map Information put into a table	
13		5.5 cm side changed to 8 cm 35° changed to 45°	M1 for angle of 45° or for line 8 cm long A1 cao
23	(b)	*x* changed to *y*	B1 for 3(*y*+2)

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