edexcel

Mark Scheme (Results)

Summer 2014

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

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

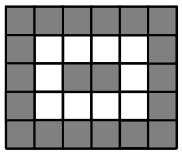
Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1)

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)		25, 52, 55, 102, 120	1	B1 cao
	(b)		–5, –2, 0, 3, 6	1	B1 cao
	(c)		0.06, 0.6, 0.603, 0.63, 0.633	1	B1 cao
2	(a)		red	1	B1 cao
	(b)		unlikely	1	B1 cao
	(c)		impossible	1	B1 cao
3			55	3	M1 for 29 + 17 + 19 (=65) or 34 + 43 + 43 (=120) M1 for "120" – "65" A1 cao OR M1 for 34 – 29 (=5) or 43 – 17 (=26) or 43 – 19 (=24) M1 for "5" + "26" + "24" A1 cao OR M1 for three other consistent differences found M1 adding their differences A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		19	1	B1 cao
	(b)		203	1	B1cao
	(c)		Explanation	1	B1 for any correct reason, e.g. terms are all odd but 372 is even or use of nth term $4n - 1$ or not 1 less than a multiple of 4
5	(a)		3	1	B1 for 3, accept – 3
	(b)		1	2	M1 for evidence of adding all 7 or all 6 non zero temperatures **and** dividing by 7 A1 cao
6	(a)		0908	1	B1 cao
	(b)		15	1	B1 cao
	(c)		57	1	B1 cao
7	(a)		12	2	M1 for $48 \div 4$ or $48 \times \frac{1}{4}$ oe A1 cao
	(b)		250	3	B1 for 750 M1 for "750" ÷ 3 oe A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
8	(a)		Pentagon	1	B1 cao
	(b)		Parallel lines marked	1	B1 cao
	(c)		Acute	1	B1 cao
	(d)		10 cm^2	2	B1 for 10 B1 (indep) for cm^2
*9			Diagram or chart	4	M1 for key or suitable labels to identify Majorca and Crete M1 for 5 correct month labels OR a linear scale M1 for diagram or chart (combined or separate) set up for comparison, correctly showing data for at least three months C1 for fully correct diagram or chart to include all axes correctly scaled and labelled
10	(a)		2	4	M1 for 20 × 2 + 30 (=70) M1 for 20 × 1.8 + 32 (=68) M1 (dep on M1) for "70" – "68" A1 cao
	(b)		40	3	M1 for 110 – 30 ÷ 2 or 110 = ? × 2 + 30 or 110 – 30 or ÷ 2 seen as second operation M1 for "(110 – 30)" ÷ 2 A1 cao NB accept reverse flowcharts for inverse operations SC if exact rule used: B2 for "(110 – 32)" ÷ 1.8

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
11	(a)		$\frac{7}{15}$	2	M1 for $\frac{14}{30}$ oe A1 cao
	(b)		2	1	B1 cao
	(c)			2	M1 for at least 3 of the 5 rows correct A1 cao SC if M0 scored: B1 for a symmetrical pattern with more than 6 squares shaded but not all shaded.
12	(a)		$3ac$	1	B1 cao
	(b)		p^3	1	B1 cao
	(c)		$8x - 7y$	2	M1 for $8x$ or $\pm 7y$ A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
13	(a)		Five thousand six hundred	1	B1 cao
	(b)		Rectangle drawn	2	B2 for fully correct diagram (B1 for one line of correct length within a rectangle)
	(c)		13	3	M1 for the length of one side of rectangle, e.g. 44 (mm) or 27 (mm) ±2mm (allow use of cm) M1 for 6.5(0) or size 1 clearly indicated A1 for 13(.00)
	(d)		Working shown and compared to 8 weeks	2	M1 for 13.50 × 8 or 13.50 × 7 oe or repeated subtraction of 13.50 from 100 at least 7 times A1 for arriving at a correct figure they can compare with £100 in one step eg 108, 94.5(0), 5.5(0) or -8 OR M1 for 100 ÷ 8 A1 for 12.5(0) OR M1 100 ÷ 13.50 = 7.4 A1 for 7

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
14	(a)		60	2	M1 for 300 ÷ 5 or 3 ÷ 5 oe A1 cao
	(b)		25p or £0.25	3	M1 for 100 ÷ 5 (= 20) M1 for "20" ÷ 80 or "20" × 100 ÷ 80 A1 for 25p or £0.25 OR M1 for 80 × 5 (= 400) M1 for 100 ÷ "400" or 100 × 100 ÷ "400" A1 for 25p or £0.25 OR M1 for 100 ÷ 80 (= 1.25) M1 for "1.25" ÷ 5 or "1.25" × 100 ÷ 5 A1 for 25p or £0.25 SC B2 for answer of 25 or 0.25
15			200	3	M1 for $20 \times 40 \times 20$ (=16000) or $5 \times 8 \times 2$ (=80) M1 (dep) for "16000" ÷ "80" A1 cao OR M1 attempt one division (eg 20 ÷ 5), may be implied by marks or number on one edge of diagram M1 (dep) for "(20 ÷ 5)" × "(40 ÷ 8)" × "(20 ÷ 2)" A1 cao

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*16		base angles of isosceles triangle are equal **and** angles on a straight line add up to 180° **and** angles in a triangle add up to 180° OR base angles of isosceles triangle are equal **and** angles in a triangle add up to 180° OR base angles of isosceles triangle are equal **and** exterior angle of a triangle is equal to the sum of the interior opposite angles	60° with reasons	4	B1 for angle *ADB* =25 can be shown on the diagram M1 for a complete method to find *x* C2 (dep 2 previous marks) for 60 with full reasoning seen (C1 (dep 1 previous mark) for one reason) QWC: Reasons must be appropriate to the method shown.
17			168, 72, 120	4	M1 for evidence of method for at least one angle (could be implied by working or one correct angle on pie chart or in table) A2 for all angles drawn correctly ±2° (A1 for at least one angle drawn correctly or all angles correct in table) B1 for sectors labelled with results (dependent on at least one angle drawn correctly and exactly three sectors)

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
18	(a)		-7	2	M1 for 3×-5 (= -15) **and** 4×2 (=8) A1 cao
	(b)(i)		$10p$	2	B1 for $10p$ oe
	(b)(ii)		$10p - 7$		B1ft for "$10p$" – 7 Note "$10p$" MUST be an algebraic expression
19			$\frac{4}{15}$	2	M1 for attempting to use a suitable common denominator with at least one of the two fractions correct A1 for $\frac{4}{15}$ oe
20		<table><tr><td></td><td>Sq</td><td>G</td><td>S</td><td>Tot</td></tr><tr><td>F</td><td>2</td><td>4</td><td>15</td><td>21</td></tr><tr><td>M</td><td>6</td><td>14</td><td>9</td><td>29</td></tr><tr><td>Tot</td><td>8</td><td>18</td><td>24</td><td>50</td></tr></table>	4	4	M1 for a correct first step which results in a value that could be in the table: eg. 50 – 18 – 8 (= 24) or 50 – 21 (= 29) or 8 – 6 (= 2) M1 for correct method to find a second value that could be in the table using their first value eg "29"-9-6 (=14) or "24"-9 (=15) M1 for a fully correct and complete method. A1 cao
21			25.60	4	M1 for a correct method to find $\frac{1}{3}$ of 24 (=8) or $\frac{2}{3}$ of 24 (=16) M1 for a correct method to find 60% (= 7.2) or 40% (= 4.8) of 12 or 60% (= 14.4) or 40% (= 9.6) of 24 M1 (dep on at least M1) for a method to find the sum of their discounted adult ticket + 2 × their discounted child ticket A1 25.6(0)
22			Question given	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**
23	(a)		$2m^2 + 6m$	1	B1 cao
	(b)		$3xy(y - 2)$	2	B2 for $3xy(y - 2)$ (B1 for $3x(y^2 - 2y)$ or $3y(xy - 2x)$ or $xy(3y - 6)$ or $3xy$(a two term algebraic expression))
*24			3	4	M1 for attempt to calculate at least one area eg 10×7 (=70) or 16×10 (=160) M1 for a method to find the total area (=124) M1 (dep on M1) for "124" ÷ 36 C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations Or M1 for an area of 36m² drawn with dimensions shown M1 for 3 areas of 36m² drawn with dimensions shown M1 for method to find the area left (=16) C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations
25			Shape drawn	2	B2 for shape with vertices at (0, –1), (–1, –3), (–2, –3), (–2, –1) (B1 for rotation of 180° about the wrong centre)

PAPER: 1MA0_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
*26		1.18 ÷ 4 = 0.295 (118 ÷ 4 = 29.5) 1.74 ÷ 6 = 0.29 (174 ÷ 6 = 29) 1.18 ÷ 2 = 0.59 1.74 ÷ 3 = 0.58 1.74 × 4 = 6.96 1.18 × 6 = 7.08 1.74 × 2 = 3.48 1.18 × 3 = 3.54 1.18÷2×3=1.77 1.74÷3×2=1.16 4÷1.18=3.3(....) 6÷1.74=3.4(…)	6 pints	3	M1 for division of price by quantity for both bottles or division of quantity by price for both bottles or a complete method to find the price of the same quantity of milk. A1 for two correct values that could be used for a comparison C1 ft (dep on M1) for comparison of their values with a correct conclusion.

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**
Q07		scales are simplified	Standard mark scheme
Q08	(a)	dotted grid kept but made a 2 cm grid	Standard mark scheme
Q08	(d)	2 cm solid grid. Wording added "Each square on the grid represents a one centimetre square".	Standard mark scheme
Q09		1 ½ cm grid. 14 x 14 squares	Standard mark scheme

PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q11	(a)	2 cm squares – dotty shading	Standard mark scheme
	(b)	2 cm squares – dotty shading – same as part (a). A shape is provided.	Standard mark scheme
	(c)	2cm squares – dotty shading	Standard mark scheme
Q13		Table size 1: 60mm x 20mm size 4: 90mm x 120mm	
	(b)	Changed to 90mm by 120mm rectangle	Apply mark scheme to the drawing of this size of rectangle
Q13	(c)	The box for David's advert is 60mm by 20mm – no writing inside	Standard mark scheme
Q15		2 models as well as a diagram	Standard mark scheme

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PAPER: 1MA0_1F			
Question		**Modification**	**Notes**
Q17		Frequencies changed: 25, 15, 20 Pie chart 9cm radius marked off in 10 degree sections on the circumference.	Angles are now 150°, 90°, 120°
Q18	(a)	x changed to e, y changed to f	Standard mark scheme
Q24		Braille only: diagram labelled A – F clockwise from the top left	Standard mark scheme

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