

Mark Scheme (Results)

November 2013

Pearson Edexcel GCSE
In Mathematics Linear (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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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		157.50	3	M1 $50 \times 3 (=150)$ or $2.5 \times 3 (=7.5)$ or $50 + 2.5 (=52.5)$ M1 "150" + "7.50" or $3 \times "52.5"$ oe (=157.5) A1 cao SC B1 for final answer of 152.5(0) if M0 awarded
2	(a)	8	1	B1 cao
	(b)	10	1	B1 cao
	(c)	$1\frac{3}{4}$ circles	1	B1 cao
3	(a)(i)	8 40 oe	2	B1 for 8 40 oe
	(ii)	9 40 oe		B1 for 9 40 oe
	(b)	15 20	1	B1 cao
4		26	2	M1 for correct substitution into expression $4 \times 5 + 2 \times 3$ A1 cao
5	(a)(i)	23	2	B1 cao
	(ii)	284		B1 cao
	(b)(i)	71+95 or 91+75	2	B1 for showing addition of 71 and 95 or 91 and 75
	(ii)	166		B1ft for the sum of their two numbers given provided they used only the digits 5, 1, 7 and 9 exactly once each

PAPER: 1MA0_1F					
Question		Working	Answer	Mark	Notes
6	(a)		Cross at $\frac{1}{4}$	1	B1 for cross within overlay
	(b)		Cross at $\frac{1}{2}$	1	B1 for cross within overlay
	(c)		Cross at 0	1	B1 for cross within overlay
7	(a)(i)		6	3	B1 cao
	(ii)		12		B1 cao
	(iii)		8		B1 cao
	(b)		120	2	M1 $10 \times 3 \times 4$ A1 cao
8	(a)		10	1	B1 cao
	(b)		16	1	B1 cao
	(c)		-11	1	B1 cao
	(d)		17	1	B1 cao
	(e)		$12 - 2 \times (3 + 1)$	1	B1 cao
	(f)		Explanation/ reason	1	B1 Correct explanation of equivalence eg: Indication that the same operation needs to be applied to both numerator and denominator. Correct shading on diagrams to demonstrate 1 quarter and 2 eighths Conversion of both fractions to a common format 2 is $\frac{1}{4}$ of 8 oe

PAPER: 1MA0_1F				
Question	Working	Answer	Mark	Notes
9		35	1	B1 cao
		Thursday	1	B1 for Thurs(day)
	Jack $25+30+45+30=130$ Graham $40+25+35+40=140$	Graham and reason	3	M1 for intention to add either Jack's total or Graham's total (allow one error reading from chart) A1 for 130 and 140 or 2(h) 10 and 2(h) 20 with working C1 (dep on M1 and two totals) for clearly stating Graham as their answer or ft from their 2 totals. OR M1 for the intention to find the difference between the times on each of the 4 days A1 for 10 or -10 with working C1 (dep on M1 and a net difference) for clearly stating Graham as their answer or ft from their difference [SC B1 for Graham with 130 and 140 or 10 if M0 scored]
10		SB ST SV PB PT PV MB MT MV	2	M1 for at least 3 correct pairs A1 for all 9 combinations with no extras or repeats
11		$4b$	1	B1 for $4b$ oe
		$5n$	1	B1 for $5n$ cao
		$3cd$	1	B1 for $3cd$ oe algebraic simplified form
		$5x+6y$	2	M1 $5x$ or $6y$ A1 cao

PAPER: 1MA0_1F					
Question		Working	Answer	Mark	Notes
12	(a)		2	1	B1 cao
	(b)		0,1,2	2	M1 for showing 3,4,6,7 as consecutive numbers in an ordered list. Ignore numbers before or after 3,4,6,7 and allow an extra 4 written within the list (3,4,4,6,7) A1 fully correct answer in any order
13			4	2	M1 for correct order of operations +7 then $\div 3$ A1 cao OR M1 for forming the equation $3x - 7 = 5$ and showing intention to add 7 to both sides or divide each term by 3 as a first step A1 cao NB Embedded solutions get M1 mark provided the equation or working is complete.
14	(a)		7	1	B1 for 6.8-7.2
	(b)(i)		78	2	B1 cao
	(ii)				B1 for <u>vertically opposite</u> angles are <u>equal</u> or clear indication of 2 step process and <u>angles</u> on a <u>straight line</u> add up to <u>180°</u>

PAPER: 1MA0_1F				
Question	Working	Answer	Mark	Notes
*15		Yes with reasons	4	<p>M1 for $14 \times 100 (= 1400)$ or $18 \times 100 (= 1800)$ or $230 + 50 + 30 (= 310)$ M1 for "1400" + "310" or complete correct method to find 2 other comparable amounts A1 for £1710 total or £17.1(0) ticket price or £90 or £310 and £400 C1 for a clear statement and conclusion from their two correct comparable figures.</p> <p>OR</p> <p>M1 for $230 \div 100$ or $50 \div 100$ or $30 \div 100$ M1 "2.30" + "0.50" + "0.3" + 14 A1 £17.1(0) C1 for a clear statement and conclusion from their two correct comparable figures.</p>
16		$\times 2$ enlargement	2	<p>M1 for quadrilateral with at least 2 correct sides A1 cao</p>
17		0.6, 0.606, 65%, $\frac{2}{3}$	2	<p>M1 for attempt to convert all to the same form for comparison with at least one correct conversion (Accept at least 0.66, 0.67 66%, 67% or better for $\frac{2}{3}$) A1 for a correctly ordered list (in any form) SC B1 for correct numbers in reverse order if no method seen.</p>
18	(a)	120	2	<p>M1 4×30 A1 cao</p>
	*(b)	<p>Tuesday 125 miles > 120 miles 200 km > 192 km</p>	3	<p>M1 for $200 \div 8 \times 5$ or "120" $\div 5 \times 8$ A1 for 125 or 192 or ft from "a" C1 (dep M1) Correct conclusion for their calculated figure with its correct units stated. of "125" <u>miles</u> and "a" miles or "192" <u>km</u> and 200 km</p>

PAPER: 1MA0_1F					
Question		Working	Answer	Mark	Notes
19	(a)		14	1	B1 cao
	(b)		5	2	M1 for intention to subtract 4 from each side or divide each term by 3 as a first step or embedded answer. A1 cao
20			Tally chart	3	B3 for a table with all 3 aspects: Column/row heading 'months or list of at least 3 months 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)
21			Triangle drawn	2	M1 for a triangle with at least one side of length 5 cm (± 0.2) or at least one angle 60° ($\pm 2^\circ$) A1 for a correctly drawn triangle within tolerance shown on either overlay.
22	(a)		36	2	M1 $12 \times 6 \div 2$ A1 cao
	(b)		10	2	M1 $55 \times 2 \div 11$ or an embedded answer A1 cao
23	(a)		Shape with vertices at (-1, 3), (0, 6), (2, 6), (1, 3) Rotation centre (0,0) 90° anticlockwise	1	B1 for correct shape in correct position
	(b)			3	B1 Rotation B1 (centre) (0,0) or <i>O</i> or origin B1 90° anticlockwise or 270° clockwise Note: award no marks if more than one transformation is given

PAPER: 1MA0_1F				
Question	Working	Answer	Mark	Notes
*24		Not enough, needs £133	5	<p>M1 for splitting the shape (or showing recognition of the “absent” rectangle) and using a correct method to find the area of one shape</p> <p>M1 for a complete and correct method to find the total area M1 for a complete method to find 70% of 19 (= 13.3) or 70% of their total cost or 70% of their area A1 114(m²) and (£)133 or 114(m²) and (£)13.3(0) and 108(m²)</p> <p>C1 (dep on M2) for a conclusion supported by their calculations</p> <p>OR</p> <p>M1 for a complete method for the number of tins required for one section of the area of the floor M1 for a complete method to find the number of tins for the whole floor M1 for a complete method to find 70% of their total number of tins and multiply by 19 A1 (£)133 C1 (dep on M2) for a conclusion supported by their calculations</p>

PAPER: 1MA0_1F				
Question	Working	Answer	Mark	Notes
25		Criticisms	2	B1 Qu 1 Overlapping boxes, no units B1 Qu 2 e.g. no time frame, non-specific responses, no number quantities, open to interpretation, no option for those who do not exercise
		Question given	2	B1 for a correct question with a time frame B1 for at least 3 correctly labelled non-overlapping response boxes (need not be exhaustive) or at least 3 response boxes that are exhaustive for all integer values of their time unit (could be overlapping) NB Units must be included in either question or response boxes to score full marks [Do not allow inequalities in response boxes]
	(a)			
	(b)			

Question	Working	Answer	Mark	Notes												
26	<table border="1" data-bbox="414 309 775 395"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>y</td> <td>-4</td> <td>-1</td> <td>2</td> <td>5</td> <td>8</td> </tr> </table>	x	-2	-1	0	1	2	y	-4	-1	2	5	8	$y = 3x + 2$ drawn	4	B1 for axes scaled and labelled (Table of values) 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 from their table must be correctly plotted) A1 for correct line between $x = -2$ and $x = 2$ (No table of values) 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 $y = 3x + 2$ drawn A1 for correct line between $x = -2$ and $x = 2$ (Use of $y = mx + c$) M1 for line drawn with gradient of 3 OR line drawn with y intercept at 2 M1 for line drawn with gradient of 3 AND with y intercept at 2 A1 for correct line between $x = -2$ and $x = 2$ [SC B2 (indep of B1) for correct line segment between $x=0$ and $x=2$ – ignore any additional incorrect line segment(s)]
x	-2	-1	0	1	2											
y	-4	-1	2	5	8											

PAPER: 1MA0_1F				
Question	Working	Answer	Mark	Notes
27	(i) 20, 40, 60 12, 24, 36, 48, 60 $20 = 4 \times 5 = 2 \times 2 \times 5$ $12 = 4 \times 3 = 2 \times 2 \times 3$	3 and 5 or any multiple of 3, 5	4	M1 attempts multiples of both 20 and 12 (at least 3 of each shown but condone errors if intention is clear) or identifies 60 or a multiple of 60 M1 (dep on M1) for a division by 20 or 12 or counts up 'multiples' or identifies a common multiple (implied if one answer is correct or answers reversed) A1 cheese slices (packets) 3, burgers (boxes) 5 or any multiple of 3, 5 OR M1 for expansion of either 20 or 12 into factors M1 for demonstration that both expansions include 4 (or 2×2) A1 cao for cheese slices (packets) 3, burgers (boxes) 5 B1 for 60 or ft from their correct answer to (i) or ft "common multiple"
	(ii)	60		
28		38	5	M1 $3x - 5 = 19 - x$ M1 for a correct operation to collect the x terms or the number terms on one side of an equation of the form $ax+b=cx+d$ A1 for $x = 6$ M1 for substituting their value of x in the three expressions and adding or substituting their value of x after adding the three expressions A1 cao

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