

Mark Scheme (Results)

November 2013

Pearson Edexcel GCSE
In Mathematics Linear (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. 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 labeling 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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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 canceling 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_2F

Question	Working	Answer	Mark	Notes
1 (a)		3502	1	B1 cao
(b)		Two thousand and nineteen	1	B1 cao
(c)		7 tens	1	B1 for 7 tens or 70 accept in words
(d)		6700	1	B1 cao
2 (i)		Hexagon	1	B1 for (regular) hexagon
(ii)		Decagon	1	B1 for (regular) decagon
3 (a)		PK 340	1	B1 cao
(b)		35	1	B1 cao
(c)		25	2	M1 for $102 - 77$ or $77 - 102$ A1 cao accept -25
4 (a)(i)		Acute	2	B1 for acute
(ii)		65		B1 for $63 - 67$
(b)(i)		53	2	B1 cao
(ii)		Reason		B1 for ' <u>Angles</u> on a straight <u>line</u> add up to <u>180°</u>

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
5	(a)	1 hour 40 minutes	2	M1 for correct working shown to find the difference between 17 50 and 19 30 e.g. using a carry of 60 minutes in a take away or counting on from 17 50 to 19 30 A1 for 1 hr 40 mins or 100 mins
	(b)	7	3	M1 for $2 \times 20 - 8.5 (= 31.5)$ or $20 - 8.5 (= 11.5)$ M1 (dep) for “31.5” $\div 4.5$ or $(20 + “11.5”) \div 4.5$ or 7×4.5 oe (eg by addition/subtraction method) A1 cao
6	(a)(i)	25, 22	2	B1 cao
	(ii)	Subtract 3		B1 for correct description Eg. 'subtract 3' or 'goes down by 3' oe or 'take-away 3' or -3 or $43 - 3n$ seen
	(b)	23	2	M1 for +5 seen or for continuing sequence for at least 2 terms (condone one arithmetic error) or $5n - 17$ A1 cao
7	(a)	$\frac{5}{9}$	1	B1 for $\frac{5}{9}$ oe
	(b)	3 squares shaded	1	B1 for any 3 squares shaded
	(c)	80	2	M1 for $120 \div 3 (= 40)$ or $2 \times 120 (= 240)$ or $\frac{2}{3} \times 120$ oe A1 cao

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
*8		Correct chart or diagram	4	B1 for a key or suitable labels to identify bicycles and motorbikes or clear differentiation between categories B1 for 5 correct labels for days clearly in the appropriate place B1 for a diagram(s) or chart(s)(combined or separate) set up for comparison, correctly showing data for at least three days e.g. dual bar chart, line graphs, pie charts, pictograms, etc C1 fully correct diagram or chart to include all axes labelled.
9		1.9 km or 1900 m	3	M1 for $1.25 \times 1000 (= 1250)$ or $650 \div 1000 (= 0.65)$ M1 for “1250” + 650 or 1.25 +”0.65” A1 for for 1.9 km or 1900 m
10		(12) 10 80 (27)	1 1	B1 cao B1 cao
11 (a)		(8, 1)	1	B1 cao
(b)		Coordinate shown	2	B2 for N at $(5, k)$ where $k \geq 6.2$ or $(2, 7)$ or $(8, 7)$ (B1 for N at $(5, k)$ where $k < 6.2$)
12 (a)		1	1	B1 cao
(b)		26	1	B1 cao
(c)		144	2	M1 for 16×9 A1 cao
13		eg. 18, 4, 5	3	M1 for two different factors of 40 M1 for 3 numbers where the sum lies between 20 and 30 AND (where one is 9 or 18 or two are different factors of 40) A1

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
14 (a)		2	1	B1 cao
(b)		4	2	M1 for showing a clear intention to add all ten numbers and to divide by 10 A1 cao
(c)		55	2	M1 for evidence of at least 4 attempts to multiply number of birds by frequency eg. 0×3 , 2×1 , 3×2 , 4×3 , 5×4 , 3×5 A1 cao
*15		34 or 33	4	M1 for one operation e.g. $12 \times 4.5 (= 54)$ or $12 \times 5 (= 60)$ or $4.5 \times 5 (= 22.5)$ or $\div 8$ M1 for two operations e.g. $12 \times 4.5 \times 5 (= 270)$ or $12 \times 4.5 \div 8 (= 6.75)$ or $4.5 \times 5 \div 8 (= 2.8125)$ or $12 \times 5 \div 8 (7.5)$ M1 for a complete method e.g. $12 \times 4.5 \times 5 \div 8 (= 33.75)$ C1 for 34 accept 33 clearly identified from correct calculations and correct figures
16 (a)		Evens	1	B1 cao
		Certain	1	B1 cao
(b)		4	2	M1 for 14 or $\frac{3+7}{n} = \frac{5}{7}$ or any fraction equivalent to $\frac{2}{7}$ or $\frac{5}{7}$ A1 cao
17		Triangle at (4, 2) (2, 2) (4, 5)	2	B2 for triangle at (4, 2) (2, 2) (4, 5) (B1 for correct reflection in the x axis or for a reflection in any line parallel to y axis)
18	80 litres \approx 18 gallons or 16 gallons \approx 72 litres	A with correct figures	3	M1 for reading from the graph eg. 8 gallons = 36 litres; 20 litres = 4.4 gallons M1 for a complete method to convert either 80 litres into gallons or 16 gallons into litres e.g. 80 litres = "4.4" \times 4 gallons or 16 gallons = "36" \times 2 litres A1 for car A with correct figures in range 17.5 – 18.5 gallons or 64 – 72 litres

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
*19		Small with correct figures for comparison	4	<p>M1 for one calculation e.g. $6.5 \div 30 (=0.216\dots)$ or $8.95 \div 40 (=0.22375)$ or $10.99 \div 50 (=0.2198)$ M1 for all three calculations e.g. of $6.5 \div 30 (=0.216\dots)$ and $8.95 \div 40 (=0.22375)$ and $10.99 \div 50 (=0.2198)$; A1 for 0.216... and 0.22375 and 0.2198... can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [could use different figures relating to 30, 40, 50]</p> <p>OR</p> <p>M1 for one calculation e.g. $6.5 \times 20 (=130)$ or $8.95 \times 15 (=134.25)$ or $10.99 \times 12 (=131.88)$ M1 for three calculations e.g. $6.5 \times 20 (=130)$ and $8.95 \times 15 (=134.25)$ and $10.99 \times 12 (=131.88)$ A1 for 130 and 134.25 and 131.88 can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [or any other calculations leading to comparable figures e.g. cost of 600 plants or comparing small and medium and small and large e.g. 120 plants and 150 plants separately]</p> <p>Or</p> <p>M1 for one calculation e.g. $30 \div 6.5 (= 4.615\dots)$ or $40 \div 8.95 (= 4.469\dots)$ or $50 \div 10.99 (= 4.549\dots)$ M1 for three calculations e.g. $30 \div 6.5 (= 4.615\dots)$ and $40 \div 8.05 (= 4.469\dots)$ and $50 \div 10.99 (= 4.549\dots)$ A1 for 4.615... and 4.469... and 4.549... can be rounded or truncated as long as they remain different C1 (dep on M1) for conclusion ft from three comparable figures [or any other calculations leading to comparable figures]</p>
20 (i)		$x + 4$	1	B1 for $x + 4$ oe
(ii)		$2x$	1	B1 for $2x$ oe

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
21		7	4	<p>M1 for 1800×36 or 1800×2.54 or 36×2.54 M1 for $1800 \times 36 \times 2.54$ (=164 592) M1 (dep on M1) for a complete method e.g. $1800 \times 36 \times 2.54 \div 100 \div 245$ (= 6.71...) A1 for 7 with correct working</p> <p>OR</p> <p>M1 for 245×100 (=24 500) M1 for “24500” $\div 2.54 \div 36$ (=267.93...) M1 for $1800 \div$ “267.93..” (=6.71...) A1 for 7 with correct working</p>
22	(a)	34.81	1	B1 cao
	(b)(i)	35.1606....	2	B1 for 35.1606(7977...)
	(ii)	35.2		B1 ft from (i) provided (i) has more than one decimal place
23	(a)	9	1	B1 cao
	(b)	5	1	B1 cao
	(c)	17	2	<p>M1 for clear intention to expand bracket or divide both sides by 2 as the first step eg. $2y - 2 \times 5 = 24$ or $y - 5 = 24 \div 2$ A1 for 17</p>
	(d)	$5(3p + 8)$	1	B1 cao

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
24		115	4	<p>M1 for $360 - 4 \times 25 (=260)$ M1 (dep) for "260" $\div 4 (= 65)$ M1 for $180 - "65" \text{ or } (360 - 2 \times "65") \div 2$ A1 for 115 with working</p> <p>OR</p> <p>M1 for $360 \div 4 (= 90)$ M1 (dep) for "90" $- 25 (=65)$ M1 for $180 - "65" \text{ or } (360 - 2 \times "65") \div 2$ A1 for 115 with working</p>
25		6.45	5	<p>M1 for $110 + 12 \times 16.80 (= 311.6)$ M1 for $0.15 \times 359 \text{ oe } (= 53.85)$ M1 (dep on previous M1) for $359 - "53.85" \text{ oe } (= 305.15)$ M1 (dep on M3) for "311.6" $- "305.15"$ A1 for 6.45 from correct working</p>
26		19	4	<p>M1 for $130 - 96 (=34)$ M1 for $73 - 55 (=18)$ M1 for "34" $- 9 - "18" + 12$ A1cao</p> <p>OR</p> <p>M1 for. $96 - 55 - 12 (=29)$ M1 for $9 + "29" (=38)$ M1 for $130 - 73 - "38"$ A1 cao</p>

PAPER: 1MA0_2F				
Question	Working	Answer	Mark	Notes
27		440	2	M1 for $140 \times \pi$ or 439 A1 for 439.6 – 440
*28		No with correct figure	3	M1 for a calculation which uses the Time \times Speed = Distance relationship OR a conversion of units eg between hours & minutes or between mph & miles per min M1 for a calculation involving both of the above C1 for “no” with a correct calculation, with units, from working: 25.2 – 25.8 minutes, 30.1 – 30.8 miles, 69 – 69.3 mph Distance \div speed: $30 \div 70$ (= 0.42 - 0.43); Distance \div time: $30 \div 26$ (= 1.15...); Speed \times time: = 70×26 (=1820 mins) Mph to miles/min $70 \div 60$ (=1.16-1.67); Minutes to hours is $26 \div 60$ (= 0.43...) NB $70 \div 26 \times 30$ as a single stage calculation gets 0 marks

Question 26:

	F	S	G	
W	12	55		96
M	7	18	9	34
	19	73		130

	F	S	G	
W	12	55	29	96
M			9	
	19	73	38	130

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: $\pm 5^\circ$

Measurements of length: ± 5 mm

PAPER: 1MA0_2F		
Question	Modification	Notes
Q2	Polygons labelled polygon (i) and polygon (ii).	Standard mark scheme
Q3	Table – 2nd line (Sonsang A220) and ‘camera’ column removed.	Standard mark scheme
Q4	Angle arms – 10cm long	Standard mark scheme
Q7	2cm squares. Shading is dotted.	Standard mark scheme
Q8	Top 2 rows and last column removed. 1½cm grid.	Standard mark scheme
Q10	Braille (i) and (ii) in empty boxes.	Standard mark scheme
Q11	2cm grid. x changed to filled in circles.	Standard mark scheme

PAPER: 1MA0_2F		
Question	Modification	Notes
Q12	1st line 'square grid' instead of 'centimetre grid'. 2cm grid. Shading is dotted.	Standard mark scheme
(b)	insert (Each square on the grid represents a one centimetre square).	Standard mark scheme
Q14	(c) Frequency column widened to allow working space.	Standard mark scheme
Q17	2cm grid. Shading is dotted.	Standard mark scheme
Q18	2cm grid.	Standard mark scheme
Q24	a changed to x . Shading is dotted. MLP and braille.	Standard mark scheme

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Ofqual




Llywodraeth Cynulliad Cymru
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