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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Mark Scheme 1MA01/2F - final draft
November 2013

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		3502	1	B1 cao
(b)		Two thousand and nineteen	1	B1cao
(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

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
4 (ai)		Acute	2	B1 for acute
(aii)		65		B1 for 63 – 67
(bi)		53	2	B1 cao
(bii)		Reason		B1 for 'Angles on a straight line add up to 180^{o}
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" ÷ 4.5 **or** (20 + "11.5") ÷ 4.5 **or** 7×4.5 oe (eg by addition/subtraction method) A1 cao
6 (ai)		25, 22	2	B1 cao
(aii)		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

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
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 ÷ 3 (= 40) **or** 2 × 120 (= 240) **or** $\frac{2}{3} \times 120$ oe A1 cao
*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 × 1000 (= 1250) **o**r 650 ÷ 1000 (= 0.65) M1 for "1250" + 650 or 1.25 +"0.65" A1 for for 1.9 km or 1900 m
10		(12) 10	1	B1 cao
		80 (27)	1	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 $k < 6.2$)

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
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
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 × 4.5 (= 54) **or** 12 × 5 (= 60) **or** 4.5 × 5 (= 22.5) **or** ÷8 M1 for two operations e.g. 12 × 4.5 × 5 (= 270) **or** 12 × 4.5 ÷ 8 (= 6.75) **or** 4.5 × 5 ÷ 8 (= 2.8125) **or** 12 × 5 ÷ 8 (7.5) M1 for a complete method e.g. 12 × 4.5 × 5 ÷ 8 (=33.75) C1 for 34 accept 33 clearly identified from correct calculations and correct figures

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
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 ≈ 18 gallons or 16 gallons ≈ 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" × 4 gallons or 16 gallons = "36" × 2 litres A1 for car A with correct figures in range 17.5 –18.5 gallons or 64 – 72 litres

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
*19		Small with correct figures for comparison	4	M1 for one calculation e.g. 6.5 ÷ 30 (=0.216...) **or** 8.95 ÷ 40 (=0.22375) **or** 10.99 ÷ 50 (=0.2198) M1 for all three calculations e.g. of 6.5 ÷ 30 (=0.216...) **and** 8.95 ÷ 40 (=0.22375) **and** 10.99 ÷ 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] **OR** M1 for one calculation e.g 6.5 × 20 (=130) **or** 8.95 × 15 (=134.25) **or** 10.99 × 12 (=131.88) M1 for three calculations e.g. 6.5 × 20 (=130) **and** 8.95 × 15 (=134.25) **and** 10.99 × 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] **Or** M1 for one calculation e.g 30 ÷ 6.5 (= 4.615…) **or** 40 ÷ 8.95 (= 4.469…) **or** 50 ÷ 10.99 (= 4.549…) M1 for three calculations e.g. 30 ÷ 6.5 (= 4.615…) **and** 40 ÷ 8.05 (= 4.469…) **and** 50 ÷ 10.99 (= 4.549…) 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]

1MA01/2F November 2013					
Question		**Working**	**Answer**	**Mark**	**Notes**
20	(i)		$x + 4$	1	B1 for $x + 4$ oe
	(ii)		$2x$	1	B1 for $2x$ oe
21			7	4	M1 for 1800 × 36 **or** 1800 × 2.54 **or** 36 × 2.54 M1 for 1800 × 36 × 2.54 (=164 592) M1 (dep on M1) for a complete method e.g. 1800 × 36 × 2.54 ÷ 100 ÷ 245 (= 6.71...) A1 for 7 with correct working **OR** M1 for 245 × 100 (=24 500) M1 for "24500" ÷ 2.54 ÷ 36 (=267.93...) M1 for 1800 ÷ "267.93.." (=6.71...) A1 for 7 with correct working
22	(a)		34.81	1	B1 cao
	(bi)		35.1606....	2	B1 for 35.1606(7977...)
	(bii)		35.2		B1 ft from (i) provided (i) has more than one decimal place

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
23 (a)		9	1	B1 cao
(b)		5	1	B1 cao
(c)		17	2	M1 for clear intention to expand bracket or divide both sides by 2 as the first step eg. $2y - 2\times5 = 24$ **or** $y - 5 = 24 \div 2$ A1 for 17
(d)		$5(3p + 8)$	1	B1 cao
24		115	4	M1 for $360 - 4 \times 25$ (=260) M1 (dep) for "260"÷ 4 (= 65) M1 for 180 – "65" **or** (360 −2 × "65") ÷ 2 A1 for 115 with working **OR** M1 for 360 ÷ 4 (= 90) M1 (dep) for "90" − 25 (=65) M1 for 180 – "65" **or** (360 – 2 × "65") ÷ 2 A1 for 115 with working
25		6.45	5	M1 for 110 + 12 × 16.80 (= 311.6) M1 for 0.15 × 359 oe (= 53.85) M1 (dep on previous M1) for 359 – "53.85" oe (= 305.15) M1 (dep on M3) for "311.6" – "305.15" A1 for 6.45 from correct working

1MA01/2F November 2013				
Question	**Working**	**Answer**	**Mark**	**Notes**
26		19	4	M1 for 130 − 96 (=34) M1 for 73 − 55 (=18) M1 for"34" − 9 – "18" + 12 A1cao **OR** M1 for. 96 − 55 − 12 (=29) M1 for 9 + "29" (=38) M1 for 130 − 73 – "38" A1 cao
27		440	2	M1 for 140 × π or 439 A1 for 439.6 – 440
*28		No with correct figure	3	M1 for a calculation which uses the Time × 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 ÷ speed: 30 ÷ 70 (= 0.42 - 0.43); Distance ÷ time: 30 ÷ 26 (= 1.15…); Speed × time: = 70 × 26 (=1820 mins) Mph to miles/min 70 ÷ 60 (=1.16-1.67); Minutes to hours is 26 ÷ 60 (= 0.43…) **NB** 70 ÷ 26 × 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

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