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Mark Scheme (Results)

November 2015

Pearson Edexcel GCSE
In Mathematics B (2MB01)
Foundation (Calculator) Unit 1

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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.

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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 (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

5MB1F_01 November 2015					
Question		**Working**	**Answer**	**Mark**	**Notes**
1.	(a)		Black	1	B1 cao
	(b)		Fran	1	B1 cao
	(c)		Derek	1	B1 cao
2.	(i)		16	2	B1 cao
	(ii)		12		B1 cao
3.	(a)		A	1	B1 cao
	(b)		D	1	B1 cao
4.			£44.80 or 4480p	4	M1 for 8565 – 8437 (=128) M1 for "128" × 35 A1 for digits 448(0) C1 for £44.80 or 4480p ie clearly stated answer with correct money notation.

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Question		**Working**	**Answer**	**Mark**	**Notes**
5.			Diagram or chart	4	B1 for a key or suitable labels to identify the Wizard and Reds. The key may be ignored if unclear provided the graph is clear, ie if different colours are used to shade in the graph. B1 for a diagram(s) or chart(s) set up for comparison showing data for at least 3 months eg dual bar chart, composite bar charts, frequency polygon, etc. B1 for correct heights for Wizards or Reds or totals C1 for a fully correct diagram or chart.
6.		(S,F), (S,M), (S,P) (J,F), (J,M), (J,P)	6 choices	2	B2 for all 6 choices with no extras or repeats (B1 for at least 3 correct; ignore extras or repeats)
7.	(a)		$\frac{3}{10}$	2	M1 for $\frac{a}{10}$ or $\frac{3}{b}$ where $a < 10$ and $b > 3$ A1 for $\frac{3}{10}$ oe
	(b)		$\frac{7}{10}$	1	B1 ft or for $\frac{7}{10}$ oe

5MB1F 1F November 2015					
Question		**Working**	**Answer**	**Mark**	**Notes**
8.	(a)		3	2	M1 for evidence of ordering A1 cao
	(b)		4	2	M1 for 6 – 2 A1 cao
	(c)		3.5	2	M1 for (3 + 6 + 2 + 2 + 5 + 3) ÷ 6 or 21 ÷ 6 A1 cao
9.			Data collection sheet	3	B1 for data illustrated for fruit (at least 3 items) or correct heading B1 for tally column or frequency column labelled B1 for suitable data collection sheet appropriate to the task e.g. with exactly 3 columns and which are all correctly labelled NB do not accept questionnaires or graphs

5MB1F 1F November 2015					
Question		**Working**	**Answer**	**Mark**	**Notes**
10.			67	2	M1 for at least three of 1 × 8, 2 × 6, 3 × 7, 4 × 4, 5 × 2 or at least three of 8, 12, 21, 16, 10 A1 cao
11.	(a)		15.86	4	M1 for 4 × 96 (= 384) or 3 × 56 (= 168) M1 for (“384” + ”168”) × 3 ÷ 4 oe or sight of 414 M1 for 20 – “4.14” or 1586 A1 cao **OR** M1 for 4 × 96 (= 384) or 3 × 56 (= 168) M1 for 20 – (“384” + ”168”) or 20 – “552” (= 1448) M1 for “1448” + (“552” ÷ 4) A1 cao NB allow work in £ or p for M marks
	(b)		7	2	M1 for 14 ÷ 1.84 or 7.60(8695…) or 12.88 and 14.72 A1 cao
12.	(a)		$20 - t$	1	B1 for $20 - t$
	(b)		$4x + 20y$	2	B2 for $4x + 20y$ (B1 for $4x$ or $20y$)

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Question		**Working**	**Answer**	**Mark**	**Notes**
13.	(a)		20	2	M1 for $\frac{60}{360}\times 120$ A1 cao **OR** M1 for 360 ÷ 120 (= 3) or 60 ÷ 3 A1 cao
	(b)		50	3	M1 for 360 – (45 + 60 + 105) (= 150; could be measured) M1 for 360 ÷ 120 (= 3°) or "150" ÷ 3 A1 for 50; allow answers in the range 49-51 **OR** M1 for 360 – (45 + 60 + 105) (= 150; could be measured) M1 for $\frac{"150"}{360}\times 120$ A1 for 50; allow answers in the range 49-51 **OR** M1 for 360 – (45 + 60 + 105) (= 150; could be measured) M1 for $\frac{"150"}{60}\times "20"$ A1 for 50; allow answers in the range 49-51 **OR** M1 for working out how many in all three sectors M1 for subtraction from 120 A1 for 50; allow answers in the range 49 - 51

5MB1F 1F November 2015					
Question		**Working**	**Answer**	**Mark**	**Notes**
14.	(a)		(146, 41)	1	B1 point plotted
	(b)		Description	1	B1 for description of dynamic relationship or statement of positive correlation
	(c)		155 – 158	2	M1 for a single straight line segment with positive gradient that could be used as a line of best fit or a horizontal line from 47.5 A1 answer in the range 155 – 158 or ft from line
15.	(a)		Out: 1023/1148 Return: 1737/1918 in Colwyn 5h 49min	4	B1 for selecting 1023 train (cheapest out) B1 for selecting 1737 B1 for 5h 49min (spent in Colwyn) C1 (dep on at least B1) clearly stating departure and arrival times of both trains used and correct time in Colwyn for their trains
	(b)		133.40	3	M1 for 30% of any adult fare M1 for 2 × adult fare + 3 × child fare for at least one of their chosen trains A1 (accept 133.4) (SC B2 for £188.60)

5MB1F 1F November 2015				
Question	**Working**	**Answer**	**Mark**	**Notes**
16.	<table><tr><td></td><td>Bus</td><td>Pre</td><td>Ec</td><td>Tot</td></tr><tr><td>M</td><td>(30)</td><td>28</td><td>34</td><td>(92</td></tr><tr><td>F</td><td>14</td><td>32</td><td>(62)</td><td>108</td></tr><tr><td>Total</td><td>(44)</td><td>(60)</td><td>96</td><td>(200</td></tr></table> ( ) value given	28	4	M1 for total female passengers 200 – 92 or 108 seen; or for total Economy passengers 200 – 44 – 60 or 96 seen. M1 for male passengers in Economy "96" – 62 or 34 seen; or for female Premium "108" – 62 – (44 – 30) or 32 seen M1 for 92 – 30 – "34" or for 60 – "32" A1 cao **OR** Answers may appear in a two-way table with no other method seen B1 for Female total 108 or Total Economy 96 M1 for "96" – 62 or 34 seen in Male Economy; or "108" – 62 – (44 – 30) or 32 seen in Female Premium M1 for 92 – 30 – "34" or for 60 – "32" A1 cao

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: 5MB1F_01			
Question		**Modification**	**Notes**
Q01		Row for Gary removed.	
Q02		Diagram enlarged.	
Q03		Crosses changed to filled in circles. Diagram enlarged.	
Q05		Value on table changed: Wizard: 20 28 18 32. Reds not altered. Grid enlarged.	
Q10		Frequency column widened to allow for working.	
Q13		Diagram enlarged.	
Q14	(a)	Grid enlarged. Crosses changed to filled in circles. 146 cm changed to 150 cm. 41 kg changed to 40 kg.	
Q15		Crewe to Colwyn – First 2 columns removed. Colwyn to Crewe – First and last columns removed	

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