edexcel

Mark Scheme (Results)

November 2015

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

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		37	1	B1 cao
	(b)		23 079	1	B1 cao
	(c)		8 hundred	1	B1 for 8 hundreds or 800
2			117 cm	2	M1 for 123−6 or 1.23−0.06 or 117 or 1.17 A1 for 117 cm or 1.17 m
3	(a)		(4, 2)	1	B1 cao
	(b)		Cross at $(1, \frac{1}{2})$	1	B1 cao
4			80	3	M1 for 120 ÷ 3 (=40) M1 for 120 − "40" A1 cao OR M1 for 120 ÷ 3 (=40) M1 for "40" × 2 A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
5	(a)		7.5 cm	2	B2 for 7.3 cm − 7.7 cm or 73 mm − 77 mm or 7 cm 5 mm (B1 for cm with value in range 6.5 − 8.5 or mm with value in range 65 − 85)
	(b)(i)		Acute	2	B1 cao
	(ii)		53		B1 for 51 − 55
6			3	2	M1 for correct method to find both total scores A1 cao OR M1 for correct method to find differences for each judge A1 cao
7	(a)		Parallelogram	1	B1 (accept trapezium)
	(b)		2	1	B1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
*8			No with working	3	M1 for correct method to find time of arrival at station 8 16 + 25 + 12 A1 for 8 53 C1 ft (dep on M1)for correct comparison of "8 53"(and 8 50) OR M1 for correct method to find time interval from 8 16 to 8 50 A1 for 34 and 37 C1 ft (dep on M1) for correct comparison of "34" and "37"
9	(a)		0.37, 0.401, 0.439, 0.46	1	B1 cao
	(b)	$\frac{1}{4}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{7}{8}$ 0.75, 0.875, 0.25, 0.5, 0.66	0.25, $\frac{1}{2}, \frac{2}{3}$, 75%, $\frac{7}{8}$	2	M1 for attempt to convert all to same form or one error in ordered listing A1 for correct order (Accept 0.67 or 0.66 for $\frac{2}{3}$) (**SC**: B1 for order reversed)
10			3.15	4	M1 for correct first step eg 8.2 + 6.1 + 6.1 (= 20.4) eg 30 − one ticket price M1 for finding money left over eg 30 – "20.4" (= 9.6) or finding the cost of 3 drinks of one size eg 3.15 × 3 M1 for a complete method to work out the price of each drink eg "9.6" ÷ 3 (= 3.2) eg 30 – "20.4" **and** cost of 3 drinks of all sizes A1 for 3.15 from correct calculations

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Question		**Working**	**Answer**	**Mark**	**Notes**
11	(i)		11	3	B1 cao
	(ii)		50		B1 cao
	(iii)		31		B1 cao
12			27	2	M1 for $6 \times 2 + 5 \times 3$ oe A1 cao
13	(a)		5r	1	B1
	(b)		14t	1	B1
	(c)		2ab	1	B1
14			40	3	M1 for $24 \div 3$ (= 8) M1 for "8"× 5 A1 cao OR M1 for 3×24 (= 72) M1 for "3×24" – 8 – 8 – 8 – 8 A1 cao
15		1, 4, 9, 16, 25 1, 8, 27	Liz 25, Howard 27	2	M1 for a list of at least 2 square numbers or at least 2 cube numbers identified with no ambiguity or Liz and Howard's ages reversed A1 cao

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Question		Working	Answer	Mark	Notes
*16			20°	4	B1 for identifying 60° angle on the diagram or in a correct statement of working M1 for completing method eg 180−(360−140−60) A1 for 20 C1 for all reasons used Angles at a point add up to 360° Angles in a triangle add up to 180° Base angles of an isosceles triangle are equal
17			50	2	M1 for 200 ÷ 4 A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
18			68	5	B1 for correct conversion of units M1 for 250 ÷ 25 (= 10) or 300 ÷ 20 (= 15) M1 for "10" × "15" M1 (dep on M2) for number of tiles ÷ 20, round up, × 8.5(0) A1 for 68 OR B1 for correct conversion of units M1 for 250 ÷ 20 (= 12.5) or 300 ÷ 25 (= 12) M1 for "12.5" × "12" M1 (dep on M2) for number of tiles ÷ 20, round up, × 8.5(0) A1 for 68 OR B1 for correct conversion of units M1 for 3 × 2.5 (= 7 .5) or 20 × 25 (= 500) M1 for "3 × 2.5" ÷ "0.2 × 0.25" or "300 × 250" ÷ "20 × 25" M1 (dep on M2) for number of tiles ÷ 20, round up, × 8.5(0) A1 for 68
*19		1, 4, 7, 10, 13 8, 6, 4, 2, 0	Explanation	2	M1 for listing at least 3 terms of both sequences C1 for Yes and explanation from fully correct working that 4 is in both sequences; numbers in A are increasing; numbers in B are decreasing

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Question		**Working**	**Answer**	**Mark**	**Notes**
20			7.21 (am)	3	M1 for listing multiples 9,18,27,36 and 12,24,36 (condone 1 arithmetic error) or method to find LCM M1 for identifying 36 as LCM A1 cao OR M1 for listing times 6.54, 7.03, 7.12, 7.21 or for listing times 6.57, 7.09, 7.21 (condone one arithmetic error) M1 for listing times 6.54, 7.03, 7.12, 7.21 **and** 6.57, 7.09, 7.21 (condone one arithmetic error) A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
21		$y = \frac{1}{2}x + 3$ | x | −2 | −1 | 0 | 1 | 2 | 3 | 4 | | y | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 |	Correct line from (−2, 2) to (4, 5)	3	**(Table of values / calculation 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 plotted from their table must be correctly plotted) A1 for correct line between $x = –2$ and $x = 4$ **(No table of values)** M1 for at least 2 correct points with no more than 2 incorrect points plotted M1 for at least 2 correct points (and no incorrect points) plotted **OR** line segment of $y = \frac{1}{2}x + 3$ drawn A1 for correct line between $x = –2$ and $x = 4$ **(Use of $y = mx + c$)** M1 for line drawn with gradient of $\frac{1}{2}$ **OR** line drawn with a y intercept of 3 M1 for line drawn with gradient of $\frac{1}{2}$ **AND** line drawn with a y intercept of 3 A1 for correct line between $x = –2$ and $x = 4$ **SC** : B2 for correct line from $x = 0$ to $x = 4$

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