

Mark Scheme (Results)

November 2016

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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

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Question		Working	Answer	Mark	Notes
1	(a)		10p	1	B1 cao
	(b)		5p	1	B1 cao
	(c)		30	1	B1 cao
2	(a)		Style Master	1	B1 cao
	(b)		700	1	B1 cao
	(c)		3	1	B1 cao
3	(ai)		36	2	B1 cao
	(aii)		30		B1 cao
	(b)		2 hexagons 1 hexagon and 1 triangle	2	B1 for 2 hexagons (each divided into 6 triangles) B1 for 1 hexagon (divided into 6 triangles) and 1 triangle
4	(ai)		evens	2	B1 for evens circled oe
	(aii)		unlikely		B1 for unlikely circled oe
	(b)		cross at 0	1	B1 for 0 marked with a cross
5		Eg 1045 – 1120 Penguin feeding time 1200 – 1245 Jeep safari 1300 – 1340 Dolphin show 1400 – 1425 Steam train	Correct time plan	3	B3 for 4 activities between 1020 and 1430 with correct start times and correct finish times (B2 for 2 or 3 activities between 1020 and 1430 with correct start times and correct finish times B1 for 1 activity between 1020 and 1430 with correct start time and correct finish time)

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Question		Working			Answer	Mark	Notes
*6					Diagram or chart	4	B1 for a key or suitable labels to identify Trudy and Phil B1 for horizontal or vertical axis labelled B1 for at least 3 correct plots C1 for fully correct diagram(s) or chart(s)
7	(a)				5	1	B1 cao
	(b)				4	2	M1 for ordering numbers A1 cao (SC B1 for 7)
	(c)				6	2	M1 for 7 and 1 seen together A1 cao
8	(a)	(4, 4)	(4, 5)	(4, 6)	Complete diagram	1	B1 cao
		(5, 4)	(5, 5)	(5, 6)			
		(6, 4)	(6, 5)	(6, 6)			
	(b)				$\frac{1}{36}$	1	B1 for $\frac{1}{36}$
	*(c)				7 has greater probability with correct reason	1	C1 for 7 has greater probability or with correct reason, eg gets a total of 7 more often

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Question		Working	Answer	Mark	Notes																				
9	(a)		Data collection sheet	3	B1 for lemonade and cola and orange (squash) B1 for tallies B1 for frequency or total oe																				
	(b)		4.32	4	M1 for cost of 2 bottles of orange and 3 bottles of lemonade M1 for finding $\frac{1}{5}$ of a cost M1 (dep on M2) for correct method to find change A1 cao																				
10	(a)		4 : 3	2	M1 for 20 : 15 or 3 : 4 A1 cao																				
	(b)		$35 - x - y$	2	M1 for $20 - x$ or $15 - y$ A1 for $20 - x + 15 - y$ oe																				
11		<table border="1"> <thead> <tr> <th></th> <th>Friday</th> <th>Saturday</th> <th>Sunday</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Morning</td> <td>27</td> <td>34</td> <td>51</td> <td>112</td> </tr> <tr> <td>Afternoon</td> <td>38</td> <td>52</td> <td>63</td> <td>153</td> </tr> <tr> <td>Total</td> <td>65</td> <td>86</td> <td>114</td> <td>265</td> </tr> </tbody> </table>		Friday	Saturday	Sunday	Total	Morning	27	34	51	112	Afternoon	38	52	63	153	Total	65	86	114	265	Complete two-way table	3	B3 cao (B2 for 4 or 5 correct B1 for 2 or 3 correct)
	Friday	Saturday	Sunday	Total																					
Morning	27	34	51	112																					
Afternoon	38	52	63	153																					
Total	65	86	114	265																					

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Question		Working	Answer	Mark	Notes
12	(a)		315	2	M1 for taking a reading from graph A1 for 310 – 320
	(b)		0.45	2	M1 for amount paid ÷ distance travelled, eg 45 ÷ 100 A1 for 0.425 – 0.475 or 42.5p – 47.5p OR M1 for ‘part (a)’ ÷ 700 A1 ft for 0.425 – 0.475 or 42.5p – 47.5p
13			$\begin{array}{r l} 4 & 788 \\ 5 & 0013578 \\ 6 & 124669 \\ 7 & 358 \end{array}$ <p>4 7 represents 47 grams</p>	3	B2 for fully correct ordered diagram (B1 for correct unordered diagram or ordered with at most 2 errors) B1 for correct key, eg 4 7 represents 47 (grams)
14	(a)		The greater the hand length the greater the foot length	1	B1 for the greater the hand length the greater the foot length oe (accept positive correlation)
	(b)		24 – 25	2	M1 for a single straight line segment with positive gradient that could be used as a line of best fit or an indication on the diagram from 18.5 on the x- axis A1 for answer in range 24 – 25

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Question		Working	Answer	Mark	Notes
15	(a)		Suitable question	2	B1 for a suitable question including time period (may appear with response boxes) B1 for at least 3 non-overlapping boxes which are exhaustive for their question
	(b)		Suitable reason	1	B1 for suitable reason eg sample not representative
*16			No from a correct method	5	M1 for method to find cost of room after discount eg $(1 - 0.15) \times 168$ oe (= 142.8) M1 for method to find income or method to find total expenditure eg 48×9.5 (= 456) eg $50 + 25 + 15 + 225 + '142.8'$ (= 457.8) M1 (dep on M2) for complete method to work out if Freya has enough money eg '457.8' and '456' (or 1.8) eg $'457.8' \div 48$ (= 9.53 – 9.54) eg $'456' - 90 - 225$ (= 141) A1 for correct values for comparison eg 457.8 and 456 eg 9.53 – 9.54 eg 141 and 142.8 C1 (dep on M1) for No or ft their values, with no incorrect statement.

