Mark Scheme (Results)

Summer 2014

Pearson Edexcel GCSE
In Mathematics B (2MB01)
Unit 1: 5MB1F_01 (Foundation)

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Guidance on the use of codes within this mark scheme
M1 – method mark for correct method 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_5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		10	1	B1 cao
	(b)		7	1	B1 cao
	(c)		Two circles	2	B1 for 2 circles for Thursday
			4 whole circles 1 half circle		B1 for 4 whole circles and 1 half circle for Friday oe
2	(a)		2	1	B1 cao
	(b)		Red, Grey	1	B1 cao
	(c)		Bowfell	1	B1 cao
3	(a)		23	1	B1 cao
	(b)		25	1	B1 cao
	(c)		Decreasing	1	B1 for decreasing, downward, falling, –3° etc
4	(a)		Cross at ½	1	B1 for mark at ½
	(b)		Cross at 0	1	B1 for mark at 0
	(c)		Cross at ¾	1	B1 for mark at ¾

Paper_5MB1F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
5			2 ½ hours	4	M1 for an attempt to find the difference between 2.40pm and 6pm eg 3h 20 min M1 (dep) for attempt to subtract 2×25min from time difference A1 for 2½ (hours) or 2.30oe C1 for correct units for with their answer OR M1 for an attempt to add 25 min to 2.40pm (= 3.05) or take 25 min from 6pm (= 5.35) M1 (dep) for "5.35" – "3.05" A1 for 2½ (hours) or 2.30 oe C1 for correct units with their answer
6			TS, TR, TF CS, CR, CF MS, MR, MF	2	B2 all correct pairs with no incorrect pairs. (B1 for at least 6 different correct pairs, ignoring any incorrect combinations)
7	(a)		Correct frequencies: 4,9,6,3	2	B2 for all frequencies correct (B1 for 2 tallies or 2 frequencies correct)
	(b)		Swimming or 9	1	B1 ft from frequencies or tallies in (a) or diagram in (c)
	(c)		Diagram or chart	3	B1 for labelling horizontal axis with activities B1 for linear scale labelled frequency oe B1 for accurately representing the data ft from their frequencies or tallies in (a)
*8			Yes and reason	2	M1 for a line drawn up from 50 or across from 80 or reading 55 or 74 C1 (dep on M1) for statement including yes and a correct reading eg 55, 74 or £6 less"

Question		Working	Answer	Mark	Notes
9	(a)		13	2	M1 for 18 − 5 or 5 − 18 or $a − 5$ or $18 − a$ (where a is score in list $a \neq 18$) or − 13 A1 cao
	(b)		11.5	2	M1 for an attempt to order or for answer 9 Or $\dfrac{10 + 13}{2}$ or $\dfrac{5 + 13}{2}$ A1 cao
	(c)		15	2	M1 12×7 (=84) or "84" − 69 A1 cao
*10			Quick Mix from correct working	4	M1 for $13.50 + 4 \times 6.90$ (= 41.1) M1 for $7.20 \times (4 + 1) + 5.90$ (= 41.9) A1 for 41.1(0) **and** 41.9(0) if working seen C1 ft (dep on M1) for a statement of Quick Mix with amounts clearly associated with correct companies

Question		Working	Answer	Mark	Notes
11	(a)		No and comparison	2	M1 for writing a fraction of 360 eg $\frac{40}{360}$ or $\frac{36}{360}$ OR $\frac{1}{9}$ or $\frac{1}{10}$ or decimals 0.11 or 0.1 or percentages 11.1% or 10% (% needed) A1 for No and $\frac{40}{360} > \frac{36}{360}$ oe OR M1 for $\frac{10}{100} \times 360$ (= 36) A1 for No with 36
	(b)		75	3	M1 for $360 - (70 + 40 + 150)$ (= 100) M1 for $150 \div$ ("100" $\div 50$) oe A1 cao
12	(a)		(17) 9 (14) 12 (13) 7 (29) 22 (21)	2	B2 for all 4 correct entries (B1 for 2 or 3 correct entries)
	(b)		$\frac{40}{72}$	1	B1 for $\frac{40}{72}$ oe
	(c)		$\frac{13}{32}$	1	B1 for $\frac{13}{32}$ oe

Question	Working	Answer	Mark	Notes
*13		4	4	M1 for 200 ÷ (1 + 9) (= 20) M1 for 750 ÷ 20 (= 37.5) A1 for 3.7(3….) or $3\frac{11}{15}$ or 2800 **and** 3000 C1 ft (dep on M1) for clear statement of 4 bottles with working shown **OR** M1 for 750 × 10 (= 7500) M1 for 200 × 140 (= 28 000) A1 for 3.7(3….) or $3\frac{11}{15}$ or 2800 **and** 3000 C1 ft (dep on M1) for clear statement of 4 bottles with working shown **OR** M1 for 200 × 140 (= 28 000) M1 for 28 000 ÷ (9 + 1) (= 2800) A1 for 3.7(3….) or $3\frac{11}{15}$ or 2800 **and** 3000 C1 ft (dep on M1) for clear statement of 4 bottles with working shown **OR** M1 for 200 ÷ (1 + 9) (= 20) M1 for 140 × "20" (= 2800) A1 for 3.7(3….) or $3\frac{11}{15}$ or 2800 **and** 3000 C1 ft (dep on M1) for clear statement of 4 bottles with working shown

Question		Working	Answer	Mark	Notes
14	(a)		Point plotted	1	B1 for point plotted at (6,35)
	(b)			1	B1 for description of dynamic relationship eg "the lower the temperature, the more hot chocolate sold" or negative correlation
	(c)			1	Single straight line of best fit which could be used to take readings
	(d)		21-26	1	B1 for answer in the range 21-26 or ft from single straight line segment (if previous B0)
15			$\dfrac{20-x}{20}$	2	M1 for writing $20-x$ OR 20 as any denominator below an algebraic expression in x or $20 - x \div 20$ A1 for $\dfrac{20-x}{20}$ or $1 - \dfrac{x}{20}$ oe
16	(a)		2 reasons	2	B2 for 2 aspects from: Bias or leading question; No time frame; Vague response boxes (B1 for 1 aspect)
	(b)		Question	2	B1 for unbiased question including time period B1 for at least 3 non-overlapping which are also exhaustive; do not accept inequality symbols in response boxes.

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: ±5°
Measurements of length: ±5 mm

PAPER: 5MB1F_01			
Question		**Modification**	**Notes**
Q01		Pictogram circles larger	
Q04		Probability scales longer	
Q07c		1.5cm grid Wording inserted "You may use the space below or the grid in the Diagram Book"	
Q08		Graph line moved to go through (50, 70) . 2cm grid. Y axis finishes at 100.	
Q12	(a)	Wording inserted "There are four spaces to fill"	
Q14		2cm grid crosses, changed to filled in circles. Right axis labeled	