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Mark Scheme (Results)

November 2014

Pearson Edexcel GCSE
In Mathematics B (2MB01)
Foundation (Calculator) Unit 3

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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.

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)(i)		2.67	3	B1 cao
	(ii)		4		B1 cao
	(iii)		1.8		B1 cao
	(b)		$\frac{53}{100}$	1	B1 cao
	(c)		0.6	1	B1 cao
2	(a)		Pentagon	1	B1 cao
	(b)		7	1	B1 cao
	(c)		122	2	M1 for 360 – (56+87+95) A1 cao
	(d)		A and G	1	B1 cao
3			22.5(0)	3	M1 for working out the change for one week eg 15+3.5−2 (=16.5) or 3.5−2 (=1.5) or 6−4 (=2) or 6.5−3.5 (=3) M1 for working out the change for all weeks or differences eg (15+)3.5−2+4−6+5+6.5−3.5 oe or "1.5" + "−2" + "5" + "3" (=7.5) A1 for 22.5(0) OR M1 for working out the totals in or out eg 3.5+4+5+6.5 (=19) or 2+6+3.5 (=11.5) M1 for finding the differences of totals eg "19" – "11.5" (=7.5) A1 for 22.5(0)

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		Reflection	1	B1 for correct reflection
	(b)		2	1	B1 cao
5	(a)		393	2	M1 for attempt to find the total mileage eg 178+215 or 207+186 A1 cao
	(b)		29	2	M1 for attempt to find the difference between the signs eg 207−178 or 215−186 or "393" – (178 + 186) or [(215+207)−(178+186)]÷2 oe A1 cao
6	(a)		2300	1	B1 cao
	(b)		35	1	B1 cao
	(c)		27	1	B1 cao

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
*7			Enough bags Not enough bricks	4	M1 for a correct method to find bricks or mortar for $8m^2$ eg 8×60 (=480) oe or 8×2.4 (=19.2) oe M1 for a correct method to find bricks and mortar for $8m^2$ eg 8×60 (=480) oe and 8×2.4 (=19.2) oe A1 for 480 and 19.2 C1 (dep M1) ft for enough bags and not enough bricks oe OR M1 for a correct method to find area coverage for bricks or mortar eg 450÷60 (=7.5) or 20÷2.4 (=8.3...) oe M1 for a correct method to find area coverage for bricks or and mortar eg 450÷60 (=7.5) and 20÷2.4 (=8.3...) A1 for 7.5 and 8.3... C1 (dep M1) ft for enough bags and not enough bricks oe
8	(a)		2	1	B1 cao
	(b)		15	1	B1 cao
	(c)		9	1	B1 cao
	(d)		14	2	M1 for intention to subtract 5 from sides or multiply both sides by 2 as a first step A1 cao
*9			56p	3	M1 for a correct method to find total cost of pencils in £ or pence eg 12×37 (=444) M1 for a correct method to find the change from £5 eg 500 – "444" C1 for 56p or £0.56 ie with correct monetary units

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
10			construction	2	M1 for a correctly drawn equilateral triangle or appropriate construction lines A1 for a correctly drawn triangle with all accurate and appropriate construction lines shown
11			6 or − 6	3	M1 for 43 – 7 (=36) or √43 M1 for correct order of operations −7 then intention to square root A1 for 6 or −6 or both OR M1 for $x^2 - 7 = 43$ M1 for adding 7 to both sides A1 for 6 or −6 or both
12			18	3	M1 for a correct method to find the number of cartons of one size that can be bought, target £11.50 M1 for a correct method to find a combination of two or more cartons of different sizes that can be bought, target £11.50 A1 cao OR M1 for a correct method to find the carton size that gives the best value for money M1 for finding the maximum number of cartons of their best value carton size, target £11.50 A1 cao

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
13			Bloomsbury	3	M1 for a correct method to find total points from Felton or Bloomsbury eg 4×5 + 2×2 + 1×3 (=27) or 2×5 + 2×2 + 5×3 (=29) oe M1 for a correct method to find total points from Felton and Bloomsbury eg 4×5 + 2×2 + 1×3 (=27) and 2×5 + 2×2 + 5×3 (=29) oe A1 for Bloomsbury identified and 27 and 29 oe OR M1 for a correct method to find one difference in points eg (4–2)×5 (=10) or (5–-1)×3 (=12) oe M1 for a correct method to find both differences in points eg (4–2)×5 (=10) and (5–-1)×3 (=12) oe A1 for Bloomsbury and 10 and 12 oe
14	(a)		9	2	M1 for 100÷20+4 oe A1 cao
	(b)		1120	3	M1 for $x \div 20 + 4 = 60$ or $60 - 4$ (=56) or for 60 – "9" (=51) M1 for "56"×20 or for 100 + "51"×20 A1 cao or ft part (a)
15			Net	2	B2 for a net which shows an approximation to a square with 4 connecting triangles (B1 for square with at least one connected triangle

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
16	(a)		$\frac{7}{13}$	2	M1 for $\frac{35}{65}$ A1 cao
	(b)		15.625	2	M1 for $\frac{1.25}{8}\times 100$ oe A1 for 15.625 oe
17			37.5	3	M1 for $90 + 5x + 7x = 180$ oe or uses the ratio of 5:7 eg 5+7 (=12) M1 for (x=) 90÷12 (=7.5) A1 cao
18	(a)		15.2 – 15.6	1	B1 for 15.2 – 15.6
	(b)		107 – 111	2	M1 for correct bearing clearly identified on diagram A1 for 107 – 111
	(c)		Region shaded	3	B1 for circle centre f, radius 3.5cm B1 for circle centre b, radius 6cm B1 for correct region shaded
*19		1.2×(550÷50) ×£4.15 =£54.78 4×£2.95×4 + 2×£2.95 =£53.10	Hammer company	5	M1 for 20% of a cost in Nail Company, eg 4.15 × 0.2 (= 0.83) oe M1(dep) for adding their 20% to their cost, eg 4.15 × 1.2 (= 4.98) oe M1 for using special offer in Hammer Company, M1 for 4 × 125 and 2 × 25 in Hammer Company oe C1 for Hammer Company and figures 54.78 [Nail Company] and 53.1(0) [Hammer Company]

PAPER: 5MB3F_01					
Question		**Working**	**Answer**	**Mark**	**Notes**
20			36	3	M1 for 3×180 ÷ 5 (=108) or 540 ÷ 5 (=108) or for a correct calculation to find the exterior angle eg 360 ÷ 5 or 180 – 360 ÷ 5 (=108) M1 (dep) for "108" – 72 or 180 – "360 ÷ 5" – 72 or "360 ÷ 5" ÷ 2 A1 cao OR M1 for $x + x + (72 + x) = 180$ oe or $5(x + 72) = 540$ oe M1 for ($x =$) (180 – 72) ÷ 3 oe or ($x =$) 540 ÷ 5 – 72 oe A1 cao
21		2 62 2.1 65(.961) 2.2 70(.048) 2.3 74(.267) 2.4 78(.624) 2.5 83(.125) 2.6 87(.776) 2.7 92(.583) 2.8 97(.552) 2.9 102.689 3 108 2.61 88.2(49...) 2.62 88.7(24...) 2.63 89.2(01...) 2.64 89.6(79...) 2.65 90.1(59...) 2.66 90.6(41...) 2.67 91.1(24...) 2.68 91.6(08...) 2.69 92.0(95...)	2.6	4	B2 for a correct trial $2.6 \leq x \leq 2.7$ evaluated (B1 for a correct trial $2 \leq x \leq 3$ evaluated) B1 for a different correct trial $2.6 < x < 2.7$ evaluated B1 (dep on at least one previous B1) for 2.6 Accept trials correct to the nearest whole number (rounded or truncated) if the value of x is to 1 dp but correct to 1 dp (rounded or truncated) if the value of x is to 2 dp NB: no working scores no marks even if answer is correct

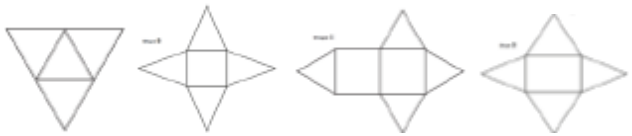
PAPER: 5MB3F_01					
Question		Working	Answer	Mark	Notes
22			43	3	M1 for π×40 or 2× π ×20 M1 for 34×2×π×20 A1 for 42.7 – 43

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: 5MB3F_01			
Question		**Modification**	**Notes**
2	(d)	Remove triangle H	
4	(b)	Grid enlarged. 'mirror line' repeated on the left	
5		Road given as straight line	
8	(a) (b)	MLP x changed to y t changed to e	
10		Given line 7 cm	
12		No picture – just information given	
15		Model given and a diagram for MLP Question revised – 4 shapes drawn (cut out shapes for braille) Candidates asked which shape would be a net of the square based pyramid	

PAPER: 5MB3F_01			
Question		**Modification**	**Notes**
15	ii	 Shape A Shape B Shape C Shape	
18		Garden enlarged – fountain to bench is 9.5 cm North lines put in from fountain and bench and removed from the right side.	
		Line joins fountain to bench.	
	(c)	Change 7 metres to 11 metres. Change 12 metres to 14 metres.	
12		Ground labelled	

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