

# Mark Scheme (Results)

March 2013

GCSE Mathematics (2MB01) Foundation  
5MB2F (Non-Calculator) Paper 01

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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. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- 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. Examiners should also 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 indicate within the table where, and which strands of QWC, are being assessed. 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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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.  
Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.  
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.  
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.
- 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.

**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)		65	1	B1 cao
	(b)		127	1	B1 cao
	(c)		30	1	B1 cao
2			360	3	M1 for $480 \div 4 (=120)$ oe M1 for $480 - '120'$ A1 cao OR M1 for $480 \div 4 (=120)$ oe M1 for $'120' \times 3 (=360)$ A1 cao
3	(a)(i)		Square based pyramid	2	B1 for square based pyramid (accept pyramid)
	(a)(ii)		Cylinder		B1 for cylinder (accept circular prism)
	(b)		8	1	B1 cao
4			700p or £7	3	M1 for $10 \times 50 (=500)$ or $10 \times 20 (=200)$ M1(dep) for $'500' + '200'$ A1 for 700p or £7 or £7.00 OR M1 for $50 + 20 (=70)$ M1(dep) for $10 \times '70'$ A1 for 700p or £7 or £7.00 OR M1 for $50 + 20 + 50 + 20 (=140)$ M1(dep) for $5 \times '140'$ A1 for 700p or £7 or £7.00 OR M1 for $3 \times 50 + 2 \times 20 (=190)$ or $2 \times 50 + 3 \times 20 (=160)$ M1(dep) for $2 \times ('190' + '160')$ A1 for 700p or £7 or £7.00

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Question	Working	Answer	Mark	Notes
5		22	2	M1 for $140 - 118 (=22)$ or $10 + 10 + 2 (=22)$ or $11 \times 2 (=22)$ A1 cao  (SC B1 for 118 seen)
6	(a)	(2,3)	1	B1 cao
	(b)	(-3, 3) plotted	1	B1 cao
7	(a)	$\frac{41}{100}$	1	B1 cao
	(b)	16	2	M1 for $20 \div 100 \times 80$ oe or $80 \div 5$ or $8 + 8 (=16)$ A1 cao
8	(a)	46 – 49	1	B1 for 46 – 49
	(b)	43 – 46	1	B1 for 43 – 46
	*(c)	Comparative statement	3	M1 for 54 – 58 or $90 \times 5 \div 8 (=56.25)$ M1 for '56' $\times 3 (=168)$ C1 (dep on M1) for No and eg only 162 – 174 miles OR M1 for $3 \times 90 (=270)$ M1 for changing '270' to miles ( $=162 - 174$ ) C1 (dep on M1) for No and eg only 162 – 174 miles OR M1 for $180 \div 3 (=60)$ M1 for changing '60' to kph ( $=94 - 98$ ) or 54 – 58 C1 (dep on M1) for No and eg 94 – 98 kph which is above speed limit or No and eg can't go faster than 54 – 58 mph OR M1 for changing 180 miles to km ( $=284 - 292$ ) M1 for '288' $\div 90 (=3.2 \text{ hours})$ or $3 \times 90 (=270)$ C1 (dep on M1) for No and eg more than 3 hours

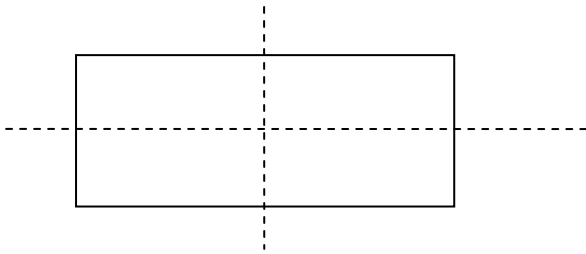
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Question		Working	Answer	Mark	Notes
9	(a)		18	1	B1 cao
	(b)		14	1	B1 cao
10	(a)		A, E	1	B1 cao
	(b)		6cm	2	B1 for 6 or 60 B1 (indep) for cm (or mm if consistent)
11			Two correct lines	2	B2 for two correct lines and no others (B1 for two correct lines and diagonal(s) or one correct line and no other lines)
12	(a)		5y	1	B1 cao
	(b)		10k	1	B1 cao
13			5	3	M1 for correct method to find total number of students M1 for correct method for dealing with adult helpers A1 cao  (SC B2 for 5 (coaches) if no working seen)



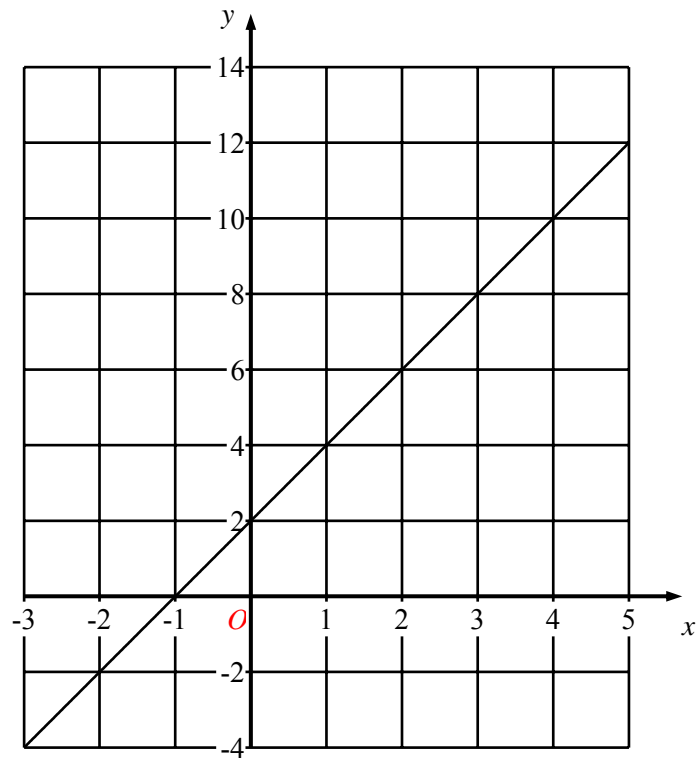
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Question	Working	Answer	Mark	Notes
*14		85	4	M1 for (angle YXZ =) $360 - 300 (=60)$ M1 for (angle XYZ =) $180 - 145 (=35)$ A1 cao C1 (dep on M1) for full reasons and unambiguous notation for angles (may be shown in diagram) (angles around a point sum to 360 and angles on a straight line sum to 180 and angles in a triangle sum to 180)
*15		£10 identified	5	M1 for correct attempt to use two full glasses M1 for correct attempt to work out total volume of drink for all people (one or two full glasses) M1 for correct attempt to use ratio M1 for changing to consistent units C1 (dep on M4) for £10 clearly identified  (SC B1 for correct answer of £10 if no working shown)
16	(a)	square , rhombus	1	B1 cao
	(b)	trapezium	1	B1 cao
	(c)	rhombus	1	B1 cao
17		150	3	M1 for $300 \div 20 (=15)$ or $200 \div 20 (=10)$ or $3 \div 0.2 (=15)$ or $2 \div 0.2 (=10)$ M1(dep) for '10' $\times$ '15' A1 cao OR M1 for $300 \times 20 (=60\ 000)$ or $20 \times 20 (=400)$ or $3 \times 2 (=6)$ or $0.2 \times 0.2 (=0.04)$ M1 (dep) for '60 000' $\div$ '400' or '6' $\div$ '0.04' A1 cao

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Question		Working	Answer							Mark	Notes	
18	(a)		x	-2	-1	0	1	2	3	4	2	B2 cao (B1 for any 2 correct values)
	(b)		y	-2	0	2	4	6	8	10		
			Correct graph							2	B2 for a correct line through at least two correct points (B1 for correct points plotted ft their table if at least B1 earned in part a)	
19		$\frac{3}{8} + \frac{1}{2} = \frac{3}{8} + \frac{1 \times 4}{2 \times 4}$ <p>OR</p> $\frac{3}{8} + \frac{1}{2} = \frac{3 \times 2}{8 \times 2} + \frac{1 \times 8}{2 \times 8}$	$\frac{7}{8}$							2	M1 for converting to two fractions with the same denominator and at least one numerator with the correct expression or number A1 for $\frac{7}{8}$ oe	
20	(a)		$3(t + 4)$							1	B1 for $3(t + 4)$ or $3 \times (t + 4)$ oe	
	(b)	$14x + 7 + 6x + 18$	$20x + 25$							2	M1 for $7 \times 2x + 7 \times 1$ or $14x + 7$ or $6 \times x + 6 \times 3$ or $6x + 18$ A1 for $20x + 25$ (accept $5(4x + 5)$ )	

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