

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

Unit **B272**: Module M2 (Sections A&B)

Mark Scheme for January 2011

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

Marking instructions for examiners (January 2011)

GCSE Mathematics C (Graduated Assessment) – J517
Units B271 to B282

Marking instructions

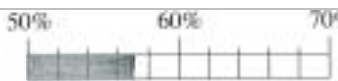
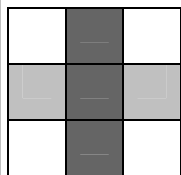
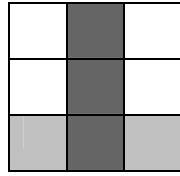
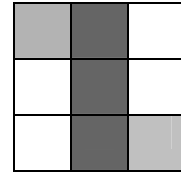
1. Mark strictly to the mark scheme.
2. Make no deduction for omission of units except as indicated on the mark scheme (although if this leads to a later error this will of course be penalised).
3. Work crossed out but not replaced should be marked.
4. **M** (method) marks are not lost for purely numerical errors.
A (accuracy) marks depend on preceding **M** (method) marks. Therefore M0 A1 cannot be awarded.
W (workless) marks are independent of **M** (method) marks and are awarded for a correct final answer or a correct intermediate stage.
5. Subject to 4, two situations may be indicated on the mark scheme conditioning the award of **A** marks or independent marks:
 - i. Correct answer correctly obtained (no symbol)
 - ii. Follows correctly from a previous answer whether correct or not (“FT” on mark scheme and on the annotations tool).
6. As a general principle, if two or more methods are offered, mark only the method that leads to the answer on the answer line. If two (or more) answers are offered, mark the poorer (poorest).
7. Always mark the greatest number of significant figures seen, even if this is then rounded or truncated on the answer line, unless the question asks for a specific degree of accuracy.
8.
 - i. Allow full marks if the correct answer is seen in the body and the answer given in the answer space is a clear transcription error, unless the mark scheme says ‘mark final answer’ or ‘cao’.
 - ii. Allow full marks if the answer is missing but the correct answer is seen in the body.
 - iii. Accuracy marks for an answer are lost if the correct answer is seen in the working but a completely different answer is seen in the answer space. Method marks would normally be given.
9. When the data of a question is consistently misread in such a way as not to alter the nature or difficulty of the question, please follow the candidate’s work and allow follow through for **A** and **W** marks. Deduct 1 mark from any **A** or **W** marks earned and record this by using the **MR** annotation. **M** marks are not deducted for misreads.

10. For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work.
11. For answers scoring no marks, you must either award NR (no response) or 0, as follows:
Award NR if:
 - Nothing is written at all in the answer space
 - There is a comment which does not in any way relate to the question being asked (“can’t do”, “don’t know”, etc.)
 - There is any sort of mark that is not an attempt at the question (a dash, a question mark, etc.)Award 0 if:
 - There is any attempt that earns no credit. This could, for example, include the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
12. Where a follow through (FT) mark is indicated on the mark scheme for a particular part question, you must ensure that you refer back to the answer of the previous part question.
13. In cases where there is clear evidence that a calculator has been used in section A, mark the script as normal then raise an exception.
14. Anything in the mark scheme which is in square brackets [...] is not required for the mark to be earned, but if present it must be correct.

Abbreviations

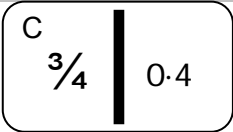
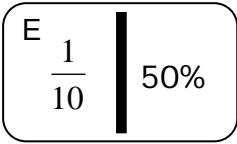
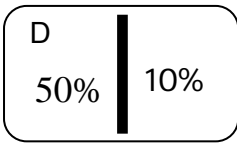
The following abbreviations are commonly found in GCSE Mathematics mark schemes.

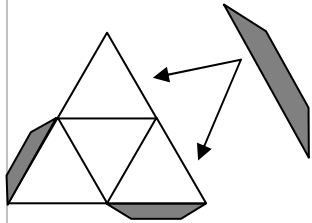
- Where you see **oe** in the mark scheme it means **or equivalent**.
- Where you see **cao** in the mark scheme it means **correct answer only**.
- Where you see **soi** in the mark scheme it means **seen or implied**.
- Where you see **www** in the mark scheme it means **without wrong working**.
- Where you see **rot** in the mark scheme it means **rounded or truncated**.
- Where you see **seen** in the mark scheme it means that you should award the mark if that number/expression is seen anywhere in the answer space, including on the answer line, even if it is not in the method leading to the final answer.
- Where you see **figs 237**, for example, this means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point e.g. 237000, 2·37, 2·370, 0·00237 would be acceptable but 23070 or 2374 would not.

1	(a)	(i) 409	1	Condone 9 alone	
		(ii) odd	1		
	(b)	439	1	Do not accept 441	
	(c)	9(th)	1		
2	(a)	65 to 68%	1		
	(b)		1	Must be half (by eye) of fourth square shaded	Use overlay and accept clear end to shading within or on lines
3	(a)	3	1	3·0 or 3·00	Not 300 or 300cm
	(b)	(i) $12 \times 25 = 300$ or $300 \div 25 = 12$ oe	1	4 lots of "25" = 1m (or 100) and $3 \times 4 (= 12)$	Accept only arguments using length Accept in equivalent units.
		(ii) 72	3	M1 for $150 \div 25$ or 6 seen M1 for 'their 6' $\times 12$ or diagram with 12 tiles across and whole number of rows.	<i>Their</i> 6 can be any integer or The result of their attempt to find number of rows
	(c)		2	M1 for any shading of 2 squares that has line symmetry eg 	Eg M0 for rotation symmetry 

	(d)	north right second	1 1 1		
	(e)	1.8(00)	2	M1 for 10×180 oe or 1800 seen	
	(f)	5.5(0) isw	2	Condone $5\frac{1}{2}$ M1 for attempt to find $\frac{1}{4}$ of 22 or 11 seen Or W1 for figs 55 or $(10\% =) 2.2(0)$ seen or answer = £16.50 without working	eg halve and halve again, or $\div 4$, or $\times 0.25$ etc
4		C B A	1 1 1	Win £100 Win £10 Win a prize (final box blank)	Mark letters or statements in correct boxes. If repeats, mark the worst. EG 3 marks CBA_ 2 marks CBAA 1 mark CAB_ or CABB 0 marks CACC (worst C marked) If B not in box, must be between impossible and evens.
5		89.1	2	W1 for 29.7×3 or figs 891 or 63 seen	

Section A Total: 25

6	(a)	(i) 0807	1		Accept any unambiguous time notation 8.07, 8:07, 0807am etc
		(ii) 36	1		
	(b)	0821	3	W2 for 0825 or 0829 or 0811 Or W1 for 0815 or 0841 or for 0850 bus identified	Mark answer Look for any time in 3 rd column
7	(a)	F	1		In each case accept correct half of domino drawn or written.
	(b)	C	1	Accept domino C drawn in empty template or on answer line.	
	(c)	E or D	1	If drawn, 50%s must match.	 
8	(a)	second box only indicated	1	Tetrahedron indicated	Accept any unambiguous mark eg. × ✓ × or × ✓ □ Do not accept ✓✓✓ or any combination of two ticks

	(b)		1	Flap in either place	Accept two flaps ONLY if in the indicated positions
9		1 to 1.4 oe inclusive	1	Accept 100cm to 140cm	If in cm then unit must be stated
10	(a)	(i) -12 -12 -6 -5 -4 -2 -1	1	Condone one omission Accept Moscow or Hamburg, Paris, Brussels, Basel, Birmingham, London	Moscow or Hamburg either way round or M, H, P, B, Ba, Bi, L
		(ii) -12	1	Penalise positive number only once in parts (ii) and (iii)	
		(iii) -5	1		
		(iv) [-]11	1		
	(b)	113	2	M1 for 45×1.8 or 81 seen or $n + 32$	n may be <i>their</i> 81
11	(a)	40	2	M1 for (figs 10) $\div 25$ oe or 4 or 0.4 as answer	
	(b)	(i) 50	2	M1 for $10 \div 2$ or W1 for 10 boxes or 5×10 or 5×5 or "1 box for £1" oe	oe could be $2 + 2 + 2 + 2 + 2$ W0 for 5 or 5 boxes

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Mark Scheme

January 2011

		(ii) 2	2FT	<p>Correct answer or follow through <i>their</i> 11(b) M1 for <i>their</i> $50 \div 25 (=n)$ A1 for integer n or n rounded DOWN</p>	<p>If no working seen. Award 2 marks for answer consistent with <i>their</i> $50 \div 25$ rounded down. Eg M1A1 if <i>their</i> $50 = 5$ boxes and answer is 1 M1A1 if <i>their</i> $50 = 30$ and answer is 1 M1A1 if <i>their</i> $50 = 24$ and answer is 0 or “They don’t (even) get 1 each” oe</p> <p>Award 1 mark (M1) for answer consistent with <i>their</i> $50 \div 25$ but un-rounded or rounded up. Eg M1A0 if <i>their</i> $50 = 24$ and answer is 1 or 0.48</p>
12	(a)	$\angle 78^\circ \pm 2^\circ$ drawn	1	Measure any single acute angle	If two acute angles, measure the worst
	(b)	B	1		

Section B Total: 25

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

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Telephone: 01223 553998

Facsimile: 01223 552627

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