

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

Unit **B271**: Module M1 (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.

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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.

Section A

1	(a)	82	1	cao	
	(b)	53	1	cao	
2		20 mm 2 m	1 1	clear intention	must see number and unit
3	(a)	parts not equal	1	see exemplars	may see part of explanation on diagram
	(b)	9 squares shaded	1		clear intention
	(c)	5	1	cao	Do not accept $5 \times 4 = 20$
4	(a)	25	1		
	(b)	6	1		
	(c)	41 www	3	M1 for 20 or 15 seen And M1 attempt to add two of 'their 20', 'their 6' and 'their 15'	Do not award second M1 for $4 + 3 + 5$ 'Their 20' etc can be implied by 4 lots of 5, 3 lots of 2, 5 lots of 3 seen Imply M2 for answer 26 or 35 or 21
5	(a)	(479), 497, 749, 794, 947, 974	2	W1 for any 3 correct; ignore repeats	condone repeat of 479 once only for 2 marks, otherwise maximum score of W1 if repeats, omissions or extras
	(b)	unlikely impossible evens	1 1 1		condone misspellings if intention is clear
6	(a)	4	1	cao	
	(b)	8	1	cao	

7	(a)	radius drawn	1	clear intention at one line from centre to circumference	condone unruled line if attempt at a straight line
	(b)	3.1 – 3.5	1FT	FT <i>their</i> straight line ± 0.2 cm	correct or FT do not accept answer in millimetres
8	(a)	14 (cm)	1		
	(b)	rectangle with perimeter 14 cm	1	rectangle 6cm by 1cm or 5cm by 2 cm or 4cm by 3cm correct or FT <i>their</i> (a)	Can use half squares if intention clear
	(c)	correct shape and 2 correct but different areas seen or correct shape and correct difference between different areas given	2	must FT <i>their</i> (b) M1 either area of (a) = $9(\text{cm}^2)$ or area of <i>their</i> (b) or correct shape selected and 'more squares'	Condone R for rectangle and L for L-shape Condone incorrect number of squares more for M1 Use of 'centimetre' does not imply squares/area

Section A Total: 25

Section B

9	(a)	odd	1		
	(b)	18	1		
	(c)	(i) 15, 40	1	both correct; no extras	
		(ii) end in 0 or 5	1	Condone 'it is in the 5 times table'	Not 'has 5 (or 0) in it'
10	(a)	East South West	1 1	or E or SW	not WS
	(b)	(£) 51 www	3	M1 use of 14 and 3 only And M1 for $3 \times$ 'their daily total' OR M1 for $14 \times 3 (= 42)$ or $3 \times 3 (= 9)$ And M1 for 'their 42' + 'their 9'	for method marks, attempt at calculation needs to be seen Multiplication may be implied by repeated addition seen Answer of 92 implies M2 Answer of 17 implies M1
	(c)	(i) 2:50	1	accept any correct equivalent	must be an acceptable form of time eg 'ten to three' Accept 24-hour notation eg 1450 etc Ignore any am/pm
		(ii) 25 (minutes)	1	or FT <i>their</i> (c)(i)	
	(d)	3:55	1	accept any correct equivalent	must be an acceptable form of time eg 'five to four' Do not accept :55 or 'five to'

11	(a)	(i) correct bar drawn	1		condone unruled lines, but height must be 60 by eye, and bar not stick, condone any width within markers
		(ii) Germany	1		
		(iii) 45 (million)	1	condone 45 000 000	
		(iv) 9 – 11	1		
	(b)	2600	1		Not 600
	(c)	3692 2860 1320 1091 1012	2	Or V(olga), D(anube), R(hine), E(lbe), L(oire) W1 for complete reversal or one misplaced	Condone transcription error if intention clear
12	(a)	(0, 7)	1		For consistently reversed coordinates penalise in (a) then award marks in (b) and (c)
	(b)	B plotted at (6, 4)	1		condone missing label if intention is clear
	(c)	(2, 6) or (4, 5) or (8, 3)	1	Not (6, 4) accept coordinates of any other point on line $x + 2y = 14$ or FT <i>their</i> line AB	need not be integer coordinates
13		correct enlargement	3	W2 for 2 lines correct length and position or correct enlargement with incorrect scale factor Or W1 for 1 line correct length and position	lines need not be ruled, but should be straight position of vertices should be correct, by eye

Section B Total: 25

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