

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

Unit **B273**: Module M3 (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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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. If in doubt, consult your team leader.
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)	160 (.0.....)	1		
	(b)	147.8 (.0..)	1		
	(c)	42.9 (.0...)	1		
	(d)	'He should carry the 2' etc.	1		
2	(a)	30 www	3	<p>W1 for 120 or 200 www Or M1 for attempt to find 15% of 800 or attempt to find 1/4 of 800 AND</p> <p>M1 for attempt to find 1/4 of <i>their</i> 120 or 15% of <i>their</i> 200 OR W1 FT correct answer for $\frac{1}{4}$ of <i>their</i> 120 or 15% of <i>their</i> 200</p>	10%, 5% and their answers added
	(b)	5.30pm or 1730	1		
	(c)	$\frac{7}{16}$	2	<p>W1 for $\frac{7}{n}$ or $\frac{n}{16}$ Deduct 1 mark for incorrect form</p>	<p>Condone unlikely with $\frac{7}{16}$ If word contradicts their fraction deduct 1 mark</p>
	(d)	700 and ml or 0.7 and L	2+1	M1 for 1000 – 300 or 1 – 0.7	Award unit mark If evidence seen of converting 1 litre to ml or 300 ml to L and subtraction seen or implied
	(e)	(i) correct diagram	2	W1 for 2 correct lines	± 2mm
		(ii) 12 – 12.8 from correct diagram or 2× their measurement	FT2	W1 for 6 – 6.4 from correct diagram or <i>their</i> line ± 2mm	Line XY must not be from a rectangle

3	(a)	18	1		Condone embedded as final answer in all parts.
	(b)	26	1		
	(c)	6	1		
4	(a)	125	1		
	(b)	arrow at 2.7	1		Must be nearer to 2.7 than 2.6 or 2.8
5	(a)	60	2	W1 for 12 and 5 from brackets OR M1 <i>Their</i> 12 × <i>their</i> 5 evaluated	With no other numbers from evaluating brackets, or incorrect working. Their 12 and 5 must be clearly from the brackets.
	(b)	need to multiply first or brackets seen round 5×3	1		

Section A Total: 25

Section B

6	(a)	9.5	1		
	(b)	15	1		
	(c)	80	2	W1 for 144 and 64 seen	
7	(a)	kilometers	1		accept km
	(b)	metres	1		accept m
8	(a)	36	1		
	(b)	correct vertical scale all bars equal width and equal gaps 4 bars correct height	1 1 1		Scale must start at zero (zero need not be labelled) condone not ruled if scale is linear or linear after the first square ft their heights If no scale ft 1cm = 5 or 10
	(c)	16	2	W1 for 8 OR M1 40 ÷ 5 oe	
	(d)	1 hour 56 mins or 116 mins	1		if 116, 'minutes' must be clear
9		£207.74	2	W1 for 195 www	

10	(a)	(i) 144	1		
		(ii) 15	1		
	(b)	(i) 9.5 oe www	3	M1 for attempt to add implied by 76 M1 for <i>their</i> $76 \div 8$	accept 9 hours 30 minutes
		(ii) 7	1		
	(c)	(i) 6.3 – 6.5	1		
		(ii) 'double the km for 7' oe	1		
11		Correct ruled enlargement	2	W1 not ruled or 2 correct lines	

Section B Total: 25

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