

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

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

Mark Scheme for March 2011

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of pupils of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, OCR Nationals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support which keep pace with the changing needs of today's society.

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.

© OCR 2011

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 (March 2011)**GCSE Mathematics C (Graduated Assessment) – J517
Units B272 to B280**

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		C D B E	3	2 for 3 correct Or 1 for 2 correct	
2	(a)	(i) 1.5	2	M1 for 9.5 – 8 seen	
		(ii) 1.37	2	M1 for 3.15 – 1.78 seen	SC1 for 2.63 (from naive subtraction but clearly attempt to do so)
		(iii) 0.15	2	M1 for sight of digits “15” or “30 × 5”	
		(iv) $80 \div 5 = 16$ $16 \times 20 = 320$ $80 \div 8 = 10$ $10 \times 50 = \text{£}5$ 50p coins worth more	1 1 1 1	Seen can imply 2 Choice on the basis of “ <i>their</i> ” calculations	Division could be by any method. mark to candidates advantage (for 2) for amount for either coin i.e. $80 \div \text{mass} (1) + \text{mass} \times \text{value} (1)$ Only available if three above marks gained.
	(b)	(i) 268	1	268 seen	
		(ii) 536	1	Follow through on “268” × £2	
		(iii) 1(p)	1	Not necessary to have ‘p’	Condone “10576”
3	(a)	(i) all correct O R A	2	1 each correct (maximum of 2)	
		(ii) $20^\circ \pm 2^\circ$	1		
	(b)	all ticks	3	2 for 3 correct or 1 for 2 correct	count omissions as errors i.e. mark is (number of ticks – 1)
4		D A E	3	1 for each correct	count omissions as errors

Section A Total: 25

Section B

5	(a)	-65 68	1 1	Condone "-68"	
	(b)	"South Pole because there are 10 colder months" or equivalent	2	1 for "South Pole" www 1 for a clear numerical argument	
6	(a)	27	1		May be drawn on the diagram
	(b)	60 "because it's double 30" o.e.	1 1		Accept "goes up in 2s", "two times table" etc.
7	(a)	(£) 20	1	SC1 for "£100"	
	(b)	(i) very unlikely or equivalent	1	Accept correct numerical probabilities and unlikely (as a minimum) or better.	"possible" or "not impossible" "it is possible" o.e. gains no credit.
		(ii) W correct ± 5 mm L correct ± 5 mm	1 1	These must be labelled, but SC1 iff two just correctly indicated and no labelling.	Or correct to nearest tick mark Use overlay.
	(c)	(i) 5 ($^{\circ}$ C)	1		
		(ii) 1 ($^{\circ}$ C)	2	www M1 for 25 seen	
	(d)	15	2	M1 for clear intent to order list	at least 6 numbers from 8, 12, 12, 15, 16, 17, 18 condone reverse order
	(e)	(i) (20 to 40)m	1		
		(ii) 4.4(00)	1		
		(iii) 25%	1		

	(f) (i) second train indicated	1	NAMBI	
	(ii) 7:54 o.e.	1		
	(g) 4 (balloons)	2	M1 for 3 or $38 \div 12$ seen	43 gains no credit
	(h) (i) J17 or 17J	1		
	(ii) L17 indicated	1	NAMBI	Must be region not a [point indicated clearly which is the intersection of two lines.

Section B Total: 25

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

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office; 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity



OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553