

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

Unit **B271**: Module M1 (Sections A&B)

Mark Scheme for June 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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Subject-Specific Marking Instructions

1. **M** marks are for using a correct method and are not lost for purely numerical errors.
A marks are for an accurate answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.
W marks are workless marks, which are independent of **M** (method) marks and are awarded for a correct final answer or a correct intermediate stage.
SC marks are for special cases that are worthy of some credit.
2. Unless the answer and marks columns of the mark scheme specify **M** and **A** marks etc, or the mark scheme is 'banded', then if the correct answer is clearly given and is not from wrong working **full marks** should be awarded.

Do not award the marks if the answer was obtained from an incorrect method, ie incorrect working is seen and the correct answer clearly follows from it.

3. Where follow through (**FT**) is indicated in the mark scheme, marks can be awarded where the candidate's work follows correctly from a previous answer whether or not it was correct.

Figures or expressions that are being followed through are sometimes encompassed by single quotation marks after the word *their* for clarity, eg FT $180 \times (\textit{their} '37' + 16)$, or FT $300 - \sqrt{(\textit{their} '5^2 + 7^2)}$. Answers to part questions which are being followed through are indicated by eg FT $3 \times \textit{their} (a)$.

For questions with FT available you must ensure that you refer back to the relevant previous answer. You may find it easier to mark these questions candidate by candidate rather than question by question.

4. Where dependent (**dep**) marks are indicated in the mark scheme, you must check that the candidate has met all the criteria specified for the mark to be awarded.
5. The following abbreviations are commonly found in GCSE Mathematics mark schemes.
 - **cao** means **correct answer only**.
 - **figs 237**, for example, means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point eg 237000, 2.37, 2.370, 0.00237 would be acceptable but 23070 or 2374 would not.
 - **isw** means **ignore subsequent working** (after correct answer obtained).
 - **nfww** means **not from wrong working**.
 - **oe** means **or equivalent**.
 - **rot** means **rounded or truncated**.


- **seen** means that you should award the mark if that number/expression is seen anywhere in the answer space, including the answer line, even if it is not in the method leading to the final answer.
 - **soi** means **seen or implied**.
6. Make no deductions for wrong work after an acceptable answer unless the mark scheme says otherwise, indicated for example by the instruction 'mark final answer'.
 7. 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).
 8. 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.
 9. Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures even if this is rounded or truncated on the answer line. For example, an answer in the mark scheme is 15.75, which is seen in the working. The candidate then rounds or truncates this to 15.8, 15 or 16 on the answer line. Allow full marks for the 15.75.
 10. If the correct answer is seen in the body and the answer given in the answer space is a clear transcription error allow full marks unless the mark scheme says 'mark final answer' or 'cao'. Place the annotation ✓ next to the correct answer.

If the answer space is blank but the correct answer is seen in the body allow full marks. Place the annotation ✓ next to the correct answer.

If the correct answer is seen in the working but a completely different answer is seen in the answer space, then accuracy marks for the answer are lost. Method marks would still be awarded. Use the M0, M1, M2 annotations as appropriate and place the annotation ✖ next to the wrong answer.
 11. Ranges of answers given in the mark scheme are always inclusive.
 12. 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.
 13. 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.

Section A

Question			Answer	Mark	Part marks and guidance	
1	(a)		72	1		
	(b)		23	1		
	(c)		48	1		
	(d)		8	1		
2	(a)		Rectangle completed	1	Correct by eye. Mark intention.	
	(b)		10.8 – 11.2 5.8 – 6.2	1 1	Accept length and width reversed. SC1 for 11 and 6 seen	
	(c)		33.2 - 34.8	2ft	M1 (<i>their</i> length + <i>their</i> width) x 2 oe	
3	(a)		F B B F (Fizz Buzz Buzz Fizz)	2	W1 one error	FFBF or BBBF or FBFF or FBBB
	(b)		Any multiple of 10	2	10, 20, 30, 40, W1 Any list of multiples of 2 and of 5 seen	
4	(a)	(i)	Line intended straight and point plotted on it.	1	Point may be marked P Point within 2mm of line by eye.	If a cross, judge by centre. If a blob, judge by centre. If P then must be on or touching line.
		(ii)	Coordinates of <i>their</i> point P	1	Accept coordinates unambiguously for their point. Do not accept (0, 1) or (7, 8)	If choice of P, no marks unless both given
	(b)		Plotting of (5, 2) unambiguously marked.	1	Point may be labelled G Point within 2mm of (5, 2) by eye.	If a cross, judge by centre. If a blob, judge by centre. If G then G must be on or touching point

Question		Answer	Mark	Part marks and guidance	
5	(a)	(X) Square	1	Ignore inclusion of "regular" at any point	Do not accept (X) "regular quadrilateral"
		(Y) Pentagon	1		
	(b)	A	1		
6	(a)	$\frac{1}{4}$ oe	1		Must be fraction
	(b)	(i)	1	There is no need to label A or B	Not 0A and 8B
		(ii)	1ft	Ft their valid diagrams only	
		(iii)	1ft	Must follow through their diagram NOT 1 - their (b)(ii)	
7	(a)	Unlikely or Impossible	1	If unlikely, allow inclusion of "very"	
	(b)		1		

Section A Total: 25

Section B

Question		Answer	Mark	Part marks and guidance	
8	(a)	Column 7 high	1	Accept freehand or vertical line within 1mm of 7 by eye.	
	(b)	Peanuts	1		
	(c)	10	1		
	(d)	Peanuts (Two) more (birds) oe Implication of totals	1 1	W1 for Sunflower seeds and 10	
9	(a)	8008, 7903, 5885, 3727, 3272 OR Cameras, Keys, Spectacles, Phones, Gloves	2	W1 first or last in correct position SC1 Reverse order	Condone minor transcription errors provided order still correct. EG. C – K – P – S – G
	(b)	Seven thousand (and) nine hundred and three	1	Condone inclusion of “no tens” NO numbers must be included in response.	
10	(a)	42	1		
	(b)	NW oe	1	North West OR 315	NOT W(est) N(orth)

Question		Answer	Mark	Part marks and guidance	
11	(a)	4	1		
	(b)	(i)	10	1	
		(ii)	5	1ft	Correct or follow through 15 – <i>their</i> (b)(i) (b)(i) less than 15
	(c)	50 x 2 or 100	1	Double or two times (the number of groups or grey bricks)	
12		(EHB) EBH HEB HBE BEH BHE	2	W1 Three permutations (after EHB) without error.	Ignore repeated permutations Do not accept repeated names eg BBB
13	(a)	14	1		
	(b)	1400	2ft	M1 <i>their</i> (a) x 100	
	(c)	7	3ft	M1 <i>their</i> 14 x 6 soi by 84 M1 <i>their</i> 84 ÷ 12 soi by = 7 A1 7	Check answer nfw If following through their 14 answer must be rounded up for final A1
14	(a)	25 minutes	2	W1 1220 oe seen	Twenty past twelve. Any time convention
	(b)	1310 oe	1	Ten past one, 1:10	Accept am or pm, if stated, with time. Any time convention

Section B Total: 25

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