

# **Mathematics C (Graduated Assessment)**

General Certificate of Secondary Education **B272**

Module M2 (Sections A&B)

## **Mark Scheme for June 2010**

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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**

1. Mark strictly to the mark scheme. If in doubt, consult your team leader using the messaging system within *scoris*, e-mail, or by telephone.
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).
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).
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.)


The hash key [#] on your keyboard will enter NR.

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 if this is not shown within the image zone. You may find it easier to mark follow through questions candidate-by-candidate rather than question-by-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 (malpractice) in *scoris*. All suspected malpractice should be flagged using exceptions.
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.
15. Holding the F2 key on your keyboard displays the annotations toolbar next to your cursor. The following annotations are available:

✓ and ✕

	Highlighter
<b>BOD</b>	Benefit of doubt
<b>FT</b>	Follows through
<b>ISW</b>	Ignore subsequent working (after correct answer obtained)
<b>M0, M1, M2</b>	Method mark awarded 0, 1, 2
<b>A1</b>	Accuracy mark awarded 1
<b>W1, W2</b>	Workless mark awarded 1, 2
<b>SC</b>	Special case
<b>^</b>	Omission
<b>MR</b>	Misread

These should be used whenever appropriate during your marking. **The A, M and W annotations must be used on your standardisation scripts for responses that are not awarded either 0 or full marks.** It is vital that you annotate these scripts to show how the marks have been awarded. It is not mandatory to use annotations for any other marking, though you may wish to use them in some circumstances.

16. The comments box will be used by the Principal Examiner to explain his or her marking of the practice scripts for your information. Please refer to these comments when checking your practice scripts. **Please do not type in the comments box yourself.** Any questions or comments you have for your team leader should be communicated using the *scoris* messaging system, e-mail, or by telephone.
17. As far as possible you should mark roughly equal numbers of RIGs from sections A and B. It is helpful to mark some in each section as you go, rather than marking all RIGs in one section, then all RIGs from the other.

**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)	(i) 56	1	
		(ii) 22 500	2	<b>M1</b> for figs 225 or attempt at subtraction seen
	(b)	53·44	2	<b>M1</b> for pence column correct (44) or pounds column (53)
	(c)	(i) 30	1	
		(ii) Carbohydrate starts at 55 not zero	1	it should be 25%; carbohydrate starts at 55% etc; see exemplars
		(iii) 1/4 oe	1	
		(iv) 200	1	
	(d)	84	2	<b>M1</b> for attempt at multiplication of 14 and 6
	(e)	(i) 5	2	<b>W1</b> for 10 of the numbers listed in order 1 2 4 4 4 5 5 6 8 12 12
		(ii) 4	1	
	(f)	(i) south (S) north-east (NE)	1 1	
		(ii) clockwise	1	
2	(a)	(i) 118 to 122°	1	
		(ii) obtuse	1	
	(b)	∠ of 33 to 37° drawn	1	
	(c)	acute reflex	1 1	
3	(a)	(i) 5	1	
		(ii) -3 oe	1	
	(b)	multiply by 2	1	see exemplars

Section A Total: 25

**Exemplar responses: 1(c)(ii)**

<b>Response</b>	<b>Mark</b>
Because she count from the beginning.	<b>1 (min)</b>
Because Protein and Fat take most of it away	<b>0</b>
She is wrong because the bar is in the middle of 50 and 60.	<b>0</b>
Because it stops at 55 then goes to 80 if it was 80% Protein and Fat would not be there.	<b>1</b>
30% Protein, 25% Fat, 20% Water.	<b>0</b>
Because carbohydrate starts on 55% and finishes on 80%, so it can't be.	<b>1</b>
Carbohydrates start at 40% and ends at 80%	<b>0</b>
It starts at $55 - 80 = 15\%$	<b>1 isw</b>
She isn't looking how much % of carbohydrates there is just where it stops	<b>1</b>
Carbohydrate does take up 0 to 80	<b>0</b>
It shows 30% to 80%	<b>0</b>
It does not start at 0	<b>1</b>
Protein and Fat make 55% so 45% is left.	<b>0</b>
Because 80% is nearly all the bar chart and 30% is Protein and Fat.	<b>0</b>

**Exemplar responses: 3b**

<b>Response</b>	<b>Mark</b>
Just double the number (and the last number is 120).	<b>0</b>
Double the number before.	<b>1</b>
Time it by 2 each time.	<b>1</b>
To find the next number you should add on 80.	<b>0</b>
You add the same number to get the next number in the sequence.	<b>0</b>
Add the same number twice.	<b>0</b>
It's doubling in two's	<b>1</b>
1 number add that same number.	<b>0</b>
First add 5, then add 10, then add 20 then add 40.	<b>0</b>
Double it.	<b>1</b>
By adding same number.	<b>0</b>
You add whatever the number you're adding on to get the next number i.e $80 + 80 = 160$	<b>0</b>
You add on the last number	<b>1</b>

## Section B

4	(a)	$\frac{1}{4}$ $\frac{5}{8}$ $\frac{3}{6}$ oe	1 1 1	
	(b)	(0)·75	1	
5		correct reflection	2	W1 for 2 lines correct
6		cuboid cylinder sphere	3	W2 for 4 correct OR W1 for 3 correct
7	(a)	R	1	
	(b)	P	1	
	(c)	Q	1	
8		5	2	M1 for $20 \div 3.8$ or $5.26\dots$ or $5 \times 3.8 [= 19]$
9	(a)	Yellowknife	1	
	(b)	42	2	M1 for -15 and 27 identified
10	(a)	95	1	
	(b)	469	2	M1 for 213 and 256 identified
	(c)	59	2	W1 for attempt at $118 \div 2$
11	(a)	64	1	
	(b)	45	2	W1 for attempt to divide by 1.6

Section B Total: 25



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