OCR
RECOGNISING ACHIEVEMENT

GCSE

Mathematics C (Graduated Assessment)

General Certificate of Secondary Education

Unit **B274:** Module M4 (Sections A&B)

Mark Scheme for March 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 (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.

Section A

1	**(a)**	−2, 4	**1**	Condone inclusion of x and/or y in correct coordinates. Not (-2x, 4y)	For reversed coordinates, penalise first case only.
	(b)	(C) mark(ed) at (3, −3) 3, −3	**1** **1FT**	C not written but <u>clear</u> indication shown at (3,−3) **W1** for correct coordinates of point intended as their C **SC2** 3, -3 and nothing else.	Cross, dot or point or bottom right of rectangle.
	(c)	rectangle drawn 35	**1FT** **1FT**	Strict FT from their C.. any rectangle that has A, B and *their* C as vertices. correct area for **any** rectangle soi by C or shape seen. 35 alone scores **0**, **1**	 Rectangle or shape does not have to have A,B,C…as vertices for area mark.
2	**(a)**	Add <u>one more</u> each time	**1**	+1, +2, +3, … or “and so on ” oe seen on drawing or in answer space Or +1, +2, +3, +4, +5, +6 (…) Or add oe, 1, 2, 3, 4, 5, 6 (…)	Mark clear intention and ignore any non-contradictory statement(s) Condone **once** failure to state of + or – in whole of (a) and (d) Eg 2a 1, 2, 3, 4, 5, 6, **W0** 2d (7), 6, 5, 4, 3, 2, 1, **W1**
	(b)	39	**1**	cao	
	(c)	11 or 17	**1**	either or both **1** for any prime number including *their* F **0** if any other non-prime number shown	

	(d)	subtract <u>one fewer</u> each time	**1**	-7, -6, -5, … or "and so on " oe seen on drawing or in answer space Or (-7), -6, -5, -4, -3, -2, -1 Or subtract oe, (7), 6, 5, 4, 3, 2 ,1	Mark clear intention and ignore any non-contradictory statement(s) Condone **once** failure to state of + or – in whole of (a) and (d) Eg 2a 1, 2, 3, 4, 5, 6, **W0** 2d (7), 6, 5, 4, 3, 2, 1, **W1**
3	**(a)**	(£)5·25 or 525p cao	**3**	£ **must** be deleted for pence mark **M2** for figs 525 or **M2** for 175 × 3 or 175 + 175 + 175 or **M1** for 100 × 3 or 300 and 70 × 3 or 210 and 5 × 3 or 15 and **M1** for *their* 300 + *their* 210 + *their* 15 **SC2** (£)3.50 or £350p	**A0** for 5.25p × 100 70 5 3 300 210 15 From assumed MR (2 for 3)
	(b)	7·25	**2**	**M1** for 1.75 + 2.5 + 3 or **SC1** for figs 725 or figs 753	
4	**(a)**	correct trapezium	**2**	Condone intended straight lines with all vertices touching circle of overlay. **M1** for any "correct" reflection of trapezium in wrong mirror line or hand drawn in correct quadrant but any vertex just outside circle	
	(b)	horizontal line, one square below A	**1FT**	Correct line or FT any "correct" line following *their* incorrect B	Must indicate dotted line, if "correct", following incorrect reflection in part (a)

5		**Yes** cao following M2.	**3**	**M1** for 4 × 10 = 40 **M1** for 5 × 11 = 55 or **M1** for 2 x 25 (= 50) **M1** for 5 x 10 (= 50) or **M1** for factors of 50 {1, 2, 5, 10, 25, 50} **M1** for differences (50 − 1=) 49, (25 − 2=) 23, (10 − 5 =) 5 If **0** **M1** for any correct multiplication of two whole numbers with difference of 6	Trial using products with difference of 6 Examine factors of 50 Condone omission of 1 and 50 Condone omission of 49 Ignore incorrect calculations for the mark
6	**(a)**	(i) 70 – 90 thousand	**1**	Condone including ‘000	
		(ii) Cannot read accurately from scale	**1**	Comment must imply divisions on axis too large or “Points” not on “divisions” and cannot be read precisely.	Goes up in 50s or 100s It doesn’t show numbers between
	(b)	shows only the last two years or ‘cannot predict credit slumps’	**1**	Not enough information or House prices may change differently	Not for “predicting” or “inaccurate”
7		100(Kcal) 2(g)	**1** **1**	Seen in Energy row, second column, or clearly intended. Seen in Salt row, first column, or clearly intended.	Accept in working if annotated or intention clear and no further work. Do not penalise omission of units

Section A Total: 25

Section B

8	**(a)**	(i) 1·25 oe	**3**	**M2** for 10 ÷ 8 Or **M1** for '*their*' 10 ÷ 8 Or **W1** for 10 seen **SC2** for 9.125 oe	
		(ii) 1	**1**		
	(b)	No **and** The range can't be used or No **and** she should use the mean	**1**	**No** and the **range** cannot be used or or **No** and any comment that the mean should be used eg "No, The mean is the same"	Do not credit comments that do not mention range or mean or begin **Yes**. No she should use the mean No the mean is the same Accept equivalent wording but not where "same number of goals" is the only evidence.
9	**(a)**	0.8(0)	**1**		
	(b)	(i) 6	**1**		
		(ii) 20	**1**		
10	**(a)**	127	**1**		
	(b)	47	**2**	**W1** for 90° or 133° seen	
11	**(a)**	6	**1**		
	(b)	both the same or both 12 km/hr	**1**	ignore references to opposite direction	Do not accept "steady speed" as this is given in the question

12	**(a)**	<table><tr><td>3</td><td>3·5</td></tr><tr><td>**24**</td><td>28</td></tr><tr><td>2</td><td>2</td></tr><tr><td>**26**</td><td>30</td></tr></table>	**1**	Both must be correct for 1 mark.	
	(b)	$h = 8 \times w + 2$	**2**	**W1** for w **W1** for 2	Condone use of another letter for w **but not** h
13		37 to 42	**1**		
14	**(a)**	2	**1**		
	(b)	4	**1**		
15		16 × 10.21 (D) 4 × 5.86 (N) *Their* (D) + *their* (N) + 21.2 Yes and (£)2.08 or (£)2.07 seen or 5p or 6p cheaper seen	**M1** **M1** **M1** A1	soi by figs163(.36) soi by figs23(.44) **M3** Implied by 207(p) or 208(p) oe seen cao	**M0 M0 M0** 10.21 + 5.86 + 21.2 **M0 M0 M1** (10.21+16) + (5.86+4) + 21.2
16		$\frac{716}{1000}$ oe	**2**	**W1** for 716 seen **W1** for 1000 as denominator accept equivalent versions eg $\frac{358}{500}$ or $\frac{179}{250}$ or 0·716 or 71.6% **SC2** 70% or 71% or 72% after 716 seen	

Section B Total: 25

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