

Edexcel GCSE

Mathematics A 1387

Paper 5521/01

November 2007

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Mark Scheme

NOTES ON MARKING PRINCIPLES

1 Types of mark

M marks: method marks

A marks: accuracy marks

B marks: unconditional accuracy marks (independent of M marks)

2 Abbreviations

cao - correct answer only

ft - follow through

isw - ignore subsequent working

SC: special case

oe - or equivalent (and appropriate)

dep - dependent

indep - independent

3 No working

If no working is shown then correct answers normally score full marks

If no working is shown then incorrect (even though nearly correct) answers score no marks.

4 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

If there is no answer on the answer line then check the working for an obvious answer.

5 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

- 6 Ignoring subsequent work**
It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. incorrect cancelling of a fraction that would otherwise be correct
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.
Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.
- 7 Probability**
Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths). Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.
- 8 Linear equations**
Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.
- 9 Parts of questions**
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

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No.	Working	Ans.	Mark	Notes																				
1(a)	Five thousand two hundred and fifty		1	B1 accept 5 thousand 2 hundred and 50																				
(b)		23 000	1	B1 cao																				
(c)		300	1	B1 accept 3 hundred or hundred but not 3																				
(d)		6 374	1	B1 cao																				
2(a)	$\begin{array}{r} 491 \\ 500 \\ \underline{107} - \end{array}$ $\begin{array}{r} 107 + 3 \\ 110 + 90 \\ 200 + 300 \end{array}$	393	2	M1 for decomposing correctly or counting on A1 for 393																				
(b)	$\begin{array}{r} 327 \\ \underline{4 \times} \end{array}$ $\begin{array}{r} 327 \\ 327 \\ 327 \\ \underline{327} + \end{array}$ <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>3</td> <td>2</td> <td>7</td> <td>×</td> </tr> <tr> <td></td> <td>1</td> <td>/</td> <td>2</td> <td>4</td> </tr> <tr> <td></td> <td>2</td> <td>8</td> <td>8</td> <td></td> </tr> <tr> <td>1</td> <td>3</td> <td>0</td> <td>8</td> <td></td> </tr> </table>		3	2	7	×		1	/	2	4		2	8	8		1	3	0	8		1308	2	M1 for method for multiplying that could lead to a correct answer. Condone one error in × or in carrying A1 cao
	3	2	7	×																				
	1	/	2	4																				
	2	8	8																					
1	3	0	8																					
3(a)		Isosceles	1	B1 for Isosceles (triangle) ignore spelling																				
(b)		Square	1	B1 ignore spelling																				
(c)	Diagram of trapezium		1	B1 for diagram of a trapezium																				

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No.	Working	Ans.	Mark	Notes
4(a)			1	B1 for any line parallel to L
(b)			1	B1 for any line perpendicular to P
5(a)		6 shaded	1	B1 cao
(b)		2 shaded	1	B1 cao
(c)		3/10	1	B1 oe
(d)		70%	1	B1 cao
(e)	$36 \div 4 \times 3$	27	2	M1 for $36 \div 4$ or 36×3 or sight of 9 or 108 A1 for 27 cao
6(a)		18	1	B1 cao
(b)		14	1	B1 cao
(c)		27	2	B2 for 27 (B1 for 26, 28, or 17 or 9)
7(a)		22, 27	2	B2 (B1 ft for +5 on "22")
(b)	Continue sequence by +5	47	2	M1 for carrying on sequence by adding 5 A1 for 47 SC B2 for "27" + 20
8(a)		09 00	1	B1 accept 9 or 9 am
(b)	It went down		1	B1 for It gets less oe B0 for any contradictions

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No.	Working	Ans.	Mark	Notes
9(i) (ii) (iii)		6 12 8	3	B1 cao B1 cao B1 cao
10(a)		07 37	1	B1 accept 7:37 or 7:37 am or 7.37 or 7.37 am or 7 37
(b)		10 mins	1	B1 cao
(c)		18mins	1	B1 cao
11(a)			1	B1 for arrows on parallel lines
(b)			1	B1 for acute angle marked
(c)			1	B1 for obtuse angle marked
12(a)		miles kg litres	3	B1 B1 accept grams B1
(b)			2	B2 for answer in range 1.3 m to 1.5 m inclusive (B1 for answer in range 1.2 m to 1.7 m inclusive)
13(a)		1 marked	1	B1 1 marked on line ± 1 cm
(b)		0 marked	1	B1 0 marked on line ± 1 cm
(c)		$\frac{1}{2}$ marked	1	B1 $\frac{1}{2}$ marked on line ± 1 cm
14(a)	$(27 - 3) \div 2$	12	2	M1 for $(27 - 3) \div 2$ A1 for 12
(b)	$2 \times 5 + 3$	13	2	M1 for $2 \times 5 + 3$ A1 for 13

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No.	Working	Ans.	Mark	Notes
15(a)(i)		16	3	B1 cao
(ii)		8		B1 cao
(iii)		24		B1 cao
(b)(i)		3	2	B1 cao
(ii)		-5		B1 cao

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No.	Working	Ans.	Mark	Notes																																
16(a)	$\begin{array}{r} 375 \\ \underline{24 \times} \\ 1500 \\ \underline{7500} \\ 9000 \end{array}$ <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">3</td> <td style="text-align: center;">7</td> <td style="text-align: center;">5</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">6</td> <td style="border: 1px solid black; padding: 2px;">4</td> <td style="border: 1px solid black; padding: 2px;">0</td> <td style="padding-left: 5px;">2</td> </tr> <tr> <td style="padding-right: 5px;">9</td> <td style="border: 1px solid black; padding: 2px;">2</td> <td style="border: 1px solid black; padding: 2px;">8</td> <td style="border: 1px solid black; padding: 2px;">0</td> <td style="padding-left: 5px;">4</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="text-align: center;">300</td> <td style="text-align: center;">70</td> <td style="text-align: center;">5</td> <td></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">6000</td> <td style="border: 1px solid black; padding: 2px;">1400</td> <td style="border: 1px solid black; padding: 2px;">100</td> <td style="padding-left: 5px;">20</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">1200</td> <td style="border: 1px solid black; padding: 2px;">280</td> <td style="border: 1px solid black; padding: 2px;">20</td> <td style="padding-left: 5px;">4</td> </tr> </table> $6000 + 1400 + 100 + 1200 + 280 + 20 = 9000$		3	7	5			6	4	0	2	9	2	8	0	4		0	0	0		300	70	5		6000	1400	100	20	1200	280	20	4	90.00	3	<p>M1 for a complete method with relative place value correct, condone 1 multiplication error, addition not necessary A1 for 9000 A1 (dep on M1) for correct conversion of their total into £s</p> <p>OR</p> <p>M1 for a completed grid with not more than 1 multiplication error, addition not necessary A1 for 9000 A1 (dep on M1) for correct conversion of their total into £s</p> <p>OR</p> <p>M1 for sight of a complete partitioning method, condone 1 multiplication error, final addition not necessary A1 for 9000 A1 (dep on M1) for correct conversion of their total into £s</p> <p>OR</p> <p>M1 for repeated addition (condone 23 or 25) must be an attempt to add A1 for 9000 A1 (dep on M1) for correct conversion of their total into £s</p>
	3	7	5																																	
	6	4	0	2																																
9	2	8	0	4																																
	0	0	0																																	
300	70	5																																		
6000	1400	100	20																																	
1200	280	20	4																																	
(b)	$\begin{array}{r} 6.75 \\ 20 \overline{)135.150^{10}0} \end{array}$	6.75	3	<p>M1 for $135 \div 20$ with 6 units identified M1 for a correct method to deal with remainder A1 cao</p> <p>OR</p> <p>M1 for complete method for division broken up correctly M1 for a correct method to deal with remainders A1 cao</p>																																

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No.	Working	Ans.	Mark	Notes
17(a)		9	1	B1 cao
(b)		5 9 7 21 4 7 8 19 9 16 15 40	3	B3 for all correct (B2 for 4 or 5 correct) (B1 for 1 or 2 or 3 correct)
(c)	$\frac{16}{40}$	$\frac{2}{5}$	1	B1 for 2/5 oe
18 (a)	4 5 6 7 8 5 6 7 8 9 6 7 8 9 10		2	B2 if fully correct (B1 for 1 row correct or 2 columns correct)
(b)	(1,4); (2,3);(3,2); (4,1)		2	B2 if fully correct (B1 for either (2,3) or (3,2))
(c)	(2,6);(3,5);(3,6);(4,4);(4,5);(4,6)		2	B2 if fully correct (order in brackets need not be consistent) (B1 for 3 pairs correct, ignore extras)
19(a)			2	B2 fully correct, (B1 for reflection of A in a mirror line other than y axis)
(b)			2	B1 for 3 right B1 for 2 down

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No.	Working	Ans.	Mark	Notes
20(a)	$90 + 80 \times 0.50$ $90 + 40$	£130	2	M1 for $90 + 80 \times 0.50$ or $9000 + 80 \times 50$ or $90 + 80 \times 50$ A1 for 130
(b)		$90 + 0.5m$	2	SC B1 4090 or 490 or 94 or 13000 seen B1 for 0.5 m B1 for $90 + "0.5m"$ NB ignore £ signs
21(a)(i)	Angle $x = 63$	63°	2	B1 for 63°
(ii)	(Corresponding angles)	and reason		(B1 for corresponding or alternate angles mentioned, accept Z angles or F angles)
(b)	Angle $y = 117^\circ$	117°	1	B1 for 117° cao
22(a)	$-3, \dots, 1, \dots, \dots, 7$		2	B2 for all values correct (B1 for 2 values correct)
(b)			2	B2 cao for line between $x = -1$ and $x = 4$ B1 ft for 4 points correctly plotted ± 1 (2mm sq) or for a line with gradient 2 or for a line passing through (0, -1)
23(a)			2	B2 for trapezium (base 5cm, ht 2cm & top 3cm) (B1 for a trapezium with exactly two right angles)
(b)			2	B2 for rectangle with length 5 cm and width 2 cm and a line at 3 cm from one edge (B1 for rectangle of length 5 cm or width 2 cm or for a rectangle with an interior line parallel to the shorter sides do not accept a square) (B0 for nets) Note: orientation must be correct in (a), ignore in (b) Do not accept extra lines in (a) or (b)

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No.	Working	Ans.	Mark	Notes
24(a)		$x(x - 5)$	2	B2 for $x(x - 5)$ (B1 for $x(\text{linear expression in } x)$)
(b)		$15x - 6$	1	B1
25(a)	$35/56 \times 100$	62.5	2	M1 for $35/56 \times 100$ A1 for 62.5oe
(b)	$40/100 \times 35 = 14$ 14/56	$\frac{1}{4}$	4	M1 for $40/100 \times 35$ A1 for 14 M1 ft for "14"/56 oe A1 cao for $\frac{1}{4}$