

GCSE

Edexcel GCSE

Mathematics A 1387

Paper 5521/01

Summer 2005

advancing learning, changing lives

Mark Scheme (Results)

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Mathematics A 1387
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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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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	Answer	Mark	Notes
1	(a)	17252	1	B1 cao
	(b)	5400	1	B1 cao
	(c)	thousands, 1000, 4000	1	B1
2	(a)	grams, g centimetres, cm millilitres, ml, cm ³	3	B1 oe spelling B1 oe spelling B1 oe spelling
	(b)	5	1	B1 cao
3	(a)	106, 102	1	B1 cao ignore extras
	(b)	eg take away 4	1	B1 could be indicated on the diagram
	(c)	46	1	B1 cao

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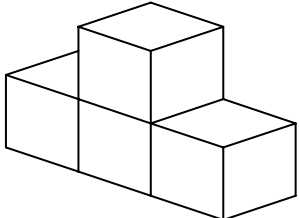
No	Working	Answer	Mark	Notes																																																																			
4	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <table style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">286</td> <td style="padding: 2px;">43</td> <td style="padding: 2px;">$286 \times 40 = 1140$</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 2px;">43</td> <td style="border-top: 1px solid black; padding: 2px;">286</td> <td style="padding: 2px;">$286 \times 3 = 858$</td> </tr> <tr> <td style="padding: 2px;">858</td> <td style="padding: 2px;">258</td> <td style="padding: 2px;">$1140 + 858 = 12298$</td> </tr> <tr> <td style="border-top: 1px solid black; padding: 2px;">11440</td> <td style="padding: 2px;">3440</td> <td></td> </tr> <tr> <td style="border-top: 1px solid black; padding: 2px;">12298</td> <td style="border-top: 1px solid black; padding: 2px;">8600</td> <td></td> </tr> <tr> <td></td> <td style="border-top: 1px solid black; padding: 2px;">12298</td> <td></td> </tr> </table> <table border="1" style="border-collapse: collapse; text-align: center; margin: 10px auto;"> <tr> <td style="padding: 2px;">x</td> <td style="padding: 2px;">40</td> <td style="padding: 2px;">3</td> <td></td> </tr> <tr> <td style="padding: 2px;">200</td> <td style="padding: 2px;">8000</td> <td style="padding: 2px;">600</td> <td style="padding: 2px;">8600</td> </tr> <tr> <td style="padding: 2px;">80</td> <td style="padding: 2px;">3200</td> <td style="padding: 2px;">240</td> <td style="padding: 2px;">3440</td> </tr> <tr> <td style="padding: 2px;">6</td> <td style="padding: 2px;">240</td> <td style="padding: 2px;">18</td> <td style="padding: 2px;">258</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="padding: 2px;">12298</td> </tr> </table> <table style="border-collapse: collapse; margin: 10px auto;"> <tr> <td></td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">8</td> <td style="padding: 2px;">6</td> <td></td> </tr> <tr> <td style="padding: 2px;">1</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">8</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">4</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">2</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">6</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">4</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px; text-align: center;">8</td> <td style="padding: 2px;">3</td> </tr> <tr> <td></td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">9</td> <td style="padding: 2px;">8</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div>	286	43	$286 \times 40 = 1140$	43	286	$286 \times 3 = 858$	858	258	$1140 + 858 = 12298$	11440	3440		12298	8600			12298		x	40	3		200	8000	600	8600	80	3200	240	3440	6	240	18	258				12298		2	8	6		1	0	8	3	2	2	4	4	2	0	6	2	4	1	8	3		2	9	8					12298	3	<p>M2 for complete correct method (condone one computational error) (M1 for complete correct method with two computational errors) A1 cao</p> <p>OR</p> <p>B2 inside of grid completed (condone missing zeros and one error) (B1 2 or 3 errors) B1 cao</p>
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5	<p>(a)</p> <p>(b)(i)</p> <p>(ii)</p> <p>(c)</p> <p>(d)(i)</p> <p>(ii)</p> <p>(iii)</p>	<p>18, 69</p> <p>18 or 36</p> <p>16 or 36</p> <p>factor</p> <p>18</p> <p>11 or 88</p> <p>69</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>3</p> <p></p> <p></p>	<p>B1</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B1 cao</p> <p>B1</p> <p>B1 cao</p>																																																																			

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No	Working	Answer	Mark	Notes
6	(a) (b) (c) (d) (e)(i) (ii)	April & May Daffodil Feb Crocus $\frac{1}{5}$ × from 56 mm to 64 mm from 0	1 1 1 1 2	B1 for both B1 B1 B1 B1 for $\frac{1}{5}$ oe B1 A single mark on the line, between 56 mm and 64 mm measured from end 0
7	(a) (b) (c) (d) (e)	$\frac{40}{100}$ 0.98 7 500 000 25 60	2 1 1 1 1	B2 for $\frac{2}{5}$ B1 for $\frac{40}{100}$ or $\frac{4}{10}$ or $\frac{20}{50}$ or $\frac{8}{20}$ B1 cao B1 cao B1 cao B1 cao

Paper 5521/01				
No	Working	Answer	Mark	Notes
8	(a)(i) (ii) (b)	(0, 2) (4, 1) $(2, 1\frac{1}{2})$ marked	2 1	B1 cao B1 cao B1 Allow 2mm tolerance from $(2, 1\frac{1}{2})$
9	(a) (b) $1.60 + 0.40$ (c) $1 \div 0.8$ or $2.50 \div 2$	2.40 2.00 1.25	1 2 2	B1 cao could be indicated on the diagram M1 for appropriate sum or product in £ or p or 200 seen eg $1.60 + 0.40$, $160 + 40$, $0.80 + 0.80 + 0.40$, $80 + 80 + 40$, 0.08×25 , 0.80×2.5 , 200 A1 cao M1 for $1.00 \div 0.8$ or $2.50 \div 2$ or 125 or appropriate combination eg $1 + \frac{1}{2} \times 0.50$ A1 cao
10	(a) (b) (c) $30 \times 4 + 8 \times 2$	hexagon Sum of angles at a point is 360° 136	1 <hr/> 2 <hr/> 2	B1 Condone spelling error B1 for 360 seen B1 for “point”, “complete turn” or “a circle” or similar unless accompanied by an incorrect angle SC If neither B1 scored, award B1 for a clear indication that the size of an angle, other than x , is 90° or a right angle (may be on diagram) M1 $30 \times 4 + 8 \times 2$ or attempt to sum 5 or 6 lengths A1 cao

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No	Working	Answer	Mark	Notes
11	(a)	13, 67, 76, 103, 130	5	B1 cao
	(b)	-7, -3, -1, 0, 5		B1 cao
	(c)	0.07, 0.072, 0.7, 0.702, 0.72		B1 cao
	(d)	0.6, $\frac{2}{3}$, 70%, $\frac{3}{4}$		B2 (B1 for any 3 in correct order)
12	(a)	16 30	1	B1 Accept 4 30 pm Do not accept 4 30
	(b)(i)	33.56 ÷ 4 oe	3	M1 for 33.56 ÷ 4 oe eg 3356 ÷ 4, division by 2 twice A1 cao
	(ii)	9		B1 ft from "8.39" unless whole number of pounds
13	(a)	6 cm ²	3	B2 for 6 cao for numerical answer (B1 for 5.5 < Area ≤ 7) then B1 (indep) for cm ² with or without numerical answer
	(b)	See diagram	2	B2 (B1 for any 2 sides correct or a correct enlargement scale factor ≠ 1 or 2)

Paper 5521/01					
No	Working	Answer	Mark	Notes	
14	(a)	$(4 + 3) \times 10$	70	2	M1 for $(4 + 3) \times 10$ A1 cao
	(b)	$120 \div 10 - 3$	9	2	M1 for $\frac{120}{10}$ or 12 seen eg $12 \times 10 = 120$ A1 cao
	(c)		$C = 10(n + 3)$	3	B3 for $C = 10(n + 3)$ oe such as $C = (n + 3) \times 10$ (B2 for correct RHS or $C = n + 3 \times 10$, $C = 10n + 3$ oe B1 for $C =$ some other linear expression in n or for $n + 3 \times 10$, $10n + 3$ etc) Note: $C = n$ scores no marks
15		11 13 16 8 21	2	B2 all correct (B1 for 2 correct)	

Paper 5521/01				
No	Working	Answer	Mark	Notes
16	(a)	$2p + 4q$	2	B2 for $2p + 4q$ (accept $2 \times p$ etc) (B1 for $2p$ or $4q$)
	(b)	$2y^2$	1	B1 accept $2 \times y^2$ oe inc $2 \times y \times y$
	(c)	$3c + 4d$	2	B2 for $3c + 4d$ (accept $3 \times c$ etc) (B1 for $3c$ or $4d$)
	(d)	$8pq$	<hr/> 1 <hr/>	B1 accept in any order but must not include \times sign
17	(a)(i)	60	2	B1 cao
	(ii)	eg top triangle is equilateral		B1 for reason
	(b)	150	2	M1 for $\frac{180 - "60"}{2} + 90$ A1 ft from (a)(i) if $x < 90$ SC B1 for "60" + 90 if $x < 90$
18		40	2	M1 for 60×2 or 120 or $60 \div 3$ or 20 or $\frac{120}{180}$ A1 cao
19		correct drawing	2	B2 Condone hidden detail shown with solid lines and missing lines on front face (B1 for a correct sketch with other incorrect sketch(es) or for prism with correct cross section >1 cube wide or for attempt to draw prism with correct cross section or prism with correct plan and side elevation)

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No	Working	Answer	Mark	Notes
20	$\frac{600}{3 \times 10}$ or $\frac{640}{3.2 \times 10}$	$20-21\frac{1}{3}$	2	M1 for rounding at least two of the numbers to 1 sf or for sight of 640, 3.2 or 640, 32 or 600, 32 or 30 seen A1 for $20-21\frac{1}{3}$ Note: 20.3125 scores M0 A0
21	(a)	Points plotted	1	B1 ± 1 full (2 mm) square
	(b)	positive	1	B1 cao
	(c)	Line of best fit	1	B1 Must pass through (42.5, 1.45), (42.5, 1.55) AND (67.5, 1.75), (67.5, 1.85)
	(d)	~ 1.65	1	B1 ft from single line segment with positive gradient ± 1 full (2 mm) square
22	(a)	200	2	M1 for $\frac{2000}{500}$ or 4 seen A1 cao
	(b)	600	2	M1 for $\frac{750}{500}$ or 1.5 seen or $400 + 200$ A1 cao

Paper 5521/01					
No	Working	Answer	Mark	Notes	
23	(a)	$4 \times 3 - 2 \times 1$ $12 - 2$	10	3	M1 for $3 \times 4 (=12)$ or 1×2 or attempt to divide diagram up into rectangles M1 “12”- “2” or sum of areas of rectangles A1 cao
	(b)(i)	$\frac{10}{100} \times 680$ or $680 \div 10$ $680 + 68$	748	5	M1 $\frac{10}{100} \times 680$ or $680 \div 10$ or 68 seen M1 (dep) $680 + “68”$ or M2 for 680×1.10 A1 cao
	(ii)	“748” $\div 50$ or 14.96	15		M1 For “748” $\div 50$ or 14.96 Accept “748” rounded up or down to next 50 followed by $\div 50$ A1 ft from (b)(i) rounded up SC B1 for 680 (seen) leading to 14

