

**Mathematics C**

General Certificate of Secondary Education **J517**

**Mark Schemes for the Units**

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**January 2008**

**J517/MS/R/08J**

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# B271 Module Test M1

## Section A

1	(a)	48	1	cao
	(b)	5	1	cao
	(c)	85	1	cao
	(d)	37	1	cao
2	(a)	20	1	
	(b)	42(.00)	3	<b>M1</b> for $6 \times 3$ or $12 \times 2$ seen or implied <b>M1</b> for attempt at 'their 18' + 'their 24' <b>A1</b> 42
	(c) (i)	16	1	
	(ii)	5 symbols drawn	1	
	(iii)	3	1	
	(d) (i)	10	1	
(ii)	Height for 'yes' is more than the other two together oe	1		
3	(a) (i)	All gates labelled correctly	2	<b>W1</b> for South gate correct, or East gate <b>and</b> West gate correct
	(ii)	Well	1	
	(b)	410	2	<b>M1</b> for attempt at $43 + 367$
4	(a)	79	1	
	(b)	Subtract 3 oe	1	
5	(a)	600	1	cao
	(b)	Five hundred (and) nine	1	
6	(a)	5:45 oe	1	Any correct form of time
	(b)	6:40 oe correct or ft (a)	2	<b>M1</b> $5 + 40 + 10 (= 55)$ soi

Section A Total: 25

## Section B

7	(a) (i)	Pentagon indicated	1	
	(ii)	Octagon indicated	1	
	(b)	15·4 – 16·6	2	<b>W1</b> for 3·8 – 4·2 or 5·8 – 6·2 seen, or answer of figs 154 – 166
8	(a)	900	2	<b>M1</b> for $20 \times 45$ seen or implied <b>Or SC1</b> for answer 90
	(b)	Crawl Back Fly Fly Crawl Back Fly Back Crawl Back Crawl Fly Back Fly Crawl	2	Condone repeat of Crawl Fly Back <b>W1</b> for any 3 correct, ignore repeats
	(c)(i)	All even numbers circled	1	No extras or omissions
	(ii)	50	1	
	9	Unlikely Evens	1 1	
10	(a)	6 squares shaded	1	
	(b)	18	1	cao
11	(a)	26	1	cao
	(b)	7	1	cao
	(c)	20	1	cao
12		10 5 2·4	2	<b>W1</b> for any 2 correct
13		Correct enlargement	2	<b>W1</b> for 1 line correct length and position or correct enlargement with incorrect scale factor
14	(a)	(5, 1)	1	
	(b)	D plotted	1	
	(c)	18	1	Must fit their shape
	(d)	65 – 69	1	

Section B Total: 25

# B272 Module Test M2

## Section A

1	(a)	Acute	1	Allow if clearly ringed or other unambiguous identification
	(b)	3 to 10	1	
	(c)	1373	1	
	(d)	Fourteen thousand (and) seven hundred	1	
2	(a) (i)	208 isw	1	
	(ii)	165	2	M1 for $220 \div 4$ or 55 or 660 seen
	(iii)	(0)·75	1	
	(b) (i)	O'Donovan ...	1	Accept "Rossa"
	(ii)	Millennium	1	
	(iii)	Swifts (Row)	1	
	(c) (i)	1444	1	Accept all common time formats, including 14:44, 14 44 etc
	(ii)	1305	1	ft from (c)(i)
3	(a)	530	2	M1 for $106 \times 5$ seen or implied working
	(b)	3·5 to 3·9 or 35 to 39 cm mm	1 1	For cm, number in range 3 to 5 For mm, number in range 30 to 50
	(c) (i)	7000	1	
	(ii)	D	1	
	(d) (i)	0·2	1	
	(ii)	0·3	2	M1 for "3" seen as answer, or 1 number missing from ordered list 0·2 0·2 0·2 0·2 0·4 0·4 0·5 0·6
	(e)	(0)·12(0)	1	
	(f) (i)	Australia	1	
	(ii)	14% $\pm$ 1%	1	

Section A Total: 25

## Section B

4	(a) (i)	$\frac{1}{4}$ or equivalent	1	Condone $\frac{25}{100}$									
	(ii)	D	1										
	(b)	125	1										
5		1 for each correct	2	-1 each error, minimum <b>W0</b>									
6		$\checkmark$ $\times$ $\times$ $\checkmark$	2	Condone equivalents such as "yes" or "no", but blanks are wrong <b>W1</b> for 3 correct <b>SC1</b> right ticks and blanks for $\times$									
7	(a)	19 35	1 1										
	(b)	Added six oe	1	Direction and quantity needed									
8		62	2	<b>M1</b> sight or evidence of "× 2"									
9	(a)	440 isw	1										
	(b)	840 isw	1										
	(c)	880 isw	3	<b>M1</b> for 65 or 90 or 360 or 520 seen and <b>M1</b> for 8 × 65 (or 520) <b>and</b> 4 × 90 (or 360) seen									
10	(a)	No number 5 on dice oe	1	Allow 'only goes up to 4', 'only 4 sides' oe									
	(b)	b e	1 1										
11		$\times$ $\times$ $\times$ $\checkmark$	2	<b>W1</b> for 3 correct Count blanks as wrong									
12		<table style="display: inline-table; border: none;"> <tr> <td>[2]</td> <td>[256]</td> <td>[8]</td> </tr> <tr> <td><b>64</b></td> <td>[16]</td> <td>[4]</td> </tr> <tr> <td>[32]</td> <td>[1]</td> <td><b>128</b></td> </tr> </table>	[2]	[256]	[8]	<b>64</b>	[16]	[4]	[32]	[1]	<b>128</b>	3	<b>M2</b> for 64 <b>or</b> 128 in correct cell, or <b>M1</b> for 4096 or 64 or 128 seen
[2]	[256]	[8]											
<b>64</b>	[16]	[4]											
[32]	[1]	<b>128</b>											

Section B Total: 25

# B273 Module Test M3

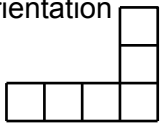
## Section A

1	(a)	9	1	
	(b)	10:36 10:44	2	<b>W1</b> each <b>W1</b> ft 'their 10:36' + 8
2	(a)	11	1	
	(b)	77	2	<b>W1</b> 11 or 7 seen, or 18 on answer line
3	(a)	$\frac{3}{5}$	2	<b>W1</b> any correct equivalent fraction eg $\frac{24}{40}$ <b>M1</b> 3 'out of' 5
	(b)	15	2	<b>M1</b> 5 seen or 3 x 40 ÷ 8 seen or attempted <b>M1</b> $\frac{15}{40}$
	(c)	8	2	<b>M1</b> 4 (=10%) seen or 0.4 (=1%) or 40 ÷ 5 or $\frac{8}{40}$ or 8%
4	(a)	4	1	
	(b)	7	2	<b>W1</b> 700 or 0.1 seen <b>SC1</b> 1000 soi
5	(a)	80	1	
	(b)	5.6	1	
	(c)	10	1	
	(d)	6	1	
6	(a)	Correct scale drawing ±1mm	2	<b>W1</b> any 2 correct sides in the correct position ± 1mm within tolerance, or 3 correct sides drawn freehand within ±1mm tolerance on the length of the lines
	(b)	66 – 68 or correct ft ±1mm	2	<b>W1</b> 6.6 – 6.8 or 65 or 69 seen, or ft 'their AB' measured correctly but written in cm, or evidence of correct conversion from 'their AB'
7	(a)	1	1	
	(b)	16 + 10 + 4 + 3 + 2	1	Any order

Section A Total: 25



## Section B

8	B and F	2	W1 each Allow clear indication on diagram
9	(a) 40	1	
	(b) 13 and 14	1	Both
	(c) 44	1	
10	(a) 22·9	3	M2 208·3 M1 addition string (implied by 200-250) or digits 229 M1 division by 10
	(b) 14	1	
	(c) (i) Indicates point 5·2 to 6·8 cm from 0	1	
	(ii) $\frac{8}{20}$ or $\frac{4}{10}$ or $\frac{2}{5}$ or 40% or 0·4	2	M1 20 seen, not as numerator
11	(a) 13	1	
	(b) B	1	
	(c) Any orientation 	2	W1 for an L-shape with correct width or height
12	(a) 12	1	
	(b) 14	1	
	(c) 6	1	
13	2·6 to 3 Person = 1·8m to 2 metres	1 1	ft 1·5 × their height of the person in metres, or 2 × their height of the fence in metres
14	(a) (i) 11	1	
	(ii) 14	1	
	(b) 16	2	M1 77 – 21 (= 56), or 56 ÷ 4 (= 14), or 14 + 2 (= 16) soi, or M1 73·75

Section B Total: 25

# B274 Module Test M4

## Section A

1	$(0) \cdot 3$ $\frac{39}{100}$	1 1	Allow equivalent decimals Or equivalent fraction
2	(a) (i) Subtract 3 oe	1	Condone $n - 3$
	(ii) 2, -1	2	<b>W1</b> for each one
	(b) 3, 1.5 oe	2	<b>W1</b> each term ft their odd first term
3	(a) 40 9	1 1	
	(b) 15	2	<b>M1</b> for any factor of 30 or any multiple of 3 between 8 and 29
4	(a) 75	1	
	(b) 2250, 10, 750	2	<b>M1</b> for $\times 5$ seen or one correct
	(c) No <b>and</b> need 1350	1	Accept any correct statement Eg, "No" and "...extra 150g"
5	(a) 31-32	1	Accept any number in this range
	(b) It stopped (diving)	1	Accept any correct statement
	(c) 7	1	
6	(a) Correct reflection	1	
	(b) (i) (-2, 3)	1	
	(ii) Correct point plotted	1	
	(iii) C plotted at eg (-4, 3) or (-2, -1) <b>and</b> correct coordinates given	2	Allow <u>any</u> correct point for C <b>W1</b> for C plotted correctly <b>W1</b> for the correct coordinates (ft from 'their C') If B (identified) is incorrectly plotted then follow through both marks from 'their B'
7	$\frac{1}{4}$ of 24 is 6, or $\frac{6}{24}$ seen <b>and</b> $\frac{6}{24}$ cancelled to $\frac{1}{4}$	2	<b>M1</b> 24 seen

Section A Total: 25

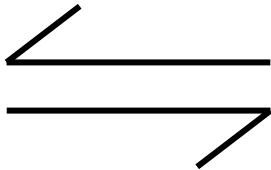
## Section B

8	(a)	Y Y N Y Y	2	W1 for three correct
	(b)	A and E D	1 1	
9	(a)	(0)-006	1	
	(b)	0-024, 0-04, 0-2, 0-24, 0-42	2	W1 correct reverse order, or for one number in the wrong order
10	(a)	123	1	M1 for 55 + 55 or 110 seen
	(b)	53	2	M1 for 180 – 90 – 37, or 90 – 37, or 90 + 37 (127 )
	(c)	70	2	
11		280-47	4	M1 for $4 \times 85.67$ (342.68), or $2.5 \times 4.60$ (11.50) M1 for attempt to add their three amounts (841.41) M1 for their total divided by 3
12	(a) (i)	18	1	
	(ii)	25.5	3	M1 attempt to add up the numbers (153) M1 divide their total by 6
	(b)	5	1	
	(c)	Terry has more customers (per day)/ greater mean; Terry has a greater range	1 1	W1 for each correct comment Accept any correct statement about the number of customers
13	(a)	$35x$	1	Condone " $35x p$ " or " $35 \times x$ "
	(b)	$n - 5$	1	

Section B Total: 25

# B275 Module Test M5

## Section A

1	(a)	6	1	
	(b)	64	1	
2	(a)	DD,DC,DR,CD,CC,CR,RD, RC,RR without repeats	2	<b>M1</b> for 6 or more; ignore repeats
	(b)	$\frac{1}{9}$ or $1 \div$ their number of choices in part (a)	1	ft their number of choices without repeats; no ft if DD omitted from their list
3	(a)	Two $3 \times 2$ rectangles Two $4 \times 2$ rectangles Complete net with another $4 \times 3$ rectangle and correct orientation	1 1 1	Allow last mark for complete net for any $4 \times 3 \times h$ cuboid, eg $4 \times 3 \times 1$ or $4 \times 3 \times 3$
	(b)	24	2	<b>M1</b> for $2 \times 3 \times 4$ oe but <b>M0</b> if method spoilt, eg by further doubling etc
4	(a)	$\frac{5}{6}$	1	
	(b)	$\frac{1}{6}$ as final answer	2	<b>M1</b> for $\frac{2}{12}$ oe
5	(a)		1	Accept additional lines giving rotational symmetry order 2 but no line symmetry
	(b)	5	1	
	(c)	clock[wise] and $90^\circ$ or anticlock[wise] and $270^\circ$	1	
6	(a)	20 000	1	
	(b)	27·4	1	
	(c)	$2000 \times 400 = 800\ 000$ or $2000 \times 390 = 780\ 000$ or $2200 \times 400 = 880\ 000$ or $2200 \times 390 = 858\ 000$ or $2220 \times 400 = 888\ 000$	2	<b>M1</b> for (2000 or 2200) and (400 or 390) or for 2220 and 400

7	(a)	12·8	2	<b>M1</b> for 4·2 or 8·6 or 6·4
	(b) (i)	-1 [ 3 ] 7	1	
	(ii)	Ruled straight line from (0, -1) to (4, 7)	2	<b>W1</b> for (0, -1) (2, 3) and (4, 7) plotted correctly or ft table; tolerance $\pm 2$ mm, or <b>W1</b> for freehand line through correct points or for short correct ruled line through two of the points

Section A Total: 25

## Section B

8	(a)	Mean = 79 Range = 29	3 1	<b>M1</b> for 474 seen or evidence of adding weights <u>and</u> <b>M1</b> for their total / 6
	(b)	No, <i>Andor</i> heavier on average	1	ft their mean in (a) No, with clear correct ft reference to mean using 'mean', 'average' or the relevant figures Accept 'Don't know, sample too small'
	(c)	0.7	1	Accept $\frac{7}{10}$ or 70%
9	(a)	10.8 (accept 10.4 to 11.2)	2	<b>M1</b> for 5.2 to 5.6 seen or for 2.6 to 2.8
	(b)	117 (accept 115 to 119)	1	
	(c)	270	1	
10	(a) (i)	8x	1	
	(ii)	5a + 3b as final answer	2	<b>M1</b> for one of these terms correct
	(b) (i)	6	1	
	(ii)	8	2	<b>M1</b> for 2x = 16 or for final answer ft their 2x = k
11	(a)	True False False True	2	<b>M1</b> for 3 correct
	(b)	Sketch of kite	1	Accept un-ruled, clear intent of kite rather than any other special quadrilateral
12	(a)	[Aziz] 48	2	<b>M1</b> for $\frac{2}{5} \times 120$ or $0.4 \times 120$ oe or for 24 from $\frac{1}{5}$ of 120 oe
		[Sheila] 54	2	<b>M1</b> for $\frac{90}{100} \times 60$ oe
		Sheila oe by 6 minutes www or ft their times	1	ft from their clear working, dependent on at least <b>M1</b> gained
	(b)	30	1	

Section B Total: 25

# B276 Module Test M6

## Section A

1	(a)	Ruled line joining (0, 0) and (19, 5)	2	<b>W1</b> for ruled line from (0, 0) to (17, 5) or (19.5, 5), or <b>W1</b> attempt at straight line to (19, 5)
	(b)	4.6 to 4.8	1	ft from their straight line starting at (0, 0)
2		£0.92 or 92	4	<b>W3</b> 0.92 or £92, or <b>W2</b> for figs 408, or <b>M1</b> for complete method for $1.7(0) \times 2.4$ AND <b>W1</b> for figs 34, 68 or 168 AND <b>M1</b> for 5 – <i>their</i> 4.08 (indep)
3	(a)	Correct reflection	1	
	(b)	Correct translation	1	
	(c) (i)	3	1	
	(ii)	(1, 0)	1	
4	(a)	Uniform vertical scale All heights correct Frequency polygon with points plotted at centres of intervals and joined with straight lines, <b>or</b> bars of uniform width with no gaps	1 1	Must start at 0
	(b)	$40 < v \leq 45$	1	
	(c) (i)	$\frac{12}{80}$ isw or equivalent or 0.15 or 15%	1	
	(ii)	$\frac{11}{80}$ or 0.1375 or 13.75%	2	<b>W1</b> 11 or 7 + 4
5		$\frac{3}{10}$	2	<b>W1</b> for $\frac{6}{20}$ oe seen
6	(a)	9.5 or $9\frac{1}{2}$ or $\frac{19}{2}$	2	<b>M1</b> for $2x = 12 + 7$ , or $2x = 19$
	(b)	-2	3	<b>M2</b> for $5x = -10$ , or $-5x = 10$ <b>M1</b> for $kx = \pm 10$ , or $\pm 5x = k$ , or $5x + 10 = 0$ , or $7x - 2x = 3 - 13$ or better, or one first correct step, eg $7x + 10 = 2x$ , or $13 = 3 - 5x$

Section A Total: 25

## Section B

7	2.6	2	<b>W1</b> for 2.61 to 2.62 <b>SC1</b> 3.7 or 2.9
8	(a)	Ruled line of best fit passing between (2000, 12000) and (2,000, 14000) and between (18000, 7000) and (18000, 9000)	1
	(b)	10000 to 12000	1
	(c)	Scatter graph means some variance	1
9	(a)	8, 0, -4	1
	(b)	Correct ruled straight line	2
10	13.75 or 13.8	3	<b>M2</b> for $\frac{440}{80} \times 2.5$ oe or $\frac{2.5}{80} \times 440$ <b>M1</b> for $\frac{80}{2.5}$ or 32 or figs (0).03125 or 5.5 Allow 14 if correct method seen <b>SC1</b> for 11.25 as final answer
11	(a)	5 : 2	2
	(b)	70	2
12	(a)	56.1  cm <sup>2</sup>	2  1
	(b)	376 to 377.1 www	2
13	128	3	<b>W2</b> for 52 seen, or <b>M1</b> for $\frac{180-76}{2}$
	Isosceles triangle or Triangle = 180 Line and 180	1 1	Dep on (180 – their $\angle$ ACB) or answer 128

Section B Total: 25



# B277 Module Test M7

## Section A

1	$\frac{300 \times 8}{4}$ 600	1 1	<b>M1</b> Accept 2 from 300, 8, 4, or <b>W1</b> $2400 \div 4$ or $300 \times 2$ or $75 \times 8$ or 600 with no working
2	(a) $7x - 10$	2	<b>M1</b> $3x - 6$ or $4x - 4$ or $7x + -10$
	(b) $x^2 + 4x + 5x + 20$ or better isw	2	<b>M1</b> 3 from $x^2 (+)$ $4x (+)$ $5x (+)$ 20
3	(a) $70^\circ$ Eg alternate (angles) (dependent on $x = 70$ )	1 1	Condone Z angle (corresponding Z angle scores 0)
	(b) $60^\circ$ or follow through their $x$ Eg $\angle EBD = 60^\circ$ (angles) in a triangle $\angle EBD = \angle BDC$ (alternate) (dependent on first method mark)	1 1 1	www <b>alternative methods:</b> Eg <b>M1</b> $\angle CDF = 70^\circ$ corresponding (F) <b>M1</b> (angles) on a straight line
4	(a) (i) $0.2(0)$	2	<b>M1</b> 1 – their total
	(ii) 100	1	
	(b) Mary's, $\frac{1}{6} > 0.1$	2	<b>M1</b> Mary's and $\frac{1}{6}$ seen
5	(a) 4 and 27 seen isw	1	Allow 20 and 27
	(b) $2^4 \times 3 \times 5$ as final answer oe, or $2 \times 2 \times 2 \times 2 \times 3 \times 5$	2	<b>M1</b> 2, 3 and 5 seen Ignore other figures
	(c) 60 (or $2^2 \times 3 \times 5$ ) oe	2	<b>W1</b> 10 or 20 or 30 as final answer oe
6	30	2	<b>M1</b> 36 or $\bar{6}$
7	D A C	2	<b>W1</b> 2 correct or E B C

Section A Total: 25

## Section B

8	£533	3	<b>M1</b> $0.18 \times 650$ , or <b>M2</b> $0.82 \times 650$ , or <b>W2</b> 117
9	(a) $x + 3x + 2x + 20 + x - 10 = 360$ isw, or $7x + 10 = 360$ oe	1	
	(b) 50 www cao (no follow through) 150	2 1	<b>M1</b> $7x = 350$ or ft their answer in (a) ft 3 times their $x$ (only for $x > 20$ )
10	75g	2	<b>M1</b> 25 or $200 \div 8$
11	45.6 to 46 www	4	<b>M1</b> 80 and 1hr 45(mins) or 105 (mins) <b>M1</b> $1.75$ or $105 \div 60$ seen <b>M1</b> their $80 \div$ their $1.75$ or their $80 \div 105 (\times 60) = 0.76$ <b>A1</b> 45 to 48
12	Perpendicular bisector drawn with minimum one set arcs	2	<b>M1</b> freehand perpendicular bisector within 2mm and $2^\circ$ , or 2 pairs of arcs not joined, or line drawn using arcs but not within limits
13	(a) $x < 6$	3	<b>M2</b> $3x < 18$ , or <b>M1</b> $3x + 2 < 20$ and <b>M1</b> for correct 2 <sup>nd</sup> step ft or <b>W2</b> $x = 6$ or $x \leq 6$
	(b) Arrow pointing left from 6	1	Condone line (no arrow) extending from 6 to left of 0 ft their inequality in (a)
14	15.2 www	3	<b>M1</b> $4 \times 3 + 7 \times 8 + 11 \times 13 + 20 \times 18 + 7 \times 23 + 1 \times 28$ <b>M1</b> their total $\div 50$ <b>A1</b> 15 or 15.2
15	21.2 or $15\sqrt{2}$ www	3	<b>M1</b> $15^2 + 15^2$ , or <b>M2</b> $\sqrt{450}$ <b>A1</b> 21 or 21.2...

Section B Total: 25

# B278 Module Test M8

## Section A

1	(a)	$\frac{3}{10}$ and $\frac{7}{10}$ in correct places on three pairs of branches	2	<b>W1</b> for 1 complete correct pair of branches
	(b)	$\frac{21}{100}$ , 0.21 or 21%	2	ft their $\frac{7}{10} \times \frac{3}{10}$ correctly evaluated <b>M1</b> for 'their $\frac{7}{10} \times \frac{3}{10}$ '
2	(a)	$(v =) \frac{J + mu}{m}$ or $\frac{J}{m} + u$ final answer	2	<b>M1</b> for $mv = J + mu$ or $\frac{J}{m} = v - u$ <b>or</b> correct answer seen then spoilt, but condone $\frac{v = J + mu}{m}$ after correct ans seen
	(b)	-9	2	Accept $\frac{-9}{3} + 5 = 2$ for 2 marks <b>M1</b> for $\frac{x}{3} = 2 - 5$ or $x + 5 \times 3 = 2 \times 3$ , or for ft after <b>one</b> error in first step correctly evaluated after wrong first step Must show algebra for M1
	(c)	$x < \frac{3}{2}$ oe isw	2	<b>M1</b> for $4x + 2x < 9$ , or for correct ft inequality from $kx < 9$ after incorrect first step, or <b>W1</b> for $(x =) \frac{3}{2}$ oe alone
3		$a^2 - ab$ clearly indicated $a^2$ and $ab$ are both 'length $\times$ length' oe	1 1	Eg could be circled Area $\pm$ area, $l \times l \pm l \times l$ , both parts 2 dimensional
4		$7\frac{3}{20}$ (oe mixed number)	3	<b>M2</b> for $\frac{143}{20}$ or $\frac{88}{20} + \frac{55}{20}$ or $6\frac{23}{20}$ or $\frac{23}{20}$ or $1\frac{3}{20}$ or 7.15, or <b>M1</b> for $\frac{88}{20}$ or $\frac{55}{20}$ or $(4)\frac{8}{20}$ or $(2)\frac{15}{20}$ or $\frac{22}{5} + \frac{11}{4}$ or $4.4 + 2.75$

5	<p>Rotation 180° oe about (2, 1)  <u>no other transformation mentioned</u>  <b>or</b>          Enlargement SF<sup>-1</sup> about (2, 1)</p>	4	<p><b>W3</b> rotation, centre (2, 1) with no other transformation mentioned, or <b>W2</b> for triangle at (4, 2) (3, 2) (3, 0), or <b>W1</b> for original triangle rotated 180° about (0, 0) , or translation of <math>\begin{pmatrix} 4 \\ 2 \end{pmatrix}</math> <b>clearly shown</b> from their 'rotation' or original if no rotation (Ignore extra triangles for W1 or W2)</p>
6	(a) $3.65 \times 10^{-3}$	1	
	(b) $1.2 \times 10^3$	2	<b>M1</b> for $12 \times 10^2$ or 1200 or $1.2 \times 10^n$ final answers
7	(a) $(x - 5)(x + 3)$	2	<b>W1</b> for $(x \pm 5)(x \pm 3)$
	(b) Strict ft from (a)	1	<b>Dep</b> on at least <b>W1</b> in part (a) If this part blank, accept correct answers in (a)

Section A Total: 25

## Section B

8	(a)	40(%)	4	<p><b>W3</b> for 60 as answer or 0.6 oe seen, or  <b>M2</b> for <math>0.8 \times 0.75</math> oe, or  <b>M1</b> for 0.75 oe seen or 0.8 oe seen</p> <p><b>or alternative method (for 360 used)</b>  <b>M3</b> for <math>144 \div 360</math>, or  <b>M2</b> for 216 seen or 144 seen (from <math>360 \times 0.75 \times 0.8</math>), or  <b>M1</b> for (£)90 seen or (£)270 seen and <b>M1</b> for (£)54 seen</p>
	(b)	(£)33 www	3	<p><b>M2</b> for <math>36.3 \div</math> figs 110, or  <b>M1</b> for 110 or 1.1 seen</p>
9	(a)	(0, -2) cao	1	
	(b)	4 cao	1	
	(c)	$y = 4x + c$	1	Where c is any value including 0 or -2
10	(a)	Box plot whisker 12 to 98 Box from 34 to 64 Median at 52	2	<b>W1</b> for 2 out of these 3 correct
	(b)	Any correct comparison which interprets median or IQR	1	<p>Eg '11A are better oe (on average)'  '11B more consistent oe (IQR smaller)'  '11B's average was lower than 11A'  'More in 11A scored more marks than 11B'  '<u>On average</u> 11A had a higher median score'</p>
11	(a)	16000 16250	1 1	
	(b)	The (moving) <b>averages</b> are increasing (ignore references to numbers)	1	Reason must mention average(s) and imply reference to more than 2 averages, eg not just the first and last
12		$x \geq 0, y \leq 3 - x$ oe	2	<b>W1</b> for each correct inequality, or both inequalities reversed
13		22 or 22.4	4	<p><b>W3</b> for 22.3....., or  <b>M2</b> for <math>48 \times \tan 25</math> oe, or  <b>M1</b> for <math>\tan 25 = h/48</math> oe  After W3 not earned then <b>SC1</b> for answer to 2 or 3sf after trigonometry seen</p>
14		10.5	3	<p>Accept 10.5 in working then rounded to 10 or 11 on answer line for 3 marks  <b>M2</b> for <math>6 \times 14/8</math> oe or <math>6 \div 8/14</math> oe, or  <b>M1</b> for SF = 14/8 oe or 8/14 oe seen</p>

Section B Total: 25

# Grade Thresholds

General Certificate of Secondary Education  
 Mathematics C – Graduated Assessment (Specification Code J517)  
 January 2008 Examination Series

## Unit Threshold Marks

Unit		Maximum Mark	a*	a	b	c	d	e	f	g	p	u
B271	Raw	50								30	15	0
	UMS	59								40	20	0
B272	Raw	50							35	20	12	0
	UMS	70							60	40	30	0
B273	Raw	50							25	13		0
	UMS	79							60	40		0
B274	Raw	50						39	23	14		0
	UMS	90						80	60	50		0
B275	Raw	50						30	14			0
	UMS	99						80	60			0
B276	Raw	50					28	13				0
	UMS	119					100	80				0
B277	Raw	50				26	13					0
	UMS	139				120	100					0
B278	Raw	50			31	15						0
	UMS	159			140	120						0

### Notes

The above table shows the raw mark thresholds and the corresponding key uniform scores for each unit (module test) entered in the January 2008 session.

Raw marks in between grade boundaries are converted to uniform marks by a linear map. For example, 23 raw marks on unit B278 would score 130 UMS in this series.

The grade shown in the above table as 'p' indicates that the candidate has achieved at least the minimum raw mark necessary to access the uniform score scale for that unit but gained insufficient uniform marks to merit a grade 'g'. This avoids having to award such candidates a 'u' grade. Grade 'p' can only be awarded to candidates on B271 (M1) and B272 (M2). It is not a valid grade within GCSE Mathematics and will not be awarded to candidates when they aggregate for the full GCSE (J517).

For a description of how UMS marks are calculated see:

[http://www.ocr.org.uk/learners/ums\\_results.html](http://www.ocr.org.uk/learners/ums_results.html)

Statistics are correct at the time of publication.

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