

GCSE 2005

March Series



Mark Scheme

Mathematics B (3302)

Module 3 Tier F

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Dr Michael Cresswell Director General

The following abbreviations are used on the mark scheme:

M	Method marks awarded for a correct method.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
M dep	A method mark which is dependent on a previous method mark being awarded.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special Case. Marks awarded for a common misinterpretation which has some mathematical worth.
oe	Or equivalent.
eeoo	Each error or omission.

MODULE 3 FOUNDATION TIER**33003F**

1(a)	i) 6 000 000	1	Accept 6,000,000 or 6000000
	ii) 3204	1	
(b)	i) 27 and 53	1	Any order
	ii) 11 and 71	1	Any order
	iii) 3763	2	53×71 scores 1 mark
2(a)	1.30	1	Do not accept 1.3
(b)	£1, 20p, 10p	1 ft	Any order, accept words
3(a)	Twenty or 20	1	Correct spelling not necessary Accept tens Do not accept ten
(b)	Nine thousand(s) or 9000	1	Correct spelling not necessary Accept thousand(s)
4(a)	3 hours 45 minutes	2	1 mark for 3 hours 1 mark for 45 minutes
(b)	$6.5 \times (\pounds)5.4(0)$	M1	
	$(\pounds)35.10$	A1	
5	Hours $\pounds 3 \times 4 = \pounds 12$	B1	
	Ice cream $5p \times 200 = \pounds 10$	B1	oe
	Total = $\pounds 22$	B1	ft if at least one is correct; $\pounds 112$ B1 $\pounds 1012$
6	$\pounds \frac{96}{1.60}$	M1	Accept 96×0.625
	$\pounds 60$	A1	
7(a)	Number under 12 is 80	B1	Alternative method: $\frac{1}{10} + \frac{1}{5} = \frac{3}{10}$ B1
	Number over 16 is 160	B1	$1 - \frac{3}{10} = \frac{7}{10}$ B1
	Number is $800 - (80 + 160)$	M1	$\frac{7}{10} \times 800$ M1
	560	A1	560 A1
(b)	$\frac{320}{800} \times 100$	M1	
	40%	A1	

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8(a)	100 000	1	Accept 100,000 or 100000
(b)	343	1	

9	Attempt to scale	M1	
	£3.20 per 100 ml	A1	Accept 3.2p per ml, £16 for 500 ml, 25 ml for 80p oe
	Southern Pharmacy £6 for 200 ml	M1	
	or £3 per 100 ml	A1	Accept 3p per ml, £15 for 500 ml (consistent units with Holiday shop)
	Southern is best	A1	

10(a)	24, 6	2	Any order. 1 mark each Accept 24.0, 24.00, 6.0, 6.00
(b)	4	1	

11(a)	302	B1	
(b)	164	B1	
(c)	$(302) + (164) + 202$	M1	
	= 668 miles	A1 ft	

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12(a)	$\frac{25}{100} \times 40$	M1	or $40 \div 2 = 20$ and $20 \div 2$ oe																																																												
	10	A1																																																													
(b)	319	B2	B1 for '19' must be 3 digit answer																																																												
(c)	$\begin{array}{r} 268 \\ \times 72 \\ \hline 18760 \\ 536 \\ \hline 19296 \end{array}$	<p>M1 M1 A1</p>	<p>need 0 and 3 of 4 digits correct need 2 of 3 digits correct</p> <p>or use Napier's bones</p> <table border="1" data-bbox="979 745 1326 996" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td></td><td>2</td><td>6</td><td>8</td><td></td></tr> <tr><td></td><td>1</td><td>4</td><td>2</td><td>5</td><td></td></tr> <tr><td>1</td><td></td><td>4</td><td>2</td><td>6</td><td>7</td></tr> <tr><td></td><td>0</td><td>1</td><td>1</td><td>6</td><td></td></tr> <tr><td>9</td><td></td><td>4</td><td>2</td><td>6</td><td>2</td></tr> <tr><td></td><td></td><td>2</td><td>9</td><td>6</td><td></td></tr> </table> <p>or Box method</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>200×70</td><td>14 000</td></tr> <tr><td>60×70</td><td>4 200</td></tr> <tr><td>8×70</td><td>560</td></tr> <tr><td>200×2</td><td>400</td></tr> <tr><td>60×2</td><td>120</td></tr> <tr><td>8×2</td><td>16</td></tr> </table> <p>both</p> <p>M1 6 boxes; allow 2 errors M1 adding all 6 boxes A1 19296</p> <p>OR</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>72</td><td></td></tr> <tr><td>$\times 268$</td><td></td></tr> <tr><td>$\hline 576$</td><td>M1 any line with 1 error</td></tr> <tr><td>4320</td><td></td></tr> <tr><td>14400</td><td>M1 correct zeros; + 1 error</td></tr> <tr><td>$\hline 19296$</td><td>A1 in either line</td></tr> </table>			2	6	8			1	4	2	5		1		4	2	6	7		0	1	1	6		9		4	2	6	2			2	9	6		200×70	14 000	60×70	4 200	8×70	560	200×2	400	60×2	120	8×2	16	72		$\times 268$		$\hline 576$	M1 any line with 1 error	4320		14400	M1 correct zeros; + 1 error	$\hline 19296$	A1 in either line
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13	$4 \overline{)50}$	Digit 1	M1	or build up to 48 using 12 fours) with remainder 2)M2 or $12 \times 4 = 48 + \text{remainder } 2$)
	$4 \overline{)10}$ $8 \overline{)2}$	Carry 1	M1	
	13		A1	M1 for 12
14	$140 \times \frac{5}{100}$		M1	$10\% = \text{£}14$ and $5\% = \text{£}14 \div 2$ M1
	7		A1	
15	$\text{£}5 \times 4 - 2\text{p} \times 4$		M1	Must include subtraction of 8p
	£19.92		A1	
16	$15 \text{ minutes} = \frac{1}{4} \text{ hour}$		B1	or 24 miles in 30 min B1
	12×4 or $12 \div \frac{1}{4}$		M1	48 miles in 60 min; M1 or $\frac{12}{15}$ M1
	48		A1	48 A1 or = 0.8 A1
	mph		B1	Unit mark Accept 0.8 miles per minute
17(a)	3×4		M1	or $\frac{84}{7}$
	12		A1	
(b)	0.03		1	
(c)	$\frac{3}{5} \times \frac{1}{6}$		M1	$\frac{6}{10} \div 6$ or $0.6 \div 6$
	$\frac{1}{10}$		A1	oe
(d)	$\frac{12}{20}$ or $\frac{5}{20}$		M1	Either or (0.6 - 0.25) both needed
	$\frac{7}{20}$		A1	oe