GCSE 2004
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ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark Scheme

Mathematics B (3302)
Module 3 Tier I

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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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 INTERMEDIATE TIER 33003I

1	18 ÷ 1.6	M1	1.6 ÷ 18 is M0 unless correct answer is obtained
	11.25	A1	Digits 1125 with incorrect position of decimal point is M1A0

2	72 ÷ 100 (= 0.72)	M1	4 × 100 (= 400)
	4 ÷ 0.72 or 6 × 0.72 or 6 × 0.70 or 4 ÷ 6	M1	400 ÷ 72 or 6 × 72 or 6 × 70 or 400 ÷ 6
	5(.555…) or 4.32 or 4.20 or 0.66(6666…) and NO stated	A1	5(.555…) or 432 or 420 or 66(.6666…) and NO stated

3	3.95 – 1.35 (= 2.60)	M1	395 – 135 (= 260)
	(their 2.60) ÷ 0.65	M1 dep	(their 260) ÷ 65 or build up method seen At least 3 × 65p + £1.35 or £3.95 − £1.35 and at least 3 of 65p M2
	4	A1	

4(a)	15 ÷ 6	M1	or attempt at build up method 6, 6, 3 with 2 h in answer
	2.5	A1	
	2 hours 30 minutes	B1 ft	$2\frac{1}{2}$ hours is M1A1B0 SC1 2 h 50 m or 2 h 5 m
(b)	$18 \div 2\frac{1}{4}$	M1	Allow 18 ÷ 2.15 (= 8.37…) for M1 but if followed by 8 on the answer line award A0
	= 8	A1	
	mph	B1	Check for this independent mark
	ALTERNATIVE		
	18 ÷ 135	M1	
	0.13(333...)	A1	
	miles per minute	B1	

33003I

5	0.35 × 80 (= 28)	M1	Sight of 1.35
	80 + their 28	M1 dep	1.35 × 80
	108	A1	

6	750 ÷ (12 + 7 + 6) (= 30)	M1	Use of 9:10:11 is M0
	their 30 × 12 or × 7 or × 6	M1 dep	
	360, 210, 180	A1	All 3 needed in correct order 1 or 2 correct answers with no working implies M2A0

7(a)	2.35621…	B1	
(b)	2.36	B1 ft	ft their (a) if > 3 sf Do not accept 2.360

8(a)	15 000 × 1.02	M1	15 000 + 0.02 × 15 000
	15 300	A1	
(b)	Compound interest mentioned in words or formula $A(1 + \frac{x}{100})^t$	B1 B1	Any two answers, B1 for each Allow SC1 (£)15 918.12 seen and no other marks awarded
	Connects 3 years to the power of 3		
	Adding 2% is (multiplying by) 1.02		

9	24.60 ÷ 2 (= 12.30)	M1	$\frac{2}{3}$ = 24.60 or $\frac{1}{3}$ = 12.30
	(12.30) × 3	M1	If see both of these steps in this order 24.60 × 3 (= 73.80) (73.80) ÷ 2 give M2 24.60 ÷ 0.66(66…) M2 24.60 ÷ 0.67 M2 24.60 ÷ $\frac{2}{3}$ M2
	36.90	A1	36.9 is A0

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10	$5.83 \times 10^7 \div (5.47 \times 10^5)$	M1	Condone invisible brackets Allow if not in standard form and at least one correct or both 2 zeros out $(5.83 \times 7) \div (5.47 \times 5)$ M0 $40.81 \div 27.35$ M0
	106.58…	A1	
	110 or 107	B1 ft	ft to 2 sf or 3 sf Allow 106.6 but no ft to 4 sf

11(a)	$\frac{24}{30} \times 100$	M1	$\frac{6}{30} \times 100$ 100 – (their value from above)
	80	A1	Answer 20 → M1A0
(b)	20×2 or 18×2	M1	Accept 20×2.1, 20×2.2, 20×2.15
	40 or 36	A1	Accept 42, 44, 43 If exact value calculated (38.7) M0

12(a)	0.95	B1	
(b)	0.08	B1	oe
(c)	$\frac{4}{15}$	B1	oe fraction
(d)	125	B1	

13	500	B1	
	125	B1	SC1 their tomatoes (> 200) ÷ 4 = their water

14	3×5000 (= 15 000)	M1	$5000 \div 100$ (= 50)
	their 15 000 ÷ 100	M1	their 50×3
	150	A1	Do not accept ratio answer unless 3 cm:150 m SC1 digits 15 on answer line (but not 150 and not in a ratio)

15(a)	22.75	B1	
(b)	0.65	B1	
(c)	6500	B1 ft	ft their (b) × 10 000

33003I

16	120 = 2 (×) 60	M1	or 3 (×) 40 or 5 (×) 24
	= 2 × 2 × 2 × 3 × 5	A1	Condone missing × signs here
	$2^3 \times 3 \times 5$	A1	Do not accept factor of 1

17(a)	5750 – 5000	M1	$\frac{5750}{5000} \times 100$ (= 115) or 750 seen
	$\frac{5750-5000}{5000} \times 100$	M1 dep	(115) – 100 Alternative method: 750 ÷ 50 M2
	15	A1	
(b)	i) 6250	B1	
	ii) 6349	B1	

18(a)	$\frac{1}{3} \times \frac{9}{1}$	M1	
	3	A1	Allow $\frac{3}{1}$ but not $\frac{9}{3}$
(b)	i) 13	B1	
	ii) 2×3^2 or 2×9 or $\sqrt{324}$	M1	$\sqrt{4\times81}$
	18	A1	

19	$2 \times 1\frac{1}{4} - 1\frac{2}{3}$	M1	Allow $2 \times 1.25 - 1.67$ or 1.66(6…)
	$(2\frac{1}{2}) - 1\frac{2}{3} = 1 + \frac{1}{2} - \frac{2}{3}$ $= 1 + \frac{3}{6} - \frac{4}{6}$ OR $\frac{5}{2} - \frac{5}{3} = \frac{15}{6} - \frac{10}{6}$	M1 dep	Do not accept decimals Deals with whole numbers and gets common denominator and at least one correct numerator Alternative method: $\frac{1}{3} + \frac{1}{2}$ M1 $= \frac{2}{6} + \frac{3}{6}$ M1
	$\frac{5}{6}$	A1	oe SC1 $1\frac{2}{3} - 1\frac{1}{4} = \pm \frac{5}{12}$ or $1\frac{1}{4} - 1\frac{2}{3} = \pm \frac{5}{12}$