

GCSE 2004

June Series



Mark Scheme

Mathematics B (3302)

Module 1 Tier 1

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.

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Publications Department, Aldon House, 39, Heald Grove, Rusholme, Manchester, M14 4NA
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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 1 INTERMEDIATE TIER**330011****Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.**

eg 1 out of 3 or 1 in 3 penalise once on whole paper.

1	Any correct method eg $36 \times 4.5 \quad \frac{36}{80} \times 360$	M1	or one correct angle on a diagram of exactly 4 sectors
	All 4 correct angles seen (162° , 135° , 45° , 18°)	A1	
	All 4 sectors correctly drawn	A1	$\pm 2^\circ$
	All 4 sectors correctly labelled in order of size	B1	Must be only 4 sectors
2(a)	$1 - (0.04 + 0.43 + 0.23 + 0.12)$	M1	
	$= 0.18$	A1	
(b)	$0.43 + 0.23 + 0.12$	M1	or $1 - (0.04 + \text{their } 0.18)$
	$= 0.78$	A1	NB no marks for 0.96 ie misread
3(a)	50 to less than 60	B1	50 - 60
(b)	$(45 \times 9) + (55 \times 27) + (65 \times 21) + (75 \times 3)$	M1	Summing at least 3 products with at least 3 correct midpoints ie 3 brackets correct
	'3480' $\div 60$	M1 dep	
	$= 58$	A1	
4(a)	i) $(49 + 31 + 28) \div 3$	M1	Condone any missing brackets ($\rightarrow 89.33$) but must see method
	36	A1	
	ii) 39	B1	
(b)	(Term 2/02, 34) (Term 3/02, "36") (Term 1/03, "39")	B2 ft	All 3 B1 ft any $2 \pm \frac{1}{2}$ square

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4(c)	Using reading of "40" or "41"	M1	Must see line Must read at Term 2/03; or use seasonality method correctly
	$(28 + 58 + x) \div 3 = \text{"41"} \text{ (or "40")}$	M1 dep	From their trend line Condone missing brackets If working seen mark it
	Solving $x = \text{"37"} \text{ (or "34")} \text{ or "40"}$ from 42 on trend line eg 43 → 43 42 → 40 41 → 37 if no working shown 40 → 34	A1 ft	Accept any alternative correct method which leads to a correct answer from their graph eg seasonality T 3/02 = "5" below trend ft M1 Locate trend at T 3/03 and M1 subtract = "44" - "5" = "39" A1 Line must reach and working seen

5(a)	7	B1	SC If all values written $\frac{\quad}{40}$ eg $\frac{7}{40}$ etc penalise the first time
(b)	6	B1	
(c)	2 (+) 2 (+) 2 (+) 1 or indication on table	M1	
	7	A1	

6(a)	$(37 + 38) \div 2$ or indication of middle of set of values	M1	
	37.5	A1	7.5 implies M1 unless from $\frac{14+1}{2}$

7(a)	i) Three correct headings	B1	Ignore extra headings
	Space for tallies	B1	Must have at least 2 headings
	ii) Approx 20 entries	B1	Ticks or tallies
			Bar chart/freq diagram gets B1B0B0 if 3 headings seen
(b)	Comment showing the idea of biased towards those eating in the restaurant	B1	

8(a)	0.2, 0.35, 0.15, 0.3 or $\frac{4}{20}, \frac{7}{20}, \frac{3}{20}, \frac{6}{20}$	B2	2 or 3 correct B1 All 4 correct fractions in working with 4, 7, 3, 6 in table B1B0
	(b) $100 \times (\text{their } 0.35)$ Must be prob or (5×7) = 35	M1 A1 ft	$\frac{35}{100}$ M1A0 0.35 alone scores 0

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9(a)	Median indicated at 48 on box plot	B1	$\pm \frac{1}{2}$ square throughout
	Quartiles at 32 and 62 and box	B2	B1 for 32 and 62 and no box B1 for 1 correct quartile and box Box freehand OK Mark box plot
	Whiskers at 4 and 82	B1	
(b)	Difference in median, spread or max value	B2	Any two valid differences comparing ages in the town and the village, one for location, one for spread eg skewness