



# General Certificate of Secondary Education

## Mathematics 3302 *Specification B*

*Module 1 Tier I 330011*

## Mark Scheme

*2006 examination – June series*

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.

**The following abbreviations are used on the mark scheme:**

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

**MODULE 1 INTERMEDIATE TIER****330011****Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.**

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

1	Correct method seen eg $\frac{360}{720} \times 280$ or $280 \div 2$ or $280 \times 0.5$	M1	or one correct sector on diagram with correct label
	4 or 5 correct angles seen 140°, 85°, 60°, 45° 30°	A1	
	All 5 sectors drawn correctly	A1	$\pm 2^\circ$
	All 5 sectors labelled in correct proportion of size	B1	
2	Not ordered	B1	Numerical answers only do not score but if no marks awarded allow SC1 for 69, 70, 72
	7 omitted in stem	B1	
	69 only appears once/or two 69's or only 14 values	B1	
3(a)	$(0 \times 6) + (1 \times 7) + (2 \times 9)$ $+ (3 \times 4) + (4 \times 3) + (5 \times 1)$ or 54	M1	Attempt at $\sum fx$ at least 4 pairs seen
	their $54 \div 30$	M1 dep	
	1.8	A1	$60 \div 30$ with no working SC1
3(b)	$\frac{6}{30}$	B1	
4(a)	$475 \times 0.6$	M1	
	285	A1	
4(b)	$425 \times 0.48$	M1	
	'285' + '204'	M1 dep	
	489	A1	Calculating German = 411 $\Rightarrow$ SC2
5(a)	$\frac{5}{20}, \frac{7}{20}, \frac{8}{20}$ or 0.25, 0.35, 0.4	B2	B1 for 2 correct or 1 correct and $\sum p = 1$ If boxes wrong but correct ans seen SC1
5(b)	0.14 or table b	B1	
	The spinner has been spun more times	B1 dep	Idea of larger sample

6(a)	3 5 7 4 6 8 5 7 9 6 8 10	B2	B1 for 3 rows or 2 columns correct
6(b)(i)	$\frac{1}{12}$	B1 ft	ft from fully completed table provided answer is not zero
6(b)(ii)	Indicating 8, 8, 9, 10 or sight of '4'	M1	May be indicated in table
	$\frac{4}{12}$ or $\frac{1}{3}$	A1 ft	ft from fully completed table provided answer is not zero

7	Finding prob of 2 $1 - (0.2 + 0.4 + 0.1)$ or 0.3	M1	Alternative method $0.2 \times 20$ or $0.4 \times 20$ or $0.1 \times 20$ or $4 + 8 + 2$
	$20 \times '0.3' (<1)$	M1 dep	$20 - (4 + 8 + 2)$ or $20 - 14$
	6	A1	

8(a)	Two questions in one/Can't say yes to first part and no to second part	B1	
8(b)	Question about number of texts with time frame	B1	
	Response - Tick boxes not overlapping, no gaps, covers all possibilities	B1	
8(c)	Indicating 50th/51st item	M1	$31 + 24$ is sufficient
	$10 \leq x < 20$	A1	

9(a)	32, 63, 75, 80	B1	
	Parts (b) (c) and (d) <u>must</u> be from an attempt at an increasing cf diagram		
9(b)	Plotting at upper class boundaries	B1	
	Heights correct	B1 ft	$\pm \frac{1}{2}$ square
	Smooth curve or straight lines to join points	B1	$\pm \frac{1}{2}$ square
9(c)	'3.9' – '2.4'	M1	
	1.5	A1 ft	
9(d)	48	B1 ft	