



General Certificate of Secondary Education

Mathematics 3302

Specification B

Module 1 Tier I 33001I

Mark Scheme

2007 examination - November 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.

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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 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(a)	Heights correct	B1	$\pm \frac{1}{2}$ square
	Their heights plotted on months and joined with “straight” lines or dotted lines	B1	$\pm \frac{1}{2}$ square
1(b)	Increases until July then decreases/Increases in summer then decreases	B1	

2	Correct method seen or one correct angle	M1	eg $\frac{114}{240} \times 360$ or 114×1.5
	3 or 4 correct angles, 171°, 138°, 36°, 15°	A1	
	Exactly 4 angles drawn accurately $\pm 2^\circ$	A1	
	4 sectors labelled with type of house in correct order of size.	B1	

3	Correct ordered diagram 10 0 9 11 1 8 8 12 1 3 8 9 13 2 5 7 14 4 6	B2	B1 for unordered or 3 ordered lines correct
	Key completed using any 3 digit number ≥ 100	B1	

4(a)	Q: The question has no time frame	B1	
	R: No box for none or no box for more than 6	B1	
4(b)	Only asking one age group	B1	

5(a)(i)	$\frac{7}{25}$ or 0.28 or $\frac{112}{400}$	B1	oe
5(a)(ii)	$\frac{19}{100}$ or 0.19 or $\frac{76}{400}$	B1	oe
5(b)	Josh because he carried out more trials	B1	

6(a)	$\frac{42+37+62}{3}$ or $\frac{141}{3}$	B1	
6(b)	$\frac{62+39+x}{3} = 51$ or $62 + 39 + x = 153$	M1	Setting up equation or sight of 153 <u>and</u> 101
	$153 - (62 + 39)$ or $153 - 101$	M1	
	52	A1	SC1 for last 3 moving averages used leading to ans of 48 T & I with correct answer = M2A1

7(a)(i)	$\frac{1}{12}$	B1	
7(a)(ii)	9, 10, 11, 12 or 4 alone	M1	Must not be from cancelling incorrect prob
	$\frac{4}{12}$	A1	0.33 or better
7(a)(iii)	1, 4, 9 or 3 alone or $1^2, 2^2, 3^2$	M1	Must not be from cancelling incorrect prob
	$\frac{3}{12}$	A1	oe
7(b)	Any event with probability $\frac{6}{12}$	B1	eg an even number/odd number/ number less than 7/number greater than 6

8(a)	32 added for girls - bus	B1	
	14 added for boys - car	B1	
	$100 - (28 + \text{"32"} + 1)$	M1	or $200 - (42 + \text{"14"} + 28 + 38 + \text{"32"} + 6 + 1)$
	39	A1	
8(b)	$\frac{70}{200} \times 1000$ or 70×5	M1	or $1000 - 650$
	350	A1	

9(a)	1 to 3	B1	
9(b)	$(53 \times \text{"2"}) + (30 \times \text{"5"}) + (11 \times \text{"8"}) + (6 \times \text{"11"})$ or $106 + 150 + 88 + 66$	M1	At least 3 brackets "correct". All four added Accept use of any midpoint within or on class boundary
	their $410 \div 100$	M1 dep	
	4.1	A1	

10(a)	Median and quartiles marked in correct place	B1	$\pm \frac{1}{2}$ square
	Box formed and whiskers correctly joined	B1	$\pm \frac{1}{2}$ square
10(b)	Comment about average (in context)	B1	eg (on average) the students were quicker on the 2nd run
	Comment about spread being the same	B1	eg The range/IQR is the same. Accept: The quickest time and slowest time both decreased by 2 mins