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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 1 Tier F 43051F

Mark Scheme

2009 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.

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 1 FOUNDATION TIER 43051F

Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.

1(a)	Bus	B1	
1(b)	5	B1	
1(c)	18	B1	
1(d)	(Jamie) 22 + 8 + 3 + 5 or 38	M1	
	(Keean) 18 + 12 + 2 + 8 or 40	M1	Allow only 1 error for M2A0
	38 and 40 seen and No	A1	In either order but must have both correct totals and No

2(a)	8	B1	
2(b)	17	B1	
2(c)	20	B1	
2(d)	5 + 4 + 17 +… or 143	M1	Attempt at $\sum x$ at least 7 values Total of 119 – 167 implies M1
	their 143 ÷ 11	M1 dep	Must divide by 11
	13	A1	
2(e)	Statement about this being a lower number of weeks	B1	eg the mean shows the average to be only 13 which is less than the mode The mean makes the waiting times look shorter

3(a)	3	B1	
3(b)	May and June	B1	
3(c)	Point marked at July, 116	B1	

4	Numbering correct on both axes, both linear and starting at zero	B1	
	Heights correct $\pm \frac{1}{2}$ square	B1	Within or on boundaries of class interval
	Histogram drawn with correct bar widths and no gaps or frequency polygon points plotted at mid class intervals and joined with straight lines	B1	Ignore extremities of a frequency polygon

5	$1 - (0.2 + 0.1)$ or 0.7	M1	**Alternative method** 0.2×500 or 0.1×500
	their $0.7 \div 2$ or 0.35	M1 dep	$500 -$ (their $100 +$ their 50) or 350 **Note**: 0.7×500 gains first M2
	their 0.35×500	M1	their $350 \div 2$
	175	A1	Do not accept $\frac{175}{500}$

6(a)	8	B1	
6(b)	2	B1	
6(c)	3	B1	
6(d)	7	B1	
6(e)	$4 + 9 + 6 + 7$	M1	Allow 1 error
	26	A1	

7(a)	X	B1	
7(b)	W	B1	
7(c)	Y	B1	
7(d)(i)	(Landing on) green	B1	oe eg not (landing on) blue or yellow or red
7(d)(ii)	(Landing on) red **or** yellow or (Landing on) blue **or** green	B1	oe

8(a)	Tally column correct with 5 bar gates	B1	
	Frequency column correct 5, 9, 1	B1	Correct or ft from tallies
8(b)(i)	Correct method seen or 1 correct angle seen	M1	eg $\frac{5}{18} \times 360$ or 5×20
	All three correct angles seen 100º, 180º and 20º	A1 ft	ft from frequency column in (a) $\times 20$
8(b)(ii)	All 3 sectors drawn correctly and labelled in words 100º, 180º, 20º ± 2º	B2 ft	If there are exactly 4 sectors drawn and the 4 angles sum to 360º then give B1 for 3 sectors correct or correct on ft with no labels or any one correct sector drawn and labelled or one correct ft their angles sector drawn and labelled

9(a)	16 + 27 – 9 or 16 + 18	M1	
	34	A1	
9(b)	32 – (15 – 6) or 32 – 9	M1	
	23	A1	

10	A-3 B-1 C-2	B2	B2 for all 3 correct B1 for 1 or 2 correct