AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Secondary Education

Mathematics 4307
Specification B

Module 1 Tier F   43051F

Mark Scheme

2009 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:

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)	6	B1	
1(b)	25 – 22	M1	Allow 22 - 25
	3	A1	
1(c)	24 + 4 + 2	M1	Allow 1 misread within ± 1 eg 23 + 4 + 2 Values must be shown
	30	A1	Note: 22 + 8 = 30 is M0A0
1(d)(i)	Suitable key from 00 to 99 1 | 8 2 | 1 4 5 3 | 3 7 4 | 1 2 3 5 | 0 4	B1 B2	eg …1…|…8…..represents …...18……...lessons Fully correct B1 correct but unordered B1 one error (a value misplaced or missing or extra)
1(d)(ii)	$\frac{4}{11}$	B1	

2(a)	2 + 0 + 3 … + 4 or 42	M1	Adding all 10 values 41, 42 or 43 implies M1
	$\frac{\text{their total}}{10}$	M1 dep	
	4.2	A1	Accept 4 if 4.2 seen 38.4 or 32.1 implies M2A0
2(b)	Median and valid reason	B2	B1 median with incorrect or no reason B1 no answer and valid explanation but no contradiction B0 for answer of mode or mean

3(a)	$\frac{720}{2880} \times 360$ or 90 or 150	M1	Any correct method $\frac{720}{8}$
	90º and 150º	A1	
3(b)	3 sectors drawn accurately	B1	Each ± 2º
	Labelled according to size	B1	Medium in largest sector etc

4	Pr (C) = 0.2	B1	$60 \times 0.1 \, (= 6)$ or $60 \times 0.3 \, (= 18)$
	1 − (0.3 + their C + 0.1)	M1	$60 \times (0.3 + 0.1 + 0.2)$ or $6 + 12 + 18$
	Pr (B) = 0.4	A1	36
	60 × "their Pr (B)"	M1	60 − their 36
	24	A1 ft	$\frac{24}{60}$ lose A1
	If both methods used, partially mark best method (award best marks) (Not choice)		

5(a)	Key 10	B1	
5(b)	Northwest 60	B1 ft	ft their key to integer value or correct
	South 45	B1 ft	ft their key to integer value or correct
	Wales 2 wholes	B1 ft	ft their key or correct
	Wales 1 half	B1 ft	ft their key or correct
5(c)	their total ("170") of the 4 areas or their 17 houses ×10	M1	17×10
	their total ×2	M1	
	340	A1 ft	
			Alternate method
		M1	Each area ×2 separately At least 2 correct
		M1	$80 + 120 + 90 + 50$ At least 2 correct
		A1 ft	340

6(a)	5	B1	
6(b)	20.8 (± 0.1) − 15	M1	Allow 15 − 20.8
	5.8 (± 0.1)	A1	5.4 SC1
6(c)	22	B1	
6(d)	22 − min = 18	M1	oe
	4	A1	

7(a)	Tallies correct	B1	Must use five bar gates or blocks of 5
	Frequencies correct 6, 2, 5 1	B1 ft	
7(b)	Histogram heights or freq polygon heights correct	B1 ft	ft or correct, ft freq column within classes or on boundaries, $\pm \frac{1}{2}$ sq for heights
	Widths correct (no gaps)	B1	Freq polygon midpoints $\pm \frac{1}{2}$ sq joined with straight lines Ignore extremities
7(c)	0 to less than 2.50	B1 ft	ft frequency column or correct If two modes, must state both

8(a)	As the number of books increase so does the total weight	B1	Positive correlation
8(b)(i)	Circle around (4, 7)	B1	
8(b)(ii)	Stronger box ticked	M1	If no box ticked stronger must be in reason
	The points would be closer to the line of best fit	A1	The points would not be as spread out Can get M1 or M1A1 if no box ticked