AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Secondary Education

Mathematics 4302
Specification B

Module 5 Paper 2 Tier F   43005/2F

Mark Scheme

2008 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.

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 5 FOUNDATION TIER 43005/2F

1(a)	12	B1	
1(b)	Any rectangle or square drawn	M1	
	4 by 2 or 3 by 3	A1	(1 by 5 or 5 by 1 M0A0)

2(a)	$\frac{2}{5}$	B1	
2(b)	6 squares shaded	B1	oe
2(c)	$\frac{8}{9}$	B1	
	$\frac{22}{32}$	B1	

3(a)	7	B1	
	35	B1	
3(b)	12, 20, 28	B2	2 of these only B1 2 of these + 1 other B1 2 of these + 2 or more others B0 1 of these only B0 1 of these + other(s) B0
3(c)	7	B1	

4(a)	5, 3	B1		
4(b)	−3, 1	B1		
4(c)(i)	Midpoint marked	B1	Letter M not essential	
4(c)(ii)	1, 2	B1		
4(d)	All sides same length		oe	B2 for any two from three
	All angles equal or all angles 90º	B2		B1 for any one from three
	4 lines of symmetry/order of rotational symmetry 4			

5(a)	58	B1	
5(b)	Arrow at 9.3	B1	Roughly midway between 2 marks
5(c)	Each division is (0.0)2 not (0.0)1	B1	3.28 (also condone 0.2 not 0.1)

6(a)	123	B1	
6(b)(i)	Less than 90º	B1	oe
6(b)(ii)	2 acute angles make < 180º	B1	
	One < 90º, other > 90º		< 90 + < 90 ≠ 180

7(a)	$27 \times 2 + 30$	M1	
	84	A1	
7(b)	$(52 – 30) \div 2$ or $26 – 15$	M1	Condone missing brackets
	11	A1	

8(a)(i)	6	B1	
8(a)(ii)	12	B1	
8(a)(iii)	$3 \times 4 \times 2$	M1	
	24	A1	
8(b)	12	B1	or $\frac{1}{2}$ their (a)(iii)
8(c)	<table><tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr><tr><td>x</td><td>√</td><td>√</td><td>√</td><td>x</td></tr></table>	B3	B2 for 4 correct entries B1 for 2 or 3 correct entries

9(a)	3 correct plots	B1	± 1 mm
	Ruled line through all correct plots	B1	
			SC1 for 2 correct plots, plot at (1218, 15) and straight line drawn
9(b)	30	B1	± 0.5 cm
9(c)	14 23	B1	± 6 mins ft 'their' line

10(a)	Angle of 70° at B	B1	± 2°
	BC = 4 cm	B1	± 2 mm Accept point C, within tolerance
10(b)	Angle at A found (= 39)	B1 ft	± 2° (* Look at diagram)
	141	B1	ft their angle A ± 2°

11(a)	5.832	B1	
11(b)(i)	0.175 438 (…)	B1	
11(b)(ii)	0.18	B1 ft	ft from (b)(i) if > 2 dp

12(a)	$2(3x - 5)$	B1	
12(b)	$4y = 8 - 3$	M1	
	1.25 or $1\frac{1}{4}$ or $\frac{5}{4}$	A1	
12(c)	$2t + 10 \ (= 8)$	M1	$t + 5 = \frac{8}{2}$
	$2t = 8 - 10$	M1 dep	$t = \frac{8}{2} - 5$
	−1	A1	−1
12(d)	−6, (−5, −4,) −3, (−2, −1,) 0, (1, 2,) 3, (4)	M1	$\frac{-6}{3} \le n < \frac{5}{3}$ oe
	−2, −1, 0, 1	A2	−1 eeoo If A1 given, infer M1

13	15.4 − 6.3 (= 9.1)	M1	$\frac{1}{2}$ 6.3 × 8.8 (= 27.72)
	$\frac{1}{2}$ (15.4 + their 9.1) × 8.8	M1 dep	8.8 × 15.4 − their 27.72 or 8.8 × 9.1 + their 27.72
	107.8 or 108	A1	107.8 or 108

14(a)	5, –3	B1 B1	
14(b)	At least 6 correct plots	M1	$\pm$ 2 mm ft their table
	Smooth curve	A1	Must be fully correct for this mark
14(c)	[–0.5, –0.4]	B1	ft 'their' graph ($\pm$ 0.1)
	[4.4, 4.5]	B1	ft 'their' graph ($\pm$ 0.1)
14(d)	Graph does not go down to –5	B1	oe

15	$\pi \times \left(\dfrac{55}{2} \right)^2$ (= 2375)	M1	Allow $\pi \times 55^2$ (= 9503) for M1
	their 2375 $\times$ 82	M1 dep	Allow their 9503 $\times$ 82
	[194718, 194818]	A1	
	[194.7, 194.8] (litres) + valid comment	A1 ft	eg No, not quite, less than 200