AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Secondary Education

Mathematics 4302
Specification B

Module 5 Paper 1 Tier H   43005/1H

Mark Scheme

2008 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.
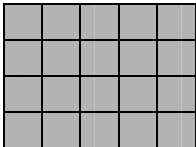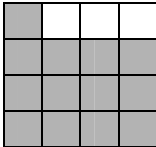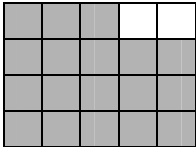
The following abbreviations are used on the mark scheme:

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 5   HIGHER TIER   43005/1H

1(a)	$\frac{36}{48}$ seen or implied Three quarters of 48 is 36	B1	0.75 and 0.77…
	Correct conclusion	B1 dep	eg 37 is greater than 36 $\left(\frac{3}{4}=\right)\ \frac{36}{48}$ Three quarters of 48 is 36 $\dfrac{3.0833...}{4}$
1(b)(i)	66	B1	
1(b)(ii)	87	B1	
1(c)	$11(3x + 4)$	B1	

2	Plan view correct	B1	 Can be 90º rotation
	Side elevation correct	B1	Either side Allow side/front answer in wrong place
	Front elevation correct	B1	

3(a)	3×15	M1	$2 \times 3 \times \dfrac{15}{2}$
	45	A1	
3(b)(i)	$3.14 \times 10 \times 10$	M1	3.14×10^2
	314	A1	
3(b)(ii)	20×30	M1	
	their 600 + their 314	M1 dep	
	914	A1	

4(a)	$x - 3$	B1	
4(b)	$x + x - 3 = 91$	B2	$2x - 3 = 91$ B1 for $x + x - 3$ oe
4(c)	$2x = 94$	M1	
	47	A1	SC1 44 and 47

5(a)	$ab + ac$	B1	
5(b)	$27 \times 3 + 27 \times 7$	M1	$x(y + z)$
	27×10 or $81 + 189$	A1	
	270	A1	

6(a)	169	B1	
6(b)	Valid explanation	B1	eg 4^2 ends in a 6 $14^2 = 196$ Do not accept eg $14^2 = 116$

7(a)	$-6a + 2b - 10$	B2	B1 for two correct terms $-6a - -2b + -10$ scores B1
7(b)	$32e - 36\ (+2e)$	M1	
	$34e - 36$	A1	

8	13 and –1	B1 B1	Any order

9(a)	$10^2 - 3^2$	M1	
	91	A1	
	$\sqrt{91}$	A1 ft	Ignore fw ft $\sqrt{\text{positive answer}}$
9(b)	1.5 or $\frac{2}{3}$ seen	M1	oe $\frac{x}{3} = \frac{15}{10}$ or $\frac{x}{15} = \frac{3}{10}$
	3×1.5	M1 dep	oe $\frac{3 \times 15}{10}$
	4.5	A1	

10(a)	$5y = x^2 - 49$	M1	$y + \frac{49}{5} = \frac{x^2}{5}$
	$5y + 49 = x^2$	M1 dep	$x^2 = 5(y + \text{their } 9.8)$
	$x = (\pm)\sqrt{5y + 49}$	A1	$x = \sqrt{5(y + 9.8)}$ oe Note: $\sqrt{5y + 49}$ oe on its own scores M2A0
10(b)	$5 \times -9 + 49$	M1	for correct substitution into their answer to (a)
	4	A1	
	2 and –2	A1	

11(a)	–2, –1, 0, 1	B2	–1 eeoo SC1 for –1, 0, 1, 2
11(b)	$14 - 12 \leq 3x - x$	M1	Use of < scores M1A0
	$1 \leq x$ or $x \geq 1$	A1	
11(c)	1 < answer < 2	B1	

12(a)	180 – 86	M1	
	94	A1	
12(b) (i)	180 – 86	M1	
	their 94 ÷ 2 (or BAC = 47)	M1 dep	
	47	A1	
12(b) (ii)	Alternate segment	B1	

13	2π (×) 18	M1	
	$\frac{240}{360}$ × 2π (×) 18	M1 dep	
	24π	A1	oe
	24π + 36	B1 ft	their 24π + 36 oe

14	(side =) 5 cm	B1	
	5 × 5 × 5	M1	oe
	125 × 2	M1 dep	oe
	$\frac{1}{3}$ × 25 × 5	M1	oe
	125 + 125 + $\frac{125}{3}$	A1	oe Allow 41.6 - 41.7
	their volume × 9	M1	Any volumes changed to mass (× 9) 1125, 375 (374.4 - 375.3)
	2625	A1	2624 - 2626 inc scores 7 2619 - 2624 exc scores 6 2626 exc - 2628 scores 6

15	$(x - 3)(x + 2)$ or $- x(x - 2)$	M1	
	$(x - 3)(x + 2) - x(x - 2)$	M1 dep	
	$x^2 - 3x + 2x - 6$ or $-x^2 + 2x$	A1	Dependent on first M1 only
	$x^2 - 3x + 2x - 6 - x^2 + 2x$ $= x - 6$	A1	For 4 marks to be awarded common denominator must be seen