Version : 1.0: 1107

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 3302

Specification B

Module 5 Paper 1 Tier I 33005/I1

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.

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.

Set and published by the Assessment and Qualifications Alliance.

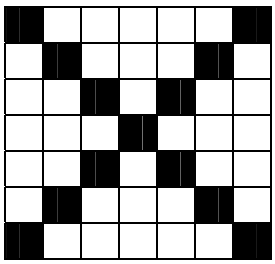
The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334).
Registered address: AQA, Devas Street, Manchester M15 6EX *Dr Michael Cresswell Director General*

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 INTERMEDIATE TIER 33005/I1

1(a)(i)	25	B1	
1(a)(ii)	125	B1	
1(b)	Square (numbers)	B1	Accept: squares, squared Do not accept: square root, 3-digit numbers
1(c)	$6 \times 6 \times 6$ or 6^3	B1	oe Do not accept: cube the next number

2(a)		B1	
2(b)	(1 +) $4 \times 9 = 37$	B2	B1 for each side SC1 (1 +) $4 \times 10 = 41$
2(c)	B	B1	
2(d)	$4n - 3 = 101$ or $4n = 104$	M1	$1 + 4 \times 25$ (= 101) $4 \times 26 - 3$ (= 101)
	26	A1	

3(a)	36	B1	
3(b)	their 36×2 or their 72 or 180 – their 36	M1	
	360 – their 72 or (180 – their 36) $\times 2$	M1 dep	
	288	A1 ft	
3(c)	360 ÷ their 36	M1	oe Attempt to add up more than 6 lots of their 36 4 scores M1
	10	A1 ft	Must be an integer

4(a)	5.2 seen	B1	[5.1, 5.3]
	their 5.2 × 4	M1	Need not be in range
	20.8	A1 ft	[20.4, 21.2]
4(b)	Equal arcs of radius 4 cm drawn and intersecting	M1	± 0.1 cm
	Correct points identified	A1	Need not be labelled One correct point from arcs implies M1A0

5(a)	7.5 + 6.3 + 6.3 or 7.5 (+) 12.6	M1	oe
	20.1	A1	
5(b)(i)	$3R + S$ or $2.5S$ or $5R$	B1	oe Condone $A =$
5(b)(ii)	$2R = S$	B1	

6	Attempt to draw shape with sf 3	M1	At least 2 sides correct
	Fully correct	A1	Allow shape to be 1 square off the grid

7(a)	$4x = 9 + 7$	M1	oe
	$(x =)$ 4	A1	
7(b)	$15y + 20$ (= 50)	M1	$3y + 4 = 50 \div 5$
	$15y = 30$	A1	$3y = 6$
	$(y =)$ 2	A1	$(y =)$ 2

8	$\frac{1}{2}(5 + 8)(\times)$ 4	M1	oe
	26	A1	

9(a)	4.5	B1	
9(b)	5 × their 4.5	M1	
	22.5	A1 ft	
9(c)(i)	At least 2 correct points plotted	M1	$\pm\frac{1}{2}$ square or origin used with 1 correct point
	Ruled line through correct points	A1	
9(c)(ii)	Attempt to use graph to find a reasonable conversion or 25 ÷ 1.2	M1	Reading off within reasonable tolerance at: £2.50 ≈ 2.08 litres £5 ≈ 4.17 litres £10 ≈ 8.33 litres £12.50 ≈ 10.42 litres 5 litres ≈ £6 10 litres ≈ £12 20 litres ≈ £24
	20	A1	{20, 21} implies M1A0 21 litres = £25.20 implies M1A0 eg reading at £12.50 = 10.6, so £25 = 21.2 litres, therefore 21 implies M1A1 20 litres ≈ £24 without fw implies M1A1 eg if £5 is read as 4.2 (should be 4.1666…) litres then 4.2 × 5 = 21 So 21 is acceptable for M1A1

10(a)	10 + 6 + (6 + 2) + 3 + 2 + (10 – 3)	M1	oe
	36	A1	
10(b) (i)	10 × 6 or 60 or 3 × 2 or 6 or 10 × 8 or 80 or 7 × 2 or 14	M1	oe 3 × 8 or 24 or 7 × 6 or 42
	60 + 6 or 80 – 14	A1	oe 24 + 42
	66	A1	
	m^2	B1	Units mark
10(b) (ii)	10 + 10 + 2 or 7 + 7 + 8 or their 66 ÷ 3	M1	oe Accept 10 + 10 + 3
	22	A1 ft	23

11(a)	$c^2 - b^2 = a^2$	M1	
	$(a =)(\pm)\ \sqrt{c^2 - b^2}$	A1	
11(b)	$7^2 + 10^2$	M1	
	149	A1	
	$\sqrt{149}$	A1 ft	

12(a)	12	B1	
12(b)	x^5	B1	
12(c)	y	B1	
12(d)	$\frac{3}{2}x^3y$	B2	oe B1 for 2 correct terms
12(e)	$6x^2y(3x^3y - 2)$	B3	B2 for correct partial factorisation (2 factors fully correct) B1 for correct partial factorisation (1 factor fully correct)

13(a)	States or implies gradient = $(\pm)3$ eg sight of $6 \div (-)2$	M1	
	$y = 3x$	A1	
13(b)	$y = 3x + 6$	B1 ft	their (a) + 6 (Must be an equation)
13(c)	Same gradient or equal	B1	oe Accept: Parallel, Positive, 3 Do not accept: equal distance apart

14(a)	Length	B1	Accept Circumference
14(b)	Volume	B1	
14(c)	Area	B1	Accept: Curved surface area Do not accept: Curved surface
14(d)	Volume	B1	