AQA CERTIFICATE
USE OF MATHEMATICS

43503H – Higher Core Unit
Mark scheme

4350
June 2016

Version 1.0: Final Mark Scheme

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' 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.

Further copies of this mark scheme are available from aqa.org.uk

Key to mark scheme abbreviations

M	mark is for method
m or dM	mark is dependent on one or more M marks and is for method
A	mark is dependent on M or m marks and is for accuracy
B	mark is independent of M or m marks and is for method and accuracy
E	mark is for explanation
√or ft or F	follow through from previousincorrect result
CAO	correct answer only
CSO	correct solution only
AWFW	anything which falls within
AWRT	anything which rounds to
ACF	any correct form
AG	answer given
SC	special case
oe	or equivalent
A2,1	2 or 1 (or 0) accuracy marks
–*x* EE	deduct *x* marks for each error
NMS	no method shown
PI	possibly implied
SCA	substantially correct approach
c	candidate
sf	significant figure(s)
dp	decimal place(s)

No Method Shown

Where the question specifically requires a particular method to be used, we must usually see evidence of use of this method for any marks to be awarded.

Where the answer can be reasonably obtained without showing working and it is very unlikely that the correct answer can be obtained by using an incorrect method, we must award **full marks**. However, the obvious penalty to candidates showing no working is that incorrect answers, however close, earn **no marks**.

Where a question asks the candidate to state or write down a result, no method need be shown for full marks.

Where the permitted calculator has functions which reasonably allow the solution of the question directly, the correct answer without working earns **full marks**, unless it is given to less than the degree of accuracy accepted in the mark scheme, when it gains **no marks**.

Otherwise we require evidence of a correct method for any marks to be awarded.

Question	Solution	Mark	Total	Comment
1(a)	7 identified	**B1**	1	Auto marked
1(b)	(£)14	**B1**	3	
	(their 14 + 1.5 (0) + 2(.00) + 2 (.00)) × 3	**M1**		oe – full method seen
	58.50	**A1**		42 or 19.50 or 47.50 seen implies B1
1(c)	$\frac{3.5(0)}{17.5(0)}$	**M1**	2	o.e. seen
	$\frac{1}{5}$	**A1**		
1(d)	72 ÷ (5 + 7)	**M1**	2	or 6 or 42
	30	**A1**		
	Total		**8**	

Question	Solution	Mark	Total	Comment
2(a)	6.5+6.5+7.0+6.5+7.0	**M1**	3	Or 33.5
	Their 33.5 × 2.9	**DM1**		
	97.15	**A1**		
2(b)	102.6(0) – 86.4(0)	**M1**	2	
	16.2(0)	**A1**		
2(c)	Minibaev's scores less spread out than Gherra's oe	**B1**	1	oe eg More consistency in Minibaev's marks Accept 'Russia' for Minibaev and/or 'Cuba' for Guerra
2(d)	91(.0) × 6 or 546	**M1**	3	
	Their 546 – (92.0 + 89.5 + 94.0 + 90.1 + 84.0)	**DM1**		Or their 546 – 449.6
	96.4	**A1**		92.4 = SC2 unless incorrect method seen
	Total		**9**	

Question	Solution	Mark	Total	Comment
3(a)	3550 – (3150 + 284)	**M1**	2	o.e. No MR
	116	**A1**		May be in table
3(b)(i)	162 000 × 5 ÷ 8	**M1**	2	o.e. Ignore extra working for M1
	101 250	**A1**		
3(b)(ii)	162 000 × $\frac{6.4}{100}$ or 10 368	**M1**	3	
	their 10 368 + 162 000	**DM1**		162 000 x 1.064 = M2
	172 368	**A1**		SC2 for 107730
3(c)(i)	12 000 + 5500	**M1**	3	
	$\frac{\text{their}\,17500}{55500} \times 100$	**M1**		oe
	31.5 to 32	**A1**		
3(c)(ii)	8250	**B1**	1	
3(c)(iii)	Suitable axes	**B1**	2	Both axes linear. Vertically, 2cm to represent between 2000 and 5000.
	All bars correct height $\pm \frac{1}{2}$ square and correctly placed	**B1**		No gaps between bars
	Total		**13**	

Question	Solution	Mark	Total	Comment
4(a)(i)	2.5 or 4 seen	**B1**	2	May be on graph
	1.5	**B1**		SC1 for 1.4 to <1.5
4(a)(ii)	Straight line drawn from (0,0) to (2,80)	**B1**	1	Accept freehand
4(b)(i)	$\frac{50}{9} \times 1.5^2$	**M1**	2	5.56×1.5^2
	12.5 to 12.51	**A1**		
4(b)(ii)	18 × 9 ÷ 50	**M1**	3	3.24
	$\sqrt{\text{their}\ 3.24}$	**DM1**		
	1.8	**A1**		
	Total		**8**	

Question	Solution	Mark	Total	Comment
5(a)(i)	$(V) = \frac{1}{3} \times \pi \times 8 \times 8 \times 12$	M1	3	256π
	803 to 804.25	A1		
	ft^3	B1		
5(a)(ii)	$2 \times \pi \times 8 \times 1.5$	M1	2	24π
	75 to 75.4	A1		
5(b)	2.5×0.5	M1	4	1.25 Check diagram
	$2.2 - 0.5$	M1		1.7 Check diagram
	$\frac{1}{2} \times 2.5 \times$ their 1.7 + their 1.25	DM1		
	3.375 or 3.38	A1		
5(c)	$2.5^2 -$ their $(1.5 \div 2)^2$	M1	3	Correct use of Pythagoras
	$\sqrt{5.6875}$	DM1		
	2.38 to 2.4	A1		
	Total		**12**	
	TOTAL		**50**	