AQA

A S S E S S M E N T   a n d

Q U A L I F I C A T I O N S

A L L I A N C E

General Certificate of Secondary Education

Mathematics 4307
Specification B

Module 3 Tier F   43053F

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 3   FOUNDATION TIER   43053F

1(a)(i)	$\frac{1}{3}$	B1	One third
1(a)(ii)	Yes	B1	
1(b)	$\frac{1}{2}$	B1	

2(a)	20 176	B1	
2(b)	Twenty thousand one hundred (and) seventy six	B1 ft	Ignore spelling if intention clear Correct or follow through
2(c)	3085 and 909	B1	
	2 804 265	B1 ft	Check for ft if numbers seen Note: 2 804 265 is B2
2(d)	3085 and 13 860	B1B1	Either order
2(e)	5476	B1	

3(a)	–5	B1	
3(b)	–4	B1	

4	Top row 9(%)	B1	
	Middle row $\frac{15}{100}$	B1	oe fraction
	Bottom row (0).8	B1	condone extra zeros

5	$5 \times 8.99 \ (= 44.95)$ or $2 \times 21.45 \ (= 42.9(0))$	M1	
	their 44.95 + their 42.9(0) + 9.99	M1 dep	97.84 their 44.95 and their 42.9(0) must be > 40 if no method shown
	100 – their goods total	M1 dep	dep on M2 can be implied by final answer if total between 90 and 100 seen
	2.16	A1	SC3 216 SC1 9784

6	$\frac{47}{100} \times 58$	M1	oe eg 0.47×58 Build up method must lead to 47% for M1
	27.26 or $27\frac{13}{50}$	A1	SC1 30.74 or $30\frac{37}{50}$ or 27.3

7(a)	500×1.25	M1	
	625	A1	
7(b)	$47.5(0) \div 1.25$	M1	
	38	A1	

8(a)	19.8545(…)	B1	At least 6 significant figures Accept $\frac{1092}{55}$
8(b)	19.9	B1 ft	ft from (a) if 2 dp or more visible
8(c)	19.85	B1 ft	ft from (a) if 3 dp or more visible
8(d)	$5.6 \times 7.8 \div (4.3 - 2.1)$ or $(5.6 \times 7.8) \div (4.3 - 2.1)$	B1	ignore brackets around entire sum

9(a)	$126 \div$ their $(1 + 6)$	M1	
	18 adults	A1	
	108 children	A1	SC2 answers wrong way round
9(b)	(their adults) + 9 and their children	M1	Further 'method' gets M0 eg 18 + 9 + 108
	Intention to divide both sides by their 27 in one or more steps	M1 dep	M2 for their 4:1 or their $\frac{1}{4}$
	1:4	A1 ft	or states $k = 4$ If ft, 2sf or better must have correct rounding Must process improper fractions

10(a)	Obtains 3 for final digit	M1	
	1513	A1	
10(b)	Obtains 8 for final digit	M1	
	518	A1	
10(c)	27	B1	
10(d)	$48 \div 8 \times 3$	M1	oe
	18	A1	SC1 30

11(a)	(Number shown is) 1 million	B1	oe eg (10 million is) 10 000 000
11(b)	(Hassan is wrong as this is) five hundred thousand and ten	B1	oe eg 5010 (is right)

12(a)	+ then −	B1	
12(b)	× then +	B1	Accept – 3 + 4 × 5

13	Rounds to 200 and 3	M1	
	600	A1	SC1 594 or 620

14(a)	0.334, 0.65, 0.8	B1	
14(b)	–8, –5, 2.5, 6	B2	6, 2.5, –5, –8 B1

15	$1475 \div 35$ oe	M1	Build-up method to at least 20 (rides)
	Obtains 4 for the tens digit of the answer from division	M1 dep	Build-up method to at least 40 (rides) but not more than 50
	42 or 42… or 42r(5)	A1	1470 = 42
	43	B1 ft	Rounds up their non-exact answer

16	Fully correct explanation eg Yes, 500 000 000 ($= \frac{1}{2}$ billion) (Yes,) total greater by 1 873 248 (Yes,) 501 million > 500 million Yes, 2 × 501 837 248 is about 1002 million	B2	B1 partial work or explanation eg 500 000 000 ($=\frac{1}{2}$ billion) 500 million ($=\frac{1}{2}$ billion) 501 million (= income) 502 million (= income)

17(a)	27	B1	
17(b)	0.02	B1	

18(a)	348 880	B1	
18(b)	3560	B1	

19(a)	Valid common denominator with at least one numerator correct	M1	$\frac{21}{35}$ (–) $\frac{10}{35}$ oe 0.6 (–) 0.29 or better
	$\frac{11}{35}$	A1	oe fraction
19(b)	$1\frac{11}{35}$	B1 ft	ft their (a) + 1 oe eg $\frac{46}{35}$

20	1 and 64	B2	B1 for each; allow unprocessed powers for B1B0 eg 1^2(or 1^3) and 8^2(or 4^3) gets B1B0

21(a)	2 (×)18 or 3 (×)12 or 2 (×)3 (×)6 or 2 (×)2 (×)9 or 3 (×)3 (×)4	M1	Allow ×1 May be on factor tree or repeated division
	2(×)2(×)3(×)3	A1	Allow ×1
	$2^2 \times 3^2$ or $2^2.3^2$	A1	Do not allow ×1
21(b)	36	B1	