AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Secondary Education

Mathematics 3301
Specification A

Paper 1 Foundation

Mark Scheme

2007 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.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

M	Method marks are awarded for a correct method which could lead to a correct answer.	
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.	
B	Marks awarded independent of method.	
M dep	A method mark dependent on a previous method mark being awarded.	
B dep	A mark that can only be awarded if a previous independent mark has been awarded.	
ft	Follow through marks. Marks awarded following a mistake in an earlier step.	
SC	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.	
oe	Or equivalent. Accept answers that are equivalent. eg, accept 0.5 as well as $\frac{1}{2}$	

Paper 1F

Q	Answer	Mark	Comments
1	1×20 and 2×10 and 4×5	B3	$-1\,$eeoo
	1, 2, 4, 5, 10, 20	B1	Must have 6 numbers Accept in any order No ft
2(a)	Intermediate or I	B1	Do not accept 65 306
2(b)	Thirty thousand, three hundred (and) thirty eight	B1	
2(c)	30 000	B1	Accept in words
3(a)	2	B1	
3(b)	11	B1	
3(c)	August	B1	Accept Aug or A
3(d)	$4\frac{1}{2}$ circles drawn for September	B1	Accept poor drawings if intention clear
4(a)	$1 + 3 + 5 + 7 + 9$	B1	
	25	B1	
	$1 + 3 + 5 + 7 + 9 + 11$	B1	
	36	B1	
4(b)	Square (numbers)	B1	
5(a)	850	B1	Accept 850.(00)
5(b)	900	B1	Accept 900.(00)
5(c)	854.3	B1	Do not accept 854.30

Q	Answer	Mark	Comments
6(a)	mm or cm	B1	Accept equivalent Imperial units throughout, but penalise the first occurrence ($\equiv$ inches or in)
6(b)	Litres	B1	Accept l ($\equiv$ gallons or gal)
6(c)	m^2 or hectares	B1	($\equiv$ square yards or acres)
6(d)	kg or kilos or tonnes or Newtons	B1	Accept tons ($\equiv$ pounds or lb or stone or cwt)

Q	Answer	Mark	Comments
7(a)	30.7	B1	
7(b)	5.7	B1	
7(c)	144	B1	
7(d)	25	B1	
7(e)	8280	M1	oe eg, box method
	1104	M1	oe eg, box method
	9384	A1	

Q	Answer	Mark	Comments
8(a)	5	B1	
8(b)	5	B1	
8(c)	8	B1	

Q	Answer	Mark	Comments
9(a)	$5 \times 4 + 10$ or $20 + 10$	M1	
	30	A1	
9(b)	$(38 - 10) \div 4$ or $28 \div 4$	M1	or $4 \times 7 + 10 = 38$
	7	A1	

Q	Answer	Mark	Comments
10(a)	4 ± 0.1	B1	
10(b)	90 ± 2	B1	
10(c)	P marked on circumference	B2	± 1 mm B1 for diameter drawn from A

Q	Answer	Mark	Comments
11	$\dfrac{1}{5}$ $\dfrac{1}{3}$ $\dfrac{7}{10}$ in correct boxes	B2	B1 for 1 correct
12	$A(1, 3)$	B1	
	$B(3, -3)$	B1	
	$C(-3, -1)$	B1	SC1 If all three in reverse order
13	$(\sqrt{25} =)$ 5	B1	
	$(\sqrt{16} + \sqrt{9} =)$ 7	B1	
14	A B and E	B2	-1 eeoo
15(a)	0 0 1 1 1 3 4 4 6 20	M1	At least first 6 or last 6 in correct order
	2	A1	
15(b)	$\sum x \div 10$	M1	Allow $38 \le \sum x \le 42$ if no addition seen
	4	A1	
15(c)	Median - omits rogue value or Mean - uses all values	B1	
16	Line drawn from $3x - x$ to $2x$	B1	
	Line drawn from $3x \times x$ to $3x^2$	B1	
	Line drawn from $3(x + 1)$ to $3x + 3$	B1	
	Line drawn from $x \times x \times x$ to x^3	B1	

Q	Answer	Mark	Comments
17(a)	400 – (137 + 128)	M1	oe
	135	A1	
17(b)	420 ÷ 3 or 140	M1	or (137 – 128) and (137 – Their 135) or 11 oe
	(Their 140) – 128	M1dep	or (20 – Their 11) ÷ 3 + 9 oe
	12	A1	

Q	Answer	Mark	Comments
18(a)	100	B1	
18(b)	360 – (120 + 100)	M1	
	140	A1	
18(c)	180 – (90 + 36) or 90 – 36	M1	
	54	A1	
18(d)	72	B1	

Q	Answer	Mark	Comments
19	5	B1	
	20	B2	B1 for $z = 4$

Q	Answer	Mark	Comments
20	$60 \times 100 \div 80$ or $\frac{3}{4}$	M1	oe or Two fractions with the same denominators and one correct numerator eg, $\frac{15}{20}, \frac{14}{20}$ or $\frac{300}{400}, \frac{280}{400}$ oe
	75(%) or 0.75	M1	or $\frac{15}{20}$ **and** $\frac{14}{20}$ or $\frac{300}{400}$ **and** $\frac{280}{400}$ oe
	75(%) **and** 70(%) and Test 1 or 0.75 **and** 0.7(0) and Test 1	A1	Correct fractions **and** Test 1

Q	Answer	Mark	Comments
21(a)	$15 \div 3 \times 9$ or 15×3	M1	oe eg, $60 - 15$
	45	A1	Can be recovered in (b) if missing in (a)
21(b)	45 (boys pass)	B1ft	
	35 (girls pass) and 25 (girls fail)	B1	

Q	Answer	Mark	Comments
22(a)	$2 \times 3 \times 4$	M1	
	24	A1	
	m^3	B1	Units mark for consistent units
22(b)	2×3 or 2×4 or 3×4	M1	or 6, 8 and 12
	2×3 (+) 2×3 (+) 2×4 (+) 2×4 (+) 3×4	M1	oe eg, $2 \times (6 + 8) + 12$ $\quad 2 \times (2 \times 3 + 2 \times 4) + 3 \times 4$
	(Their 40) ÷ 6	M1	oe $(6 \div 6) + (6 \div 6) + (8 \div 6) + (8 \div 6) + (12 \div 6)$
	7	A1	SC3 5 from 28 or 9 from 52 or 6 from 32 or 34 or 5 from $1 + 1 + 1.(…) + 1.(…)$ or 6 from $1 + 1 + 1.(…) + 2$ or 6 from $1 + 1.(…) + 1.(…) + 2$ or 9 from $1 + 1 + 1.(…) + 1.(…) + 2 + 2$ SC2 7 with no working SC1 28 or 52 or 32 or 34 or 40 from 4 walls

Q	Answer	Mark	Comments
23(a)	3	B1	
23(b)	2	B1	
23(c)	40	B1	
23(d)	$10 \div 0.5$	M1	oe Allow $10 \div 30$ or $0.33(3…)$
	20	A1	

Q	Answer	Mark	Comments
24	Correct rotation with vertices $\pm 2\,\text{mm}$	B2	B1 for any 90º clockwise rotation ($\pm 2\,\text{mm}$) or 180º rotation about C ($\pm 2\,\text{mm}$) or 90º anticlockwise rotation about C ($\pm 2\,\text{mm}$)

Q	Answer	Mark	Comments
25	60 ÷ 6	M1	or Sight of 10
	10 and 50	A1	In correct order

Q	Answer	Mark	Comments
26	36	B1	
	40	B1	
	2.8(0) ÷ 8 or 280 ÷ 8	M1	
	35	A1	