



General Certificate of Secondary Education

Mathematics 3301

Specification A

Paper 2 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

Copyright © 2007 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

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 2F

Q	Answer	Mark	Comments
1	5.34	B1	
	2.70	B1	Not 2.7
	8.04	B1ft	
2(a)	(0).25	B1	
2(b)	$\frac{3}{5}$, 0.91	B2	If two circled and one correct B1 Otherwise -1 eeo
2(c)	50 - 18	M1	18 + 4 or 22
	(Their 32) ÷ 4	M1dep	Full add on method
	8	A1	
3(a)	. .	B1	
3(b)	14, 17	B1	
3(c)	Adding on 3 s with at least two more seen, eg, Their 20, 23	M1	or (32 - 2) ÷ 3 or 3n + 2 = 32
	10	A1	
4(a)	A (0, 6)	B1	
4(b)(i)	BD drawn	B1	Condone letter D missing
4(b)(ii)	D (5, 6)	B1	
5(a)	18	B1	
5(b)	8	B1	
5(c)	2	B1	

Q	Answer	Mark	Comments
6(a)	5	B1	Allow answers in range 4 to 6 B1 Answers in range 44 to 46, or $50 - 43 = 7$, or $50 - 47 = 3$
6(b)	830	B1	Allow answers in range 828 to 832
7(a)	7641	B1	
7(b)	1476	B2	B1 any even number starting with 1 or B1 smallest number ie, 1467
8(a)	$10 - (4 \times 1.55)$	M1	6.20; 6.2; 620; 3.8; 380
	3.80	A1	
8(b)	$5.5 + (3 \times 3.75)$	M1	11.25; 1125
	16.75	A1	
9(a)	1	B1	
	-1	B1ft	- 2 from Their first answer Look on sequence for answer and ignore fw
9(b)(i)	7	B1	
	6.5	B1ft	$6\frac{1}{2}$, $\frac{13}{2}$, ft mean of 6 and their first answer Look on sequence for answer and ignore fw
9(b)(ii)	Yes and to find the mean of two numbers you add them up and divide by 2	B1	Yes and to find mean you add up all of the numbers and divide by how many there are oe

Q	Answer	Mark	Comments
10(a)(i)	500	B1	
10(a)(ii)	Tuesday	B1	Allow Tu but not T
10(a)(iii)	Wednesday	B1	Allow W
10(b)	No. Friday and Saturday are the most popular nights	B1	No. Saturday is the most popular No. More at weekend No. Sun-Thurs have similar attendances No. Different amounts each day No. Columns aren't the same height oe
10(c)	100/1000, 10/100, 1/10, 10%	B2	oe B1 for numerator, B1 for denominator B1 for 1 in 10
11	5.08	B1	508 cm
12(a)	658(...)	B1	
12(b)	1.7(...)	B1	
12(c)	7.37(...)	B1	$285/35, 7\frac{13}{35}$
13(a)	$(3 + 5 - 2) \div 3 = 2$	B1	Allow correct extra brackets
13(b)	$3 + (5 - 2) \div 3 = 4$	B1	Allow correct extra brackets

Q	Answer	Mark	Comments
14(a)	$180 \div 45$	M1	$1.8 \div 45, 0.04$
	4	A1	
14(b)(i)	One correct column or row	M1	$100 \times 8 (+) 200 \times 8, 20 \times 12 (+) 50 \times 12 (+) 10 \times 12$ $100 \times 8 (+) 20 \times 12, 200 \times 8 (+) 50 \times 12,$ $0 \times 8 (+) 10 \times 12$
	Additional remaining column or both rows	M1	
	33.60	A1	SC2 for 42.40 SC1 for 42.4 or 4240 or 18.90
14(b)(ii)	$8x + 12y$	B2	B1 $8x (+) 12y$ or $8 \times x + 12 \times y$ or $x \times 8 + y \times 12$ or $8x + 12y = 20xy$

15(a)(i)	Kite	B1	
15(a)(ii)	Trapezium	B1	
15(b)	Rectangle drawn	B1	
15(c)	Equilateral triangle drawn	B1	2 possible sizes
15(d)	$P = 2 \times 3 + 2 \times 5.2$	M1	$6 + 10.4, 2 \times 8.2$
	16.4	A1	
15(e)	Method 1 Attempt to compare using equilateral triangles/ rhombi Method 2 Using formulae	B1	Method 1 eg, 2 bottom halves equal and lines drawn Method 2 eg, $b \times h$ for rhombus or $\frac{1}{2} b \times h$ for triangle
	Complete argument	B1	Method 1 Show that both top halves are $\frac{1}{2}$ of a rhombus or are the same Method 2 Using both formulae and triangle has double the base (or height) oe B2 Complete hexagon on diagram and show each is $\frac{1}{3}$ of hexagon

Q	Answer	Mark	Comments
16(a)(i)	1	B1	
16(a)(ii)	All equally likely	B1	oe
16(b)	2 2 5 6 7 3 3 6 7 8 6 6 9 10 11 7 7 10 11 12 8 8 11 12 13	B2	One or two errors in table B1 If table not used full listing of totals B2 1 or 2 errors/omissions of totals B1 Allow E, O or W, L or explained $\sqrt{\quad}$, X
	Counting up Their odds and evens eg, 13 E, 12 O	M1	eg, $P(\text{even}) = \frac{13}{25}$ or $P(\text{odd}) = \frac{12}{25}$ (must have numbers)
	More evens than odds or Yes	A1ft	

Allow embedded solutions unless contradicted on answer line

17(a)	5c	B1	$5 \times c$
17(b)(i)	$x = 12$	B1	
17(b)(ii)	$y = 20$	B1	
17(b)(iii)	$z = 32$	B1	
17(b)(iv)	$4w = 13 - 3$	M1	$w = \frac{10}{4}$
	$w = 2.5$	A1	$\frac{5}{2}, 2\frac{1}{2}$ T & I scores 2 or 0

18(a)	1415 seen or marked on table	B1	2.15
	1415 – 1040 (must be times)	M1	20min + 3hr + 15min, 64 + 26 + 74 + 51, 215 (mins)
	3 h 35 m	A1	
18(b)	1 h 30 m = 1.5	B1	1 h 30 m = 90
	Distance / time	M1	$96 \div 1.5$; $96 \div 90 \times 60$; $96 \div 1.3$ Not $96 \div 90 \times 100$
	64	A1	SC1 for 73.8 with no working

Q	Answer	Mark	Comments
19(a)	Substituting for $t = 3$ in both terms	M1	Even if algebra not correct
	9 (from 3×3) or -18	A1	
	0	A1	
19(b)(i)	$\pi \times 4.25$	M1	$3.1(42) \times 4.25$; $\frac{22}{7} \times 4.25$
	13.3 to 13.4	A1	
19(b)(ii)	4.25×2.54	M1	
	10.795	A1	10.7(...)
	10.8	B1ft	
20(a)	Straight line, if extended, to pass within (0, 13) to (0, 15) and (10, 22) to (10, 24) inclusive	B1	At least between $x = 2$ and $x = 8$, freehand to $\frac{1}{2}$ square accuracy
20(b)	Increase together	B1	Positive correlation oe, Their equation of line of best fit
21(a)	Reflection	B1	Must be a single translation
	In y axis	B1	In $x = 0$, in y , in line y , vertical axis only oe
21(b)	Correct translation	B1	$(-1, 0)$, $(-1, -2)$, $(0, -2)$
21(c)	Any enlargement	B1	Any orientation
	S.F 3	B1	Any orientation
	Using centre (0, 1)	B1	$(3, 1)$, $(6, 1)$, $(3, 7)$ SC1 2 vertices correct
22(a)	$4x - 12$	B1	$4 \times x - 12$
22(b)	$x(x + 5)$	B1	Allow $(x + 0)(x + 5)$ or $(x + 5)x$
23	$\frac{40}{100} \times 65$	M1	26
	65 – Their 26	M1dep	$\frac{60}{100} \times 65$ scores M2
	39	A1	