



General Certificate of Secondary Education

Mathematics 4302

Specification B

Module 1 Tier H 43001H TWO TIER

Mark Scheme

2007 examination - March 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.

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 1 HIGHER TIER**43001H****Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.**

1 out of 3 or 1 in 3 penalise once on whole paper.

1(a)(i)	$1 - (0.41 + 0.15 + 0.32)$ or $1 - 0.88$	M1	
	0.12	A1	oe
1(a)(ii)	$1 - 0.32$	M1	or $0.41 + 0.15 +$ their ans a
	0.68	A1	oe
1(b)	0.41×200	M1	
	82	A1	

2	One correct midpoint seen and used correctly	M1	At least one product. Sight of 120, 500, 420 or 360 \Rightarrow M1
	$(5 \times 2) + (15 \times 8) + (25 \times 20) + (35 \times 12) + (45 \times 8)$ or 1410	M1	$\sum fx$ using x on or between the class boundaries. All five products
	"1410" \div 50	M1 dep	on 2nd M1
	28.2	A1	28 with correct working or no working \Rightarrow M3A0 (unless 28.2 seen)

3(a)	$2.1 - 1.6$	M1	Accept 2.08 – 2.12 and 1.58 – 1.62
	0.5	A1	ft from values seen in range above
3(b)	$100 - 88$	M1	Allow 100 – 87 and 100 – 89
	12	A1	11 or 13 with no working \Rightarrow M1A0

4	$\frac{45}{300} \times 25$	M1	One correct method seen
	4, 6, 8, 7 or 3, 7, 8, 7 or 4, 7, 8, 6	A2	A1 for 3.75, 6.5, 8, 6.75 or 4, 7, 8, 7

5	$\frac{7}{15} \times \frac{3}{14}$ or $\frac{3}{15} \times \frac{7}{14}$	M1	0.466×0.214 or 0.2×0.5
	$\frac{7}{15} \times \frac{3}{14} \times 2$ or $\frac{7}{15} \times \frac{3}{14} + \frac{3}{15} \times \frac{7}{14}$	M1 dep	Adding the two correct products
	$\frac{42}{210}$ or $\frac{1}{5}$	A1	oe 0.2 $\frac{42}{225}$ SC1

6(a)	Points plotted correctly ($\pm \frac{1}{2}$ sq)	B2	5 or 6 correct B1 ignore extras
6(b)	“Straight” line at least from 2 to 8	B1	Below or on (2, 21) and above or on (8, 28) on the graph paper
6(c)	Correct reading from their line with positive gradient (may be curved or zig-zag)	B1 ft	Accept any value between or on the 2 integers either side of their correct reading
6(d)	As the number of hours of sunshine increases so does the temperature or Positive correlation	B1	or similar comment
6(e)	Insufficient data/too small a sample/only one year/week	B1	

7(a)	Plotted at correct midpoints	B1	$\pm \frac{1}{2}$ sq At least 5 plotted all correct
	Heights correct and joined with straight line within correct class interval	B1	$\pm \frac{1}{2}$ sq Ignore below first point and above last point
7(b)	Males ages are more spread out (varied because range is bigger)	B1	or opposite for females Comment about spread in context of question
	Average age is greater for males (because mode/mean/median is bigger)	B1	or opposite for females Comment about average in context of question

8(a)	0.5×10	M1	oe
	5	A1	$\frac{5}{10}$ no working \Rightarrow M0A0
8(b)	0.45	B1	
	Larger sample, 60 goes/the last one	B1	

9	$\frac{2}{5} \times \frac{2}{5}$ or $\frac{2}{5} \times \frac{3}{5}$ or $\frac{3}{5} \times \frac{2}{5}$	M1	or $\frac{3}{5} \times \frac{3}{5}$
	$\frac{2}{5} \times \frac{2}{5} + \frac{2}{5} \times \frac{3}{5} + \frac{3}{5} \times \frac{2}{5}$	M1 dep	$1 - \left(\frac{3}{5} \times \frac{3}{5}\right)$
	$\frac{16}{25}$ or 0.64	A1	

10	1 sq cm = 5 babies	M1	150 little squares = 30
	$2.4 \times 5 + 1.6 \times 5$ or 4×5	M1	$\frac{100}{150} \times 30$
	20	A1	20