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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 3302
Specification B

Module 1 Tier I 33001I   THREE 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

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   INTERMEDIATE TIER   33001I

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	Any one correct method seen or any one correct angle seen	M1	$\frac{360}{120} \times 42$ or 3×42 Can be one correct sector, labelled correctly
	126º, 105º, 75º, 30º, 24º	A1	4 or 5 correct angles
	All 5 angles drawn correctly $\pm 2º$	A1	Must be only 5 sectors
	All 5 sectors labelled in correct order of size	B1	Must be only 5 sectors

2(a)	11	B1	
2(b)	14	B1	Not 1│4
2(c)	Range would stay the same	B1	Middle box ticked

3(a)	1 – (0.41 + 0.15 + 0.32) or 1 – 0.88	M1	
	0.12	A1	oe
3(b)	1 – 0.32	M1	or 0.41 + 0.15 + their (a)
	0.68	A1	oe

4(a)	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)
4(b)	Boxes overlap or no box for 'none'	B1	

5(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
5(b)	100 – 88	M1	Allow 100 – 87 and 100 – 89
	12	A1	11 or 13 with no working $\Rightarrow$ M1A0

6(a)	£3.50 or £3.60 or £0.10 seen	M1	350 or 360 not £350 or £360
	10	A1	10 from £4.20 – £4.10 misread $\Rightarrow$ M1A0
6(b)	Adult 5.05, 3.70 and Youth 4.25, 3.20 or Adult 1.35 and Youth 1.05 or 2005 difference of 80p and 2000 difference 50p or gap widening or Adult steeper	M1	£ or pence
	Adult	A1	**Must** give explanation

7(a)	10 values	M1	May be listed or indicated in table
	$\frac{10}{36}$	A1	
7(b)	$\frac{2}{36} \times 360$ or $360 \div 18$ or 2×10	M1	or (2:36 =) 20:360
	20	A1	but $\frac{20}{360}$ M1A0

8(a)	Points plotted correctly ($\pm \frac{1}{2}$ sq)	B2	5 or 6 correct B1 ignore extras
8(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
8(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

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

10(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
10(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