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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 5 Paper 2 Tier F 43055/2F

Mark Scheme

2009 examination - November 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.

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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.
E	Marks awarded for an explanation.
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 5 FOUNDATION TIER 43055/2F

1(a)	D	B1	
	R	B1	
1(b)	C and P	B1	
1(c)	True True False	B2	B1 for one correct tick

2(a)(i)	Multiple	B1	
2(a)(ii)	Factor	B1	
2(a)(iii)	Negative square root	B1	
2(b)	121	B1	
2(c)	729	B1	

3(a)	6.5	B1	± 0.1
3(b)	55	B1	± 2
3(c)	Acute angle √	B1	
3(d)	Chord √	B1	

4(a)	Parallelogram	B1	
4(b)(i)	Midpoint marked at (3, 3.5)	B1	± 2 mm Letter M not essential
4(b)(ii)	(3, 3.5)	B1 ft	± 2 mm
4(c)	At same place	B1	oe
4(d)	15	B1	SC1 only, for 14 to 16 inclusive but **not** from base × slant height
	Triangle(s) on left fit onto rhs to form a rectangle oe	B1 dep	**Note**: dep on an answer 13 to 17 inclusive or area = base × height or counted all parts of squares or other acceptable method Look for evidence on the diagram

5(a)	C or D or F	B1	
5(b)	B	B1	
5(c)	A	B1	

6(a)	$y + 12$	B1	or $12 + y$
6(b)	$2y$	B1	Allow $2 \times y$ but **not** $y2$

7(a)	$20 \times 5.99 + 19.50$	M1	Ignore units for M mark
	139.30	A1	
7(b)	400 – 19.50 (= 380.50)	M1	
	(their 380.5) ÷ 8.99 (= 42.3…)	M1	or (their 380.5) ÷ 9 (= 42.2…)
	42	A1	

8(a)	$4 \times 36 + 36 = 180$ or $5x = 180$, $x = \frac{180}{5}$	E2	Use of 180 or $5x = 180$ and no further correct work or $144 + 36 = 180$ without $144 = 4 \times 36$ E1
8(b)	360 – [50 + 115 + 88]	M1	
	107	A1	

9(a)	5	B1	
9(b)	10.2	B1	
9(c)	14	B1	
9(d)	$8d = 21 + 1$	M1	or $8d = 22$
	$2\frac{3}{4}$ or $\frac{11}{4}$ or $\frac{22}{8}$	A1	or 2.75
9(e)	$5e + e = 7 – 13$	M1	or $–5e – e = – 7 + 13$ However, this M1 can be awarded for letters or numbers correctly gathered on one side
	$6e = –6$	M1	or $6 = –6e$
	–1	A1	

10(a)	0.6	B1	
10(b)	16	B1	
10(c)	08 48	B1	
10(d)	4.2 – their 0.6 (= 3.6 km)	M1	or 15
	their 3.6 ÷ 15 (× 60)	M1 dep	or 3.6 × 4
	14.4	A1	

11(a)	7.5	B1	
11(b)	1.1	B1	

12	180 – 90 – 37	M1	
	53	A1	May be seen on the diagram
	180 – their 53 – 82	M1 dep	
	45	A1	

13	He should bracket 14.6 – 8.2	B1	or He should work out 14.6 – 8.2 first
	6	B1	

14(a)	Correct reflection			B1	
14(b)	Rotation	or	Enlargement	B1	**Note:** Must be a single transformation
	180º		sf –1	B1	or half turn (if rotation)
	About (0, 0)		Centre (0, 0)	B1	or about origin or about 0

15	1089 ÷ 44	M1	
	24.75 or 24.8 or 25	A1	

16	$4n$	M1	Allow $4 \times n$ or $n \times 4$
	$4n - 1$	A1	oe

17	$32^2 - 27^2$ (= 295)	M1	
	√ their 295	M1 dep	
	[17, 17.2]	A1	

18	Trial for $3 < x \leq 4$	B1	Accurate to nearest whole number (truncated or rounded)
	Trial at 3.6 or 3.7 (or between)	B1	Accurate to at least 1 dp (t or r)
	Trials that bracket 31 **and** answer 3.7	B1	