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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 - 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.

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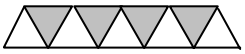
The following abbreviations are used on the mark scheme:

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.
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)	Reflected arrow	B1	Size of arrowhead irrelevant No arrowhead B0
1(b)	Parallel line	B1	
1(c)	Correct vertical line	B1	
	Correct horizontal line	B1	–1 for each extra and/or incorrect line

2(a)	Cylinder	B1	
2(b)	Hexagon	B1	
2(c)	Trapezium	B1	
2(d)	Isosceles triangle	B1	
2(e)	Cuboid	B1	

3(a)		B1	
3(b)	4 7 9	B2	B1 for 2 correct
3(c)	10 shaded triangles	M1	
	10 (+) 11 (= 21) and yes	A1	10 (+) 11 and yes
	Alternate method		
	Working via Patterns 5, 6, 7, 8, 9 to get 21 and yes	M1 A1	Must be complete method
3(d)	53	B1	

4(a)	$15 + 7 \times 40$	M1	oe
	295	A1	Seen or implied
	$295 \div 60 \rightarrow$ 4 h 55 m	A1	oe Must show this final step. Correct "build-up"/"build-down" method 3 marks or 0 marks
4(b)	12:45 – 4 h 55 m	M1	Must be final answer SC1 7:45 or 7.9
	(0)7:50	A1	oe

5(a)	250	B1	
5(b)	Conversion g → kg or v.v.	B1 ft	eg 250 (g) = 0.25 (kg) or $\frac{1}{4}$ (kg)
	0.25×2.2 or $\frac{1}{4}$ of 2.2	M1	$0.5 \div 2.2$
	0.55 and yes or too much	A1	0.22(7…) and yes or too much
5(c)	$\pi \times 18$	M1	
	[56.5, 57]	A1	

6(a)	14	B1	
6(b)	Any rectangle	M1	
	3 by 2 or 4 by 1	A1	If part cm used, then check for adjacent sides adding to 5 cm

7(a)(i)	4	B1	
7(a)(ii)	3	B1 ft	Allow 12 ÷ "and their" (a)(i) with answer truncated or rounded
7(b)	6 (cm)	M1	± 2 mm (may not be seen)
	18	A1	± 0.6
7(c)	130	B1	± 2º

8(a)	55 + 115 = 170	B1	
	180 seen	B1	or this is not 180 oe
8(b)	360 – 90 – 55	M1	oe
	215	A1	

9(a)	–3	B1	
9(b)	÷3 and +5	M1	
	37	A1	

10	$21.6 - 2 \times 3.2$ (= 15.2)	M1	$21.6 \div 2$ (= 10.8)
	(their 15.2) ÷ 2	M1 dep	(their 10.8) – 3.2
	7.6	A1	7.6

11(a)	$7c$	B1	
11(b)	$4x - 3y$	B2	oe B1 for (+) $4x$ or $-3y$
11(c)	$x + 20$	B1	or $20 + x$
11(d)	m^8	B1	
11(e)	x^6	B1	

12(a)	34	B1	
12(b)	2.744	B1	
12(c) (i)	2.7709(…)	B1	Accept $\frac{2020}{729}$
12(c) (ii)	2.8	B1	or ft their (c)(i) provided it was stated to 2 dp or more
12(d)	0.03125	B1	or $\frac{1}{32}$

13(a)	–2	B1	
	10	B1	
13(b)	"their" 7 points plotted correctly	M1	$\pm \frac{1}{2}$ square
	Smooth curve through correct plots, dropping below –2 between $x = -2$ and $x = -1$	A1	(Note: **not** ft) Must go through all **correct** plots ($\pm \frac{1}{2}$ square)
13(c)	$(x =) -1.5$ or $-1\frac{1}{2}$	B1 ft	
	$(y =)[-2.3, -2.2]$	B1 ft	

14(a)	$8x - 2 = 18$	M1	$4x - 1 = 9$
	Collecting terms eg $8x = 18 + 2$	M1	eg $4x = 9 + 1$
	2.5 or $2\frac{1}{2}$ or $\frac{5}{2}$	A1	
14(b)	$\frac{1}{4}y = 7 - 5$ oe	M1	$20 + y = 28$ oe
	8	A1	

15	Attempt at one rectangular face	M1	6×8 (= 48) or 3×8 (= 24) or $6 \times 8 \times 2$ (= 96) or $3 \times 8 \times 4$ (= 96)
	Attempt at area of L-shape	M1	$6 \times 3 + 3 \times 3$ (= 27) or $3 \times 3 + 3 \times 3 + 3 \times 3$ oe eg [3(3 × 3)] or $6 \times 6 - 3 \times 3$
	($2 \times$ their 48) + ($4 \times$ their 24) + ($2 \times$ their 27)	M1 dep	Dep on both method marks
	246	A1	