



General Certificate of Secondary Education

Mathematics 4302

Specification B

Module 5 Paper 2 Tier F 43005/2F

Mark Scheme

2008 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.

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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

43005/2F

1	$4\frac{2}{1}$	B2	B1 for any one or two correct
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2(a)	7	B1	
2(b)	Any rectangle or square drawn	M1	
	4 by 2 or 8 by 1	A1	± 2 mm
2(c)	Evidence of counting squares	M1	
	[12, 14]	A1	

3	7 → factor of 42	B1	
	8 → 25% of 32	B1	
	9 → square number	B1	
	10 → cube root of 1000	B1	

4(a)	Diameter drawn through O	B1	Must reach to within 1 mm of circumference at each end and 1 mm of centre
4(b)	Line drawn to touch circle	B1	Within 1 mm of touching
4(c)(i)	Mark on chord at centre ± 1 mm	B1	M not necessary
4(c)(ii)	90°	B1	Right angle, perpendicular

5(a)	13	B1	
	9	B1 ft	their 13 – 4 SC1 41 and 37
5(b)	–4	B1	oe
5(c)	Terms can be negative	B1	oe

6(a)	$40 + 5 \times 27$	M1	
	175	A1	
6(b)	$134.5(0) - 40$	M1	
	their $94.5(0) \div 27$	M1 dep	
	$3\frac{1}{2}$	A1	oe

7(a)	123454321	B1	
7(b)	12345654321	B1	
7(c)	Line 10 cannot have 10 in the middle (explanation needed)	B3	Line 9 and/or line 10 B2 Answers for line 7 and line 8 only B1 Identifies line 10 without explanation B2

8(a)	5	B1	
8(b)	14	B1	
8(c)	12	B1	

9	8×4.5	M1	$\frac{8}{5}$ (1.6) or $\frac{5}{8}$ (0.625)
	their $36 \div 5$	M1 dep	4.5×1.6 or $4.5 \div 0.625$
	7.2	A1	

10(a)	28561	B1	
10(b)	6.2	B1	
10(c)	250	B1	
10(d) (i)	0.375 293(...)	B1	Allow $\frac{480}{1279}$
10(d) (ii)	0.4	B1 ft	Decimal in (d)(i) must be min 2 dp ft any incorrect fraction \rightarrow min 2 dp

11(a)	$4p$	B1	
11(b)	$(+)q$ or $(+)4t$ seen	M1	
	$q + 4t$	A1	Penalise further incorrect algebra
11(c)	t^5	B1	

12	$\frac{20}{100} \times 5.25$	M1	oe
	$\frac{25}{100} \times 4.24$	M1	oe
	1.05 or 1.06	A1	
	1.05 and 1.06 and 25% of £4.24 identified or £1.06	A1	oe SC1 105 and 106 (without units) SC2 25% of £4.24 or 106 and 105 and 106

13(a)	$360 - (114 + 72 + 105)$	M1	oe
	69	A1	Allow embedded answer
13(b)	$114 \neq 105$ or their $69 \neq 72$	M1	or $114 + 72 \neq 180$ or $72 + 105 \neq 180$ or their $69 + 105 \neq 180$ oe in words eg Some of the angles are the same in a parallelogram All the angles are different
	No	A1	Note: Yes \rightarrow M0A0

14(a)	7, -3	B1	
14(b)	3 plots	B1 ft	The plots may be implied by a correct line
	Correct line from (0, 7) to (5, -3)	B1	

15(a)	Correct reflection	B2	B1 for reflection in any horizontal line or in $x = 2$ B1
15(b)	Correct translation	B1	

16	$\pi \times 5.4^2$ or $\frac{729}{25} \pi$	M1	Do not accept 3 or 3.1 for π
	[91.56, 91.621] or 92	A1	
	m ²	B1 ft	Units mark

17	$12.7^2 + 3.5^2 (= 173.54)$	M1	
	$\sqrt{\text{their } 173.54}$	M1 dep	
	13.1(...) or 13.2	A1	Accept 13 with working

18	$c - 2$ or $\frac{c}{5} = d + \frac{2}{5}$ oe	M1	
	$\frac{c-2}{5}$	A1	oe eg $\frac{c}{5} - 0.4$

19	9×2 or 2×3 or 9×4 or 3×4	M1	
	A correct combination to find area of cross-section	M1	
	their 24×65	M1 dep	
	1560	A1	
	Alternate method 1		
	$9 \times 2 \times 65 (= 1170)$	M1	
	$3 \times 2 \times 65 (= 390)$	M1	
	their $1170 + \text{their } 390$	M1 dep	or another valid summation
	1560	A1	
	Alternate method 2		
	$3 \times 2 \times 65 (= 390)$	M1	
	their 390×4	M2 dep	
	1560	A1	
	Alternate method 3		
	$9 \times 4 \times 65 (= 2340)$	M1	
	$3 \times 2 \times 65 (= 390)$	M1	
	their $2340 - \text{their } (2 \times 390)$	M1 dep	
	1560	A1	