



## **General Certificate of Secondary Education**

### **Mathematics 4307**

#### *Specification B*

**Module 5 Paper 1 Tier F 43055/1F**

### **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:**

<b>M</b>	Method marks awarded for a correct method.
<b>A</b>	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
<b>B</b>	Marks awarded independent of method.
<b>M dep</b>	A method mark which is dependent on a previous method mark being awarded.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special Case. Marks awarded for a common misinterpretation which has some mathematical worth.
<b>oe</b>	Or equivalent.
<b>eeoo</b>	Each error or omission.

**MODULE 5**

**FOUNDATION TIER**

**43055/1F**

1(a)	False	B1	
1(b)	True	B1	
1(c)	False	B1	
1(d)	True	B1	

2(a)(i)	43	B1	Ignore further work eg 43, 50 or 43, 51 Do not accept eg 29, 36, 40, 43
2(a)(ii)	Add 7	B1	Accept: Goes up in sevens, plus 7, increase by 7, 7 on, 7 more, goes up in 7's, $n + 7$ Do not accept $7n + 1$ , add the same amount
2(b)(i)	$\times 2$	B1	oe Accept: Double, twice Add the number to itself $n \times 2$ Do not accept add the last number $n^2$ , 2 times table
2(b)(ii)	1, 4 and 16	B2	B1 for two correct (and one incorrect) B1 for three correct and one incorrect Ignore extra values eg 32, 64 ...
2(b)(iii)	32 seen as next term	M1	
	64 or 256 or ...	A1	Accept if sequence stops at 64 or 256

3(a)	<i>A</i> and <i>E</i>	B1	Either order
3(b)	<i>C</i> and <i>D</i>	B1	Either order
3(c)	8	B1	
	$\text{cm}^2$	B1	Units mark Accept square centimetres centimetres squared sq cm

4(a)	Points plotted	B2	B1 for each ± 0.5 square
4(b)	(7, 6)	B1	
4(c)	Circle drawn using compasses	B1 ft	± 2 mm (1 square) ft any circle with their AB as diameter

5(a)	$\frac{7}{11}$	B1	7/11
5(b)	$\frac{3}{10}$	B1	
	Valid reason	B1 dep	Accept: Smaller denominator (and same numerator) $\frac{3}{10} = 0.3$ and $\frac{3}{11} = 0.2\dots$ $\frac{33}{110}$ and $\frac{30}{110}$
5(c)	9.09...	B1	
	9.1	B1 ft	Follow through from at least 2 dp 0.1 SC1
5(d)	11x	B1	Condone $\frac{11x}{1}$
5(e)	77	B1	

6(a)	(£)19	B1	(£)19.00 (p) Condone 19.0
6(b)	Attempt to use 60 minutes in 1 hour or sight of 24	M1	eg 24 + 27 Sight of 60 (in a calculation)
	51 (minutes)	A1	
6(c)(i)	2 (hours)	B1	
6(c)(ii)	4 (hours)	B1	
6(c) (iii)	$60 \div 2$	M1	$60 \div 120$
	30 (mph)	A1	0.5 m/min
6(d)	Slower and less steep or took longer	B1	oe L to B is 2 hrs and B to L is 3 to 4 hrs B1  L to B is only 2 hrs B1  L to B is 2 hrs B0 Correct statement with incorrect statement scores B0

7	$4 \times 2$ or $2 \times 2$ or 8 or sight of 4, 2 and 2 on diagram	M1	Can be seen within an incorrect calculation eg $4 \times 2 \times 4$ , $4 \times 4 \times 2$
	$4 \times 2 \times 2$ or $8 \times 2$ or $4 \times 4$ or $8 + 8$	M1 dep	
	16	A1	

8(a)	Attempt to calculate $24 \times 10$ or 240 seen	M1	
	256	A1	
8(b)	2 (years)	B1	
8(c)(i)	$\frac{20}{100} \times 600$	B1	oe Allow $60 \times 2$ or $6 \times 20$ $10\% = 60$ , $20\% = 120$ $1\% = 6$ , $20\% = 120$ Other build up methods must be fully explained Allow $120 \times 5 = 600$ , $600 \div 5$
8(c)(ii)	$600 = 120 + 24m$ or $600 - 120$	M1	480 seen
	their $480 \div 24$ their $480 = 24m$	M1 dep	their $\frac{480}{24}$
	20	A1	

9(a)	2.2 4.5 1.75 30 8	B3	B2 for 3 or 4 correct B1 for 1 or 2 correct  Note: Same answer for all 5 scores zero
9(b)(i)	$30 \times 0.45$	M1	oe
	13.5	A1	
9(b)(ii)	their $13.5 \times 10$ or $30 \times 0.45 \times 10$	M1	oe
	135	A1 ft	

10(a)	$7x = 63$	M1	$63 \div 7$ 9 embedded M1
	$(x =) 9$	A1	
10(b)	True	B1	
	True	B1	
	True	B1	
10(c)	One integer $> 9$	B1	

11(a)	Rotation	B1	
	90 clockwise	B1	oe $\frac{1}{4}$ turn clockwise
	About $O$	B1	oe
11(b)	$-5$ $-4$	B1	Accept $-\begin{pmatrix} 5 \\ 4 \end{pmatrix}$

12(a)	123	B1	
	Corresponding	B1 dep	Accept complete alternatives eg Alternate + (vertically) opposite Do not accept F
12(b)	$180 - 68$	M1	oe $(360 - 68 - 68) \div 2$
	112	A1	

13(a) (i)	A	B1	
13(a) (ii)	$180 - 2 \times 72$ or $(90 - 72) \times 2$ $360 - 3 \times 108$	M1	oe Condone missing brackets
	36	A1	
13(b)	$720 \div 90$	M1	
	8	A1	