



**General Certificate of Secondary Education
November 2010**

Mathematics

43055/2F

Foundation

Module 5 Paper 2

Final

Mark Scheme

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:

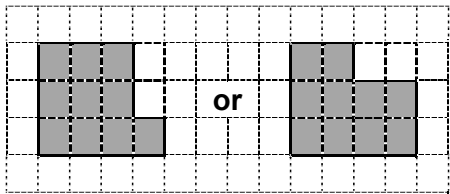
M	Method marks awarded for a correct method.
M dep	A method mark which is dependent on a previous method mark being awarded.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow 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.

MODULE 5 FOUNDATION TIER

43055/2F

1	First box 1 and Second box 4	B2	B1 for only one box correct
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2	True False False False	B4	This order only B1 for each
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3ai	Any two pairs from 24 and 1 12 and 2 8 and 3	B2	B1 for only one correct pair Pairs may be written in any order oe eg 24 is not a square number
3aia	There is no whole number that when multiplied by itself will equal 24	B1	Allow answers that indicate how many tiles would make a square eg 1: Need another tile to make a square eg 2: $5 \times 5 = 25$
3bi	2 (+) 2 (+) 4 (+) 1 (+) 6 (+) 3	M1	Allow if 5 correct numbers seen
	18	A1	
3bii	Shape with perimeter 14 cm that uses 10 tiles eg 5 cm by 2 cm rectangle or 	B2	B1 for shape with perimeter 14 cm that does not use 10 tiles eg 4 cm by 3 cm rectangle

4a	(5, 3)	B1	
4b	4	B1	
4c	16	B1 ft	ft their (b) \times their (b)

5ai	$\frac{30-6}{2}$	M1	$\frac{24}{2}$
	12	A1	
5aia	15	B1	
5b	$13 \times 2 (= 26)$	M1	
	4	A1	

6a	$2 \times 8 (+) 3 \times 4$	M1	16 (+) 12
	28	A1	
6b	2 or $\frac{2}{1}$	B1	Do not allow $\frac{8}{4}$ or $\frac{4}{2}$

7a	A and F or C and E	B1	
7b	C and E if not their answer to (a) or A and F if not their answer to (a)	B1	
7c	D	B1	
7d	B	B1	
7e	D	B1	
7f	Fully correct enlargement in any orientation	B2	B1 for 3 sides correctly enlarged

8a	3	B1	
8b	12	B1	
8c	$(2y =) 14 - 5$	M1	9 seen
	4.5	A1	oe

9a		B1	Condone freehand diagram
9b	15 and 19	B2	B1 if only one correct B1 ft if 15 not correct but next number is their $15 + 4$
9c	Sight of $4n$ (or $-4n$)	M1	
	$4n - 1$	A1	

10a	Sometimes true	B1	
10b	Always true	B1	
10c	Sometimes true	B1	
10d	Never true	B1	

11a	+ +	B1	
11b	×	B1	
11c	- + +	B2	B1 for signs that make only one correct term from $13b$ and $-3c$
11d	÷ ×	B1	Only this order

12a	4	B1	
12b	60	B1	
12c	16	B1	
12d	Cold because the line is steeper or other valid explanation	B1	Using gradients is a valid explanation eg 1 Cold with 15 (l/min) and 5 (l/min) seen eg 2 Cold with 3 and 1 seen B0 Cold with no valid explanation
12e	$100 \div 20$	M1	Line of gradient - 20 drawn from (20, 100) on the graph or 25 seen
	5	A1	SC1 4.5

13a	49 64 81	B2	B1 for any two correct with maximum 3 answers given
13b	At least three of 7^2 5^2 3^2 and $1^{(2)}$ seen	M1	49 25 9 1
	$49 + 25 + 9 + 1$	M1	Condone one error or omission
	84	A1	

14a	5000	B1	
14b	4 000 000	B1	

15	$2x + x = 180$ or $3x = 180$ or $180 \div 3$	M1	52×3	$52 \times 2 (= 104)$
	$(x =) 60$	A1	156	$(180 - 104 =) 76$
	Should be 52	A1 ft	Should be 180	Should be 52

16	$16 \times 4 (= 64)$	M1		
	$\pi (\times) 8^2 (\div 2)$ or $64\pi (\div 2)$ (= [200.9, 201.1])	M1	Condone $\pi (\times) 16^2 (\div 2)$ (= [401.9, 402.2]) but can only subsequently score B1 ft	
	$\frac{\pi(\times)8^2}{2} + \text{their } 64$ or $\frac{64\pi}{2} + \text{their } 64$	M1	$\frac{\pi(\times)8^2}{2} + 16 \times 4$ is M3	
	[164.45, 164.55]	A1		
	164.5 or 164.6	B1 ft	ft from value seen for the A mark if greater than 1 decimal place eg do not accept 164.5 if 164.55 is seen for A1	