



General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 5 Paper 2 Tier F 43055/2F

Final

Mark Scheme

2010 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.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

Copyright © 2010 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

The following abbreviations are used on the mark scheme:

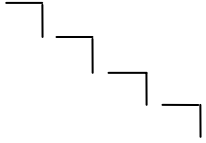
M	Method marks awarded for a correct method.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
E	Marks awarded for an explanation.
M dep	A method mark which is dependent on a previous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

MODULE 5 FOUNDATION TIER

43055/2F

1(a)	False	B1	
	False	B1	
	False	B1	
1(b)	$(60 -) 45$	M1	
	15	A1	

2(a)(i)	A or BAE or EAB	B1	
2(a)(ii)	B or ABC or CBA or D or CDE or EDC or E or AED or DEA	B1	
2(a)(iii)	ED or DE	B1	
2(a)(iv)	BC or CB	B1	
2(b)(i)	Correct circle drawn with $5.8 \text{ cm} \leq \text{radius} \leq 6.2 \text{ cm}$	B1	Must use compasses
2(b)(ii)	12	B1 ft	follow through their diameter ($\pm 4 \text{ mm}$)
2(b)(iii)	Tangent drawn	B1	

3(a)	Correct pattern with 8 sticks	B1	
3(b)	20	B1	
3(c)	23	B1	
3(d)	Correct explanation	B1	eg 101 is not a multiple of 2 All patterns use even numbers Goes 100 then 102

4(a)	Square of edge 3 cm drawn	B2	B1 for any other shape with perimeter 12 cm B1 for a square with a different perimeter
4(b)	4 cm by 3 cm rectangle drawn or 6 cm by 2 cm rectangle drawn or 12 cm by 1 cm rectangle drawn or any rectangle with an area 12 cm^2	B2	B1 for any other shape with area 12 cm^2 B1 for a rectangle or square with a different area

5(a)	$5 \times 20 + 40$	M1	$100 + 40$
	140(.00)	A1	
5(b)(i)	140	B1	
5(b)(ii)	Chooses a plumber and gives valid reasons eg Molly as she charges less for 1 to 2 hours or Pete as he charges less for 2 to $2\frac{1}{2}$ hours (Molly because 1 hour is longer than $\frac{1}{2}$ hour)	B2	B1 Pete because if the job lasts $2\frac{1}{2}$ hours he is cheaper B0 Pete is cheaper for 4 hrs

6	Two (different) correct diagrams	B2	B1 for one correct diagram
---	----------------------------------	----	----------------------------

7(a)	$\frac{3}{12}$ (and) $\frac{5}{20}$	B2	B1 for one correct with no more than one incorrect
7(b)	Any fraction $< \frac{1}{4}$	B1	Do not accept decimals
7(c)	0.5	B1	oe eg $\frac{1}{2}$
7(d)	Reciprocal	B1	

8(a)	$5a + 4b$	B2	B1 for one correct term
8(b)	$4x$	B1	
8(c)	$24c^2d$	B2	B1 three parts, two of which must be correct without multiplication sign(s)

9	All 9 correct $\begin{matrix} \checkmark & \times & \checkmark \\ \checkmark & \checkmark & \times \\ \checkmark & \times & \checkmark \\ \times & \times & \times \end{matrix}$	B3	6, 7 or 8 correct B2 3, 4 or 5 correct B1
---	---	----	--

10(a) (i)	$(-1, 0)$	B1	
10(a) (ii)	$(3, -1)$ plotted within $\frac{1}{2}$ square	B1	Allow if intention is clear
10(b) (i)	$x = -2$ drawn	B1	Allow if intention is clear
10(b) (ii)	$y = 4$ drawn	B1	Allow if intention is clear

11(a)	16	B1	
11(b)	$4 \times 8 (= 32)$	M1	$24 \div 4 (= 6)$
	$\frac{\text{their } 32 + 24}{4} \left(= \frac{56}{4} \right)$	M1 dep	their $6 + 8$
	14	A1	

12(a)	$(3x =) 180 - 30 (= 150)$	M1	
	$(x =) 50$	A1	$(2x =) 100$ without comment M1 A1
	$(2x =) 100$ which is obtuse	A1	oe comment
12(b) (i)	$180 - 90 - 45 (= 45)$	M1	45° on the diagram (third angle) M1
	Two equal angles (so isosceles)	A1	Must include an explanation and third angle = 45°
12(b) (ii)	Sketch of two triangles making isosceles triangle	B1	

13(a) (i)	180°	B1	
	(Centre) P	B1	
13(a) (ii)	Correct line drawn	B1	Allow if intention is clear
13(b)	Correct shape with vertices $(4, 6) (4, 7) (3, 7) (3, 8) (6, 8)$ $(6, 7) (5, 7) (5, 6)$	B2	B1 if D is translated by $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$

14(a)	Line from (0, 10) to (2, 10)	B1	Allow if intention is clear
14(b)	Line from (0, 8) to (2, 0)	B1	Allow if intention is clear

15	One correct area product seen	M1	eg $12 \times 3 (= 36)$ or $10 \times 8 (= 80)$
	All rectangle calculations correct and addition or subtraction shown $12 \times 3 + 8 \times 2 (= 36 + 16)$ $11 \times 2 + 10 \times 3 (= 22 + 30)$ $10 \times 3 + 3 \times 2 + 8 \times 2$ $(= 30 + 6 + 16)$ $12 \times 11 - 10 \times 8 (= 132 - 80)$	M1	$12 \times 3 + 11 \times 2 - 3 \times 2$ $(= 36 + 22 - 6)$
	52	A1	

16(a)	$8p + 4 + 6 - 3p$	M1	4 terms with 3 correct including signs
	$5p + 10$	A1	
16(b)	$6m > 5$	M1	
	$m > \frac{5}{6}$	A1	

17	829.4 or 829.0 or 829.5	B2	B1 for any value 828 - 830 (inclusive) or 264π SC1 for value > 1 dp seen that is rounded correctly to 1 dp
----	-------------------------	----	--