



General Certificate of Secondary Education

Mathematics 3302

Specification B

Module 5 Paper 2 Tier F 33005F2

Mark Scheme

2005 examination – June series

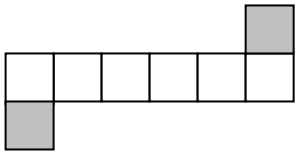
Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. 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.

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 Paper 2 FOUNDATION TIER

33005/F2

1(a)		B1	Condone slightly different sizes Shading must be seen Shapes must match up (± 2 mm)
(b)	2	B1	
(c)	20	B1	
(d)	(Pattern) 28	B1	

2(a)	76	B1	76 ± 0.2
(b)	340	B1	340 ± 2
(c)	87	B1	87 ± 0.5

3(a)	<i>A</i> and <i>C</i>	B1	
(b)	Attempt at areas	M1	Lines on at least one diagram making Δ or rhombi Correct number of Δ or rhombi on 2 or more shapes (12, 7, 8, 8 or $6, 3\frac{1}{2}, 4, 4$)
	<i>D</i> and <i>C</i>	A1	
(c)	<i>D</i>	B1	
(d)	<i>B</i>	B1	

4(a)	$\frac{7}{10}$ or 0.7	B1	fw ignored
(b)	Any 2 squares shaded	B1	
(c)	5 squares shaded above $\frac{1}{2}$ or 4 shaded above $\frac{2}{5}$	B1	
	9 squares shaded on right hand side	B1	
	$\frac{9}{10}$	B1	If $\frac{1}{2}$ or $\frac{2}{5}$ is incorrectly shaded and this is followed by 9 squares shaded and $\frac{9}{10}$ SC2

5(a)	(2, 3)	B1	If both reversed ie (3, 2) <u>and</u> (-3, 6) SC1
(b)	(6, -3)	B1	
(c)	2 correct lines ± 2 mm meeting at (1, -2)	B1	Condone broken lines
(d)	Look for answer (4, 0)	M1 A1	If (4, 0) not seen, award M1 for position (4, 0) ± 2 mm clearly marked
			If both reversed in (a) and (b) and (0, 4) in (d) SC1

6(a)	30	B1	
(b)	3, 12, 44	B2	B1 for 1 of these, provided no wrong number given as well B1 for 2 correct (and 1 incorrect)

7(a)	4x	B1	
(b)	6p or (+) 4q seen	B1	Not -4q
	6p + 4q	B1	further working penalised

8	$250 \times \frac{8}{100}$ oe	M1	Allow <u>complete</u> build-up method
	20	A1	further working 250 + 20 ignored 270 seen (unsupported) SC1

9(a)	i) Obtuse	B1	
	ii) 180 - 62	M1	
	118	A1	
(b)	360 - (74 + 145 + 92)(= 49)	M1	oe
	180 - (their) 49	M1	
	131	A1	

10(a)	7	B1	Allow embedded answer if no contradiction
(b)	25	B1	Allow embedded answer if no contradiction
(c)	4z = 11 + 5 or 16	M1	
	4	A1	Allow embedded answer If contradiction M1A0
(d)	14t + 7 (= 35)	M1	or 2t + 1 = 5
	14t = 35 - 7 or 28	M1	2t = 5 - 1 or 4
	2	A1	Allow embedded answer If contradiction M1M0A0

11	60° at A or 90° at D	B1	$\pm 2^\circ$
	$AB = 4$ cm or $DC = 5$ cm	B1	± 2 mm
	$ABCD$ fully correct	B1	
12(a)	729	B1	
(b)	0.08	B1	Condone .08
(c)	27.36	B1	or 27.4
13	$\pi \times 1.7^2$	M1	
	9.07 to 9.08	A1	or 9.1 but <u>not</u> 9.0 or 9 No working, answer 9... M1A0
	m^2	B1	UNITS MARK (can be awarded if seen in working)
14	2 plots from: (0, 7) (1, 6) (2, 5) (3, 4) (4, 3) (5, 2) (6, 1) (7, 0)	B2	All ± 1 mm B1 for 1 correct plot
	Straight line (from 0 to 7) through correct plots ± 1 mm	B1	
15(a)	Any 90° rotation	B1	Allow wrong length flagpole
	Rotation 90° anti-clockwise about (0, 0)	B2	B1 for 90° clockwise rotation about (0, 0)
(b)	Correct position	B2	(1, 0) (1, -2) (1, -3) (2, -3) (2, -2) B1 for reflection in $x = 1$ or in $y = c$ Apply same scheme if flag A is used
	No label, or labelled incorrectly - correct positions to get full marks. No pole, but squares correct - deduct 1 in each part.		