AQA

General Certificate of Secondary Education

Mathematics 4302 (Two Tier)
Specification B

Module 3 Foundation Tier

Mark Scheme

2006 examination – November 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.

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 3 Foundation

Q	Answers	Mark	Comments
1(a)	46	B1	
1(b)	12	B1	
1(c)	87	B1	
1(d)	2	B1	
2(a)	700	B1	
2(b)	their 700 × 0.06	M1	Allow their 700 × 6
	42(.00)	A1	Do not accept 4200(p) or 42.0 but either answer with no working implies M1 SC2 Answer 378 from part (a) 6300 or answer 210 from part (a) 3500
3(a)(i)	7 × 1.19	M1	7 × 119
	8.33	A1	Allow 833p if £ sign crossed out
3(a)(ii)	10 – their 8.33 evaluated correctly (=1.67 if correct)	B1ft	Allow 1000(p) – their 833(p) evaluated correctly
3(b)	£2 £1 20p 1p	B1	Any order
4(a)	1.42	B1	
4(b)	1.35	B1	
5(a)	292 ÷ 28	M1	
	10	A1	
5(b)	12	B1	No ft
6	0.05 × 1055	M1	10% = 1055 ÷ 10 (=105.5) **and** (105.5) ÷ 2
	52.75	A1	Do not accept 53 unless 52.75 seen 5275 with no working is M0

Q	Answers	Mark	Comments
7(a)	$\frac{3}{4} \times 660$	M1	$660 - \frac{1}{4} \times 660$
	495	A1	
7(b)	$660 \div (2 + 3 + 7)$ $(= 55)$	M1	Only allow $2 + 3 + 7 = 11$ or 12 or 13
	their 55×7	M1dep	$\frac{7}{12} \times 660$ is M2
	385	A1	>1 answer given is A0

Q	Answers	Mark	Comments
8(a)	256	B1	
8(b)	0.4	B1	oe
8(c)(i)	73.9319(.....)	B1	
8(c)(ii)	70	B1ft	ft from any (i) > 1 significant figure

Q	Answers	Mark	Comments
9	25×1.76 $(= 44)$ **or** 25×1.75 $(= 43.75)$	M1	$8 \div 1.76$ $(= 4.5...)$ **or** $8 \div 1.75$ $(= 4.5...$ or $4.6)$
	their 44 or $43.75 \div 8$	M1dep	$25 \div$ their $4.5...$ or $4.6…$
	Answer in range 5.4 to 5.6 inclusive	A1	

Q	Answers	Mark	Comments
10	Chooses to square any number between 0 and 1 exclusive	M1	eg, 0.5^2 0.2×0.2 $(\frac{1}{4})^2$
	Evaluates correctly (conclusion can be implied)	A1	Ignore any squaring of numbers that are not between 0 and 1 exclusive even if they mistakenly give a correct conclusion eg, ignore $-2 \times -2 = -4$

Q	Answers	Mark	Comments
11(a)	3	B1	
11(b)(i)	30	B1	
11(b)(ii)	$\frac{1}{2}$	B1ft	oe **fraction** ft from their minutes in (i) if < 60

Q	Answers	Mark	Comments
12(a)	Attempt at 2006 − 1876	M1	Build up eg, 1876 to 1976 (=100) 1976 to 2006 (=30) (100) + (30)
	130	A1	SC1 Answer 30
12(b)	1900	B1	
12(c)	1678	B1	Allow in words
12(d)	700	B1	Allow in words Allow 100(s)
12(e)	80	B1	Allow in words Allow 10(s)

Q	Answers	Mark	Comments
13	30 − 12 (= 18)	M1	
	their 18 ÷ 2	M1dep	
	9	A1	

Q	Answers	Mark	Comments
14(a)	$\frac{25}{100} \times 32$	M1	oe
	8	A1	
14(b)	200	B2	25 or 8 seen is B1
14(c)	$\left(\frac{7}{8}\right) - \frac{4}{8}$	M1	If a different but appropriate common denominator is used at least one numerator must be correct on converting the two fractions. Allow 0.875 – 0.5 No % unless recovered
	$\frac{3}{8}$	A1	oe fraction Allow 0.375

Q	Answers	Mark	Comments
15(a)	0.8 0.786 0.09	B1	
15(b)	0.79	B1	Do not allow 0.790
15(c)	$3 \div 8$	M1	
	0.375	A1	Only allow rounded or truncated answers if 0.375 seen
15(d)	0.07	B1	oe

Q	Answers	Mark	Comments
16	$140 + \dfrac{1}{2} \times 140$	M1	$\dfrac{750}{500} \times 140$
	210	A1	

Q	Answers	Mark	Comments
17	$\dfrac{10}{100} \times (16.50 + 8.50)$ (= 2.50)	M1	$\dfrac{10}{100} \times 16.50$ (= 1.65) **and** $\dfrac{10}{100} \times 8.50$ (= 0.85) worked out separately
	(16.50 + 8.50) – their 2.5(0)	M1dep	16.50 – their 1.65 (= 14.85) **and** 8.50 – their 0.85 (= 7.65) $\dfrac{90}{100} \times (16.50 + 8.50)$ is M2 or $\dfrac{90}{100}$ of each worked out separately is M2
	22.50	A1	Do not accept 22.5 but M2 implied SC1 Answer 14.85 or 7.65

Q	Answers	Mark	Comments
18(a)	24.50	B1	
18(b)	25.49	B1	

Q	**Answers**	**Mark**	**Comments**
19	$2^{(1)} \times 3^2 \times 5^3$ Order not important but must have multiplication signs	B2	B1 for any equivalent answer that is not in simplified index form eg, $3^2 \times 5^2 \times 2 \times 5$ or $2 \times 3 \times 3 \times 5 \times 5 \times 5$ **Note:** $3^2 \times 5^2 \times 10$ is B0 If uses a factor tree for 2250 must be fully correct for B1 Allow inclusion of 1 for B1