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General Certificate of Secondary Education
November 2011

Mathematics 43602F

Foundation

Unit 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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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UMS conversion calculator www.aqa.org.uk/umsconversion

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.
[*a*, *b*]	Accept values between a and b inclusive.

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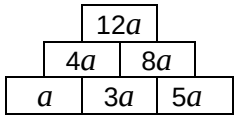
1a	Five thousand (and) two hundred (and) forty seven	B1	
1b	5200	B1	
1c	7542	B1	
1d	2574	B2	B1 for 2457 or any number ending in 2 or 4 using all 4 cards

2a	(0).75	B1	
	90(%)	B1	
	$\frac{3}{10}$	B1	oe eg $\frac{30}{100}$
2b	30(%), $\frac{3}{4}$, 0.9	B1	oe

3	2 × 1.7(0) or 3.4(0) or 3 × 2.25 or 6.75	M1	or 2 × 170 or 340 or 3 × 225 or 675 oe
	their 3.40 + their 6.75	M1 dep	oe Award M2 for 2 × 170 + 3 × 225 or 170 + 170 + 225 + 225 + 225
	(£)10.15 or 1015(p)	A1	
	Correct conclusion from their working with all calculations shown	Q1	Strand (iii) Both Ms awarded and working seen

4	Total between 1.2(0) and 1.8(0) inclusive	M1	
	their total ÷2	M1	
	1 correct set of coins for their 75p	A1 ft	
	Correct sets of coins 50, 20, 5 and 20, 20, 10, 10, 10, 5 or 50, 10, 10, 5 and 20, 20, 20, 10, 5	A1	

5a	49 25 10	B2	B1 for one correct or for their 25 + 24 in top cell
5b	$4a$	B1	
	$8a$ or $12a$ – their $4a$	B1 ft	
	$5a$ or their $8a – 3a$	B1 ft	

6	24 ÷ 6 or 4 seen	M1	or 4 tablespoons
	75 × their 4 or 60 × their 4 or 175 × their 4	M1 dep	oe
	300 or 240 or 700	A1 ft	
	300 and 240 and 700 and 4	A1	

7	40 15 5 or 20 30 10	B3	B1 A + B + C = 60 (must be different) B1 A is a multiple of 10 B1 B = 3C eg B2 for 20 10 30 B2 for 0 45 15 B2 for 30 22.5 7.5 B2 for 90 –30 –10

8	200 – 20 or 180	M1	
	their 180 ÷ 6	M1 dep	
	30	A1	

9a	y-values 8, 4 and 0	B2	B1 for two correct
9b	Correct line	B2	B1 ft six points plotted from their table

10	8 ÷ 2 × 3 or 8 × 3 ÷ 2 or 12	M1	
	their 12 × 4	M1	
	48	A1	
	Alternative method		
	4 × 8 or 32	M1	
	their 32 ÷ 2 × 3	M1	oe
	48	A1	

11	Never true	B1	
	Sometimes true	B1	
	Sometimes true	B1	

12a	2.56	B1	
12b	81.92	B1	

13	60 seen	B1	
	their 60 – $\frac{20}{100}$ × their 60 or 48	M1	oe eg $\frac{80}{100}$ × their 60
	Yes and 48 seen	A1 ft	Using 70 and getting 56, hence 'no' scores M1 A1 56 with no conclusion is M1A0 SC1 for 12 and Yes

14	$6x - 2$ (=) $2x$	M1	oe
	$6x - 2x = 2$ or $4x = 2$	M1 dep	oe
	$\frac{1}{2}$	A1	oe
	Alternative method		
	Input > 0.5 with correct output	M1	
	Input < 0.5 with correct output	M1	
	0.5	A1	oe

15a	3 × 4 (+) 2 × –5 or 12 (+) –10	M1	
	2	A1	
15b	(c =) 12	B1	
15c	$6w - 8 = 7$	M1	$3w - 4 = 3.5$
	$6w = 7 + 8$ or $6w = 15$	M1	$3w = 3.5 + 4$ or $3w = 7.5$
	(w =) 2.5	A1	oe eg $\frac{15}{6}$ or $\frac{5}{2}$ or $2\frac{1}{2}$
15d	$a^3 + 4a$	B2	B1 for a^3 or $4a$ Do not accept $a4$

16	240 ÷ 12 (= 20)	M1	
	$\left[\frac{15}{100} \times \text{their } 20 + \text{their } 20\right]$ or 23	M1	
	8 × their 23	M1	
	184	A1	
	Correct conclusion from their working with all calculations shown	Q1	Strand (iii) dep on all M marks and working seen The students have saved enough
	Alternative method 1		
	240 ÷ 12 (= 20)	M1	
	their 20 × 8 (= 160)	M1	
	$\frac{15}{100}$ × their 160 + their 160	M1	
	184	A1	
	Correct conclusion from their working with all calculations shown	Q1	Strand (iii) dep on all M marks and working seen The students have saved enough
	Alternative method 2		
	200 ÷ 8 (= 25)	M1	Average amount saved per student
	240 ÷ 12 (= 20)	M1	
	$\left[\frac{15}{100} \times \text{their } 20 + \text{their } 20\right]$ or 23	M1	oe eg 1.15 × their 20
	25 and 23	A1	
	Correct conclusion from their working with all calculations shown	Q1	Strand (iii) dep on all M marks and working seen The students have saved enough
	Alternative method 3		
	$\left[\frac{15}{100} \times 240 + 240\right]$ or 276	M1	oe eg 1.15 × 240
	their 276 ÷ 12 (= 23)	M1	
	their 23 × 8	M1	
	184	A1	
	Correct conclusion from their working with all calculations shown	Q1	Strand (iii) dep on all M marks and working seen The students have saved enough

17	2 parts = 10 marks	M1	
	A (= 5 parts =) 25 and B (= 3 parts =) 15	A1	
	A = 25, B = 15, C = 32	A1	
	Alternative method 1		
	Attempt to write equivalent ratios eg 10 : 6, 15 : 9	M1	oe eg writing consecutive multiples 5, 10, 15, … and 3, 6, 9, …
	(A)25 : 15(B)	A1	25 : 15 selected
	A = 25, B = 15, C = 32	A1	
	Alternative method 2		
	$\frac{m+10}{m} = \frac{5}{3}$	M1	oe eg $5m = 3(m + 10)$
	$m = 15$, hence $m + 10 = 25$	A1	
	A = 25, B = 15, C = 32	A1	