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General Certificate of Secondary Education
November 2010

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 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.

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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.
Q	Marks awarded for quality of written communication.
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.

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1a	Five thousand, four hundred and seventy two	B1	
1b	2457	B1	
1c	7425	B2	B1 for 7542 or any other odd number using these 4 digits
1d	5500	B1	

2a	$\frac{1}{4} \times 200$ or $200 \div 4$	M1	
	50	A1	
2b	320 ÷ their 50	M1	M1 for sight of 6 Allow complete build up method
	7	A1	

3	6	B2	B1 for twice as many 20s as 10s or coins total £1.50

4	360 3 900	B3	B1 for each correct answer SC1 answers incorrect with sight of 3 SC1 answers in correct proportion eg 240, 2, 600

5ai	Multiple of 6 > 20	B1	eg 24, 30, 36, …
5aii	1 or 2 or 4 or 5	B1	
5b	Square root Square Cube root	B3	B1 for each correct answer
5c	52	B1	

6	150 – 100 or 50 or 285 – 200 or 85	M1	
	their 50 × 12 or 600 or 6	M1	
	their 85 × 10 or 850 or 8.5(0)	M1	
	their 6 + their 8.5(0) + 15	M1	oe Allow mixed units
	29.50	Q1	Strand (i) Correct notation Do not accept 29.5 SC4 14.50 SC3 14.5

7	325 + 165 (= 490)	M1	or 325 – 165 (= 160)
	their 490 ÷ 2 (= 245)	M1 dep	or their 160 ÷ 2
	80	A1	
	Alternative method		
	Correct trial to make difference smaller eg 300 and 190	M1	
	Improved correct trial eg 225 and 265	M1	
	80	A1	

8a	66 and 34	B2	B1 for each
8b	(26 – 6) ÷ 4 or 5 seen	M1	or their difference ÷ 4
	21, 16, 11	A1	Any order

9a	4	B1	
9b	–30	B1	
9c	$5c = 19 - 4$ or 15	M1	
	3	A1	
9d	$4(t - 5)$	B1	Accept $4 \times (t - 5)$

10a	2×5 (+) 3×8 or 10 or 24	M1	
	34	A1	
10b	$6m - 12$ or $5m + 10$	M1	
	$11m - 2$	A1	

11	$60 \times 3 \div 2$ or 90 seen	M1	oe
	their $90 \times 3 \div 2$	M1 dep	oe
	135	A1	

12a	16 or 9 seen	M1	
	7 (is prime)	A1	
12b	Two different correct solutions eg $x = 2,\ y = 1$ $x = 3,\ y = 2$ $x = 6,\ y = 5$ $x = 10,\ y = 9$	B3	B2 for one correct solution B1 for one correct trial

13a	[49 - 50]	B1	
13b	[6.6 - 6.8] (– 5)	M1	Numbers could be seen on graph
	[1.6 - 1.8]	A1	SC1 [1.3 - 1.4] or SC1 for 1 (MR of Vicki for Pat)

14	$2x + 2x + 18x$ or $x + x + 9x$ (= 132)	M1	oe or for 1st trial eg $2 \times 8 + 18 \times 4 = 88$
	$22x = 132$ or $11x = 132$	M1	oe or for 2nd improved trial eg $2 \times 10 + 18 \times 5 = 110$
	6	A1	
	Alternative method		
	2 + 9 or 4 + 18	M1	
	132 ÷ their 11 or 132 + their 22	M1 dep	
	6	A1	

15	Two equivalent fractions with the same denominator eg $\frac{2}{8}$ and $\frac{1}{8}$ or $\frac{4}{16}$ and $\frac{2}{16}$ or $\frac{8}{32}$ and $\frac{4}{32}$	M1	oe or $\frac{1}{4} + \frac{1}{8} \left(= \frac{3}{8}\right)$ Allow 2 lists of equivalent fractions with at least 3 correct in each list eg $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$ … and $\frac{1}{8} = \frac{2}{16} = \frac{3}{24} = \frac{4}{32}$ …
	Correct equivalent fraction $\frac{1\frac{1}{2}}{8}$ or $\frac{3}{16}$ or $\frac{6}{32}$	M1	oe or $\frac{3}{8} \div 2$
	$\frac{3}{16}$	A1	
	Alternative method		
	0.25 and 0.125 or 25% and 12.5%	M1	
	0.1875 or 18.75%	A1	
	$\frac{3}{16}$	A1	

16	600 ÷ (9 + 6 + 5) (= 30)	M1	
	their 30 × 9 or their 30 × 6 or their 30 × 5	M1 dep	
	270 : 180 : 150	A1	In any order

17	50×3 or 150	M1	or $150 - 95$ or 55
	$\frac{60}{100} \times 3$ or 1.8(0)	M1	oe eg $3 - \left(\frac{40}{100} \times 3\right)$
	(30 × their 1.8(0) or 54) + their 150 – 95	M1	
	109	A1	
	their 150 + their 54 – 95 with their 54 coming from 40% or 60% correctly evaluated **and** a decision based on their answer	Q1	Strand (iii) SC4 for (£)91 and No (from using 40% = £120)
	Those who cannot work out 40% or 60% correctly score a maximum of M1 M0 M1 A0 Q0		
	Alternative method		
	50×3 or 150	M1	or $150 - 95$ or 55
	$\frac{60}{100} \times 3$ or 1.8(0)	M1	oe eg $3 - \left(\frac{40}{100} \times 3\right)$
	30 × their 1.8(0) – their 45	M1	Comparing 30 × their 1.8(0) with 45… the amount needed to make a profit of £100
	9	A1	Comparing 54 and 45 from correct working
	their 150 + their 54 – 95 with their 54 coming from 40% or 60% correctly evaluated **and** a decision based on their answer	Q1	Strand (iii)