



**General Certificate of Secondary Education  
March 2012**

**Mathematics**

**43602F**

**Foundation**

**Unit 2**

**Final**

***Mark Scheme***

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**The following abbreviations are used on the mark scheme:**

<b>M</b>	Method marks awarded for a correct method.
<b>M dep</b>	A method mark which is dependent on a previous method mark being awarded.
<b>A</b>	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
<b>B</b>	Marks awarded independent of method.
<b>Q</b>	Marks awarded for quality of written communication.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special Case. Marks awarded for a common misinterpretation which has some mathematical worth.
<b>oe</b>	Or equivalent.
<b>[<i>a</i>, <i>b</i>]</b>	Accept values between <i>a</i> and <i>b</i> inclusive.

## UNIT 2 FOUNDATION TIER

43602F

1a	(2, 5)	B1	
1b	$B$ plotted at (8, 1)	B1	
1c	(5, 3)	B2 ft	ft from their $B$ B1 ft for 1 number correct or point shown on grid

2a	21 and 35	B2	B1 for 1 correct (and 1 incorrect) or 2 correct and 1 incorrect
2b	6 and 10	B2	B1 for 1 correct (and 1 incorrect) or 2 correct and 1 incorrect
2c	16 and 25	B2	B1 for 1 correct (and 1 incorrect) or 2 correct and 1 incorrect

3	198	B2	B1 for attempt at correct method of subtraction or adding on eg 8 in units column or sight of decomposition $77 + 21 (+100)$
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4	$2 \times 9.25 (= 18.5(0))$ or $2 \times 5.5(0) (= 11.(00))$	M1	
	29.5(0)	A1	
	4.5(0)	B1 ft	ft from their $29.5(0) - 25$
	Complete method shown	Q1	Strand (iii) For finding cost of 2 adult tickets + 2 child tickets and subtracting 25

5	85 and 115	B2	Either order B1 for 2 numbers adding to 200 B1 for 2 numbers with a difference of 30 B1 for 1 correct
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6a	Add 6 or +6 or plus 6	B1	oe
6b	38 and 44	B1 ft	ft from their rule
6c	$302 - 2 \times 6$ or $302 - 6 - 6$	M1	oe eg use $6n + 2$ Evidence of subtracting 6 from 302 from $302 - 6 (-6)$
	290	A1 ft	ft from their rule

7	$3 \times 27$ or 81(p) or (£)0.81	M1	
	their (£)0.81 + 5.99 + 1.80 (= 8.6(0))	M1	Allow mixed units eg 81(p) + (£)5.99 + (£)1.80
	10 – their 8.6(0)	M1	
	1.40	Q1	Strand (i) Correct notation Do not accept 1.4

8a	7.5 Not equivalent to $\frac{3}{4}$ or 0.75 or 75%	B1	oe or other valid reason
8b	$\frac{4}{10}$ and Not equivalent to $\frac{1}{3}$	B1	oe or other valid reason
8c	$\sqrt{125}$ Not an exact square root	B1	oe or other valid reason
8d	15 Not a prime number or other valid reason	B1	eg only multiple of 3 or only multiple of 5

9	eg $4 \times \frac{1}{4}(l) = 1(l)$	M1	oe 20 ÷ 4 or 5 or $\frac{1}{5}$
	$4 \times 4$ or 16	M1	oe their $5 \times \frac{1}{4}$
	No and 16	A1	oe eg No and $1\frac{1}{4}$

10	-7 and 2 = -5 and -5 and 0 = -5 and -3 and -2 = -5	B2	Either order for each pair B1 for 2 pairs with a total of -5 B1 for 2 pairs with same correct total eg -5 and 2 = -3 -3 and 0 = -3 <b>or</b> -7 and 0 = -7 -5 and -2 = -7 B1 for 3 correct pairs with incorrect totals
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11a	24	B1	
11b	$7c + 3d$ or $3d + 7c$	B2	B1 for $7c$ or $3d$ Do not ignore further working
11c	$3 \times 4$ and $5 \times -2$ or 12 and $-10$	M1	oe
	2	A1	

12	$3 \div 8$ or $\frac{3}{8} \times 100$ or $\frac{38}{100}$ or 38(%) or 37.(5%)	M1	
	0.37(5) or $\frac{76}{200}$ and $\frac{75}{200}$ or 37.(5%) and 38(%)	A1	oe
	Both numbers in same format and correct conclusion from their values	Q1	Strand (ii) Dependent on M1 and correct method(s) for conversion(s) SC1 for $\left(\frac{1}{8} = \right)$ 0.125 or 12.5%

13a	$10^5$	B1	
13b	20	B3	B2 for 8 and 25 seen B1 for 8 or 25 seen

14	$\frac{1}{3}$ or $\frac{3}{4}$ or $1 - \frac{2}{3}$ or $1 - \frac{1}{4}$ seen	M1	oe
	$18 = \frac{3}{4}$ or $\frac{1}{4} = 6$ or $\frac{1}{3} = 6$ or $\frac{1}{2}$ or $6 \times 3 (= 18)$ or $\frac{2}{3} \times \frac{3}{4}$ seen	M1 dep	
	$6 \times 4$ or $\frac{\text{their } 18}{3} \times 4$ or $18 + 6$	M1 dep	Calculation leading to a final answer of 24
	24	A1	SC1 for $\frac{11}{12}$ SC2 for 72 $(\pounds)6 = \frac{2}{3} \rightarrow (\pounds)9$ then $\frac{9 \times 4}{3} = 12$ is SC3

15a	$C = 10d + 20$	B1	
15b	Plots at least two correct points ( $\pm \frac{1}{2}$ sq)	M1	
	Correct line from (0, 30) at least to intersection at (5, 70)	A1	
15c	First Cars	B1 ft	Strict ft
	Cheaper (check graph) Graph lower down Roys Rentals = 90 and First Cars = 86	B1 ft	oe

16a	$12 - x = 15$ or $12 - x = 5 \times 3$	M1	oe $4 - \frac{x}{3} = 5$
	$-x = \text{their } 15 - 12$ or $x = 12 - \text{their } 15$	M1	or $4 - 5 = \frac{x}{3}$ $-1 = \frac{x}{3}$ or $5 - 4 = \frac{-x}{3}$
	-3	A1	
16b	$3t = s - 4$ or $\frac{s}{3} = t + \frac{4}{3}$	M1	oe
	$(t =) \frac{s-4}{3}$ or $(t =) \frac{s}{3} - \frac{4}{3}$ or $(t =) \frac{4-s}{-3}$	A1	oe SC1 $(t =) \frac{4-s}{3}$ or $(t =) \frac{s+4}{3}$

17	$100 \times 0.84$ or $60 \times 1.1(0)$	M1	84 or 66 or 150	Money out
	their $150 \times 1.4$ (= 210)	M1 dep	oe dep on first M1	Required total sales income
	$100 \times 1.2(0)$ or $40 \times 1.6(0)$	M1	120 or 64 or 184	Money in after 40 packs sold
	(their 210 – their 184) $\div$ 20	M1 dep	dep on 2nd and 3rd M1	Money needed $\div$ 20
	1.30	A1	Do not accept 1.3	
	<b>Alternative method 1</b>			
	$100 \times 0.84$ or $60 \times 1.1(0)$	M1	84 or 66 or 150	Money out
	$100 \times 1.2(0)$ or $40 \times 1.6(0)$	M1	120 or 64 or 184	Money in after 40 packs sold
	their 184 – their 150	M1 dep	34 if correct dep on 1st and 2nd M1	Profit after 40 packs sold
	$(0.4 \times$ their 150 – their 34) $\div$ 20	M1 dep	dep on 3rd M1	Money needed $\div$ 20
	1.30	A1	Do not accept 1.3	
	<b>Alternative method 2</b>			
	$100 \times 0.84$ or $60 \times 1.1(0)$	M1	84 or 66 or 150	Money out
	$100 \times 0.36$ or $40 \times 0.50$	M1	36 or 20 or 56	Profit so far
	$(0.4 \times$ their 150 – their 56) $\div$ 20	M1 dep	0.20 if correct dep on 1st and 2nd M1	Profit per pack needed
	their 0.20 + 1.10	M1 dep	dep on 3rd M1	Cost price + profit per pack
	1.30	A1	Do not accept 1.3	
	<b>Alternative method 3</b>			
	$100 \times 1.2(0)$ or $100 \times 0.84$	M1	120 or 84 or 36	Profit
	$40 \times 1.6(0)$ or $60 \times 1.1(0)$	M1	64 or 66 or –2	Profit
their 36 + their (–2)	M1 dep	34 if correct dep on 1st and 2nd M1	Profit after 40 packs sold	
$(0.4 \times$ their 150 – their 34) $\div$ 20	M1 dep	dep on 3rd M1	Money needed $\div$ 20	
1.30	A1	Do not accept 1.3		