



General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 3 Tier F 43053F

Mark Scheme

2009 examination - June series

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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 TIER

43053F

1(a)	10 000	B1	
1(b)	One thousand and ten	B1	
1(c)	3000	B1	Accept answers using words
1(d)	800 or 100	B1	Accept answers using words
1(e)	4337	B1	

2	$46 \div 2 (= 23)$	M1	M2 for 4.5×46 oe M2 for $5 \times 46 - 46 \div 2$
	$4 \times 46 (= 184)$	M1	
	207	A1	

3(a)	42 or 49	B1	Allow 42 and 49 Penalise any incorrect numbers
3(b)	5 and 16	B2	B1 for values a and b where $ab = 80$ or B1 for values a and b where $a + b = 21$

4(a)	+ and \times in this order	B1	
4(b)	\div and \div	B1	
4(c)	- and \times and - in this order	B1	Condone $(10 + 2) \div 3 = 9 - 5$ Condone $10 + 2 + 3 = \sqrt{9} \times 5$

5(a)	Moscow	B1	
5(b)	(+)7	B1	
5(c)	-13	B1	

6(a)	0.15×1200	M1	oe Build up eg (10% =) $1200 \div 10 (= 120)$ (5% =) their $120 \div 2 (= 60)$ their 120 + their 60
	180	A1	SC1 1020
6(b)	$1200 - 960 (= 240)$	M1	$\frac{960}{1200}$ 240 seen
	$\frac{\text{their } 240}{1200}$	M1 dep	1 – their $\frac{960}{1200}$
	$\frac{1}{5}$	A1	SC2 (0).2 or 20% or $\frac{4}{5}$ SC1 (0).8 or 80%

7	$431.95 - 279.99 (= 151.96)$	M1	Allow 432 and/or 280
	their $151.96 \div 4$	M1 dep	
	37.99	A1	SC2 Answer 38(.00) unless 37.99 seen

8	$90 \div 2 (= 45)$	M1	(0).9(0) $\div 2 (= (0).45)$
	$500 + 0.5 \times 500 (= 750)$	M1	oe
	Uses correct method(s) to scale both to the same number of grams or to the same amount of money	M1 dep	dep on M2 eg 1 $500 \div$ their 45 (= 11.(...)) their $750 \div 90 (= 8.(...))$ eg 2 $90(\text{p}) \rightarrow 1000(\text{g})$ $90(\text{p}) \rightarrow 750(\text{g})$
	All numbers calculated correctly	A1	eg 1 11.(...) and 8.(...) eg 2 90, 1000 and 90, 750
	(Offer) A	A1 ft	M3 must have been awarded ft from M3A0

9	$2(\times) 20$ or $5(\times) 8$	M1	$2(\times) 2(\times) 10$ or $2(\times) 4(\times) 5$ Allow $1(\times)$
	$2 \times 2 \times 2 \times 5$	A1	$2^3 \times 5^{(1)}$ Allow . or \times

10	$3000 \div (8 + 5 + 2) (= 200)$	M1	
	$8 \times \text{their } 200$	M1 dep	$\frac{8}{15} \times 3000$ M2
	1600	A1	Do not award if more than one answer given but sight of 1600 implies M2

11	0.25 $\frac{7}{10}$ oe fraction 2	B3	B1 for each
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12(a)	Tea	B1	
12(b)	$2 \times 1.1(0) + 1.4(0)$ $(= 2.2(0) + 1.4(0))$	M1	Accept $2 \times 110 + 140$
	3.60	A1	Answer 360 or 3.6 implies M1A0
12(c)	50(p) 20(p) 5(p)	B1	
12(d)	Tea Coffee Hot Chocolate (in any order)	B2	B1 for 3 drinks that have total cost < £3

13(a)	0.25×48	M1	oe eg $48 \div 2 \div 2$ or build-up
	12	A1	SC1 36
13(b) (i)	Divide by 5	B1	$35 \div 5$ or 7×5
13(b) (ii)	21	B1	

14(a)	0.01	B1	oe
14(b)	100	B1	
14(c)	0.2	B1	oe
14(d)	4.75	B1	

15	$28 \times 1000 - 28$	M1	$28\ 000 - 28$
	27 972	A1	Answer only is M0A0 Answer from other methods is M0A0

16	Gives a correct counter example	M1	eg $-4 + 6$ or $6 + -4$
	Evaluates correctly	A1	SC1 $x - y$ with $x > 0$, $y > 0$ and $x \geq y$ evaluated correctly eg $6 - 4 = 2$

17(a)	2(h) 10(min) seen	M1	Valid build up eg $3(\text{h}) - 15(\text{min})$
	2(h) 45(min)	A1	Answer 165 minutes M1A0
			SC1 14(h) 45(min) 14.45(h) 2.45 h $2\frac{3}{4}(\text{h})$
17(b)	$960 \div 3$	M1	
	320	A1	

18	$\frac{2}{3} \times 7$ or $\frac{1}{3} \times 7$	M1	3 days needs 2 litres or 1 bottle
	$\frac{14}{3}$ or $4\frac{2}{3}$ or $\frac{7}{3}$ or $2\frac{1}{3}$	A1	6 days needs 4 litres or 2 bottles
	3	A1	SC1 Answer 3 if M0 awarded

19(a)	$\sqrt{81} = 9$ and $\sqrt{100} = 10$ or $9^2 = 81$ and $10^2 = 100$ or $\sqrt{81} < \sqrt{90} < \sqrt{100}$ or $9^2 < 90 < 10^2$ or 90 is between 81 and 100	B2	B1 for one correct
19(b)	Any two of 300 4 0.1	M1	Condone 4.00 and 0.100 Sight of 1200
	All 3 of 300 4 0.1	A1	$\frac{1200}{0.1}$ or 3000×4 or 300×40 M1A1
	12 000	A1	

20(a)	$9\frac{3}{4}$ or $\frac{39}{4}$ or 9.75	B1	oe
20(b)	1	B1	