



General Certificate of Secondary Education

Mathematics 4307 *Specification B*

Module 1 Tier F 43051F

Mark Scheme

2009 examination - March 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.

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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 1 FOUNDATION TIER**43051F****Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.**

1(a)	Concert	B1	
1(b)	200	B1	
1(c)	75	B1	
1(d)	$75 + 200 + 125 + 50$ or 450	M1	oe Adding at least 3 correct values Allow $50 \times 8 + 25 \times 2$
	$500 - \text{their } 450$	M1 dep	or $450 - 500$ or by implication from their answer
	50	A1	Not embedded ans only eg $450 + 50 = 500$ M1M1

2(a)	21, 24, 26, 27, 30, 31, 31, 32, 32, 32, 33,	M1	Ordering at least 6 correctly (from either end)
	31	A1	
2(b)	$21 + 24 + 26 + \dots$ or 319	M1	Attempt at $\sum x$ Total of 286 – 352 implies M1 (missing 1 value \Rightarrow M1)
	their $319 \div 11$	M1 dep	Cannot divide by 10
	29	A1	289 only \Rightarrow M1
2(c)	30 mph as this is near the average speed (can use any average)	B1	Accept '40 mph as all motorists were travelling below this speed'

3(a)	Week 3	B1	
3(b)	$21 - 7$	M1	or $7 - 21$
	14	A1	
3(c)	Valid reason Not comments about more people knew about it etc	B1	eg exam next week, last class

4(a)	Correct basic shape of two way table of size 3 by 4	M1	
	Correct labelling of colours	A1	
	Correct labelling of numbers	A1	
4(b)	5 correct entries	B1	Must be two way table or a complete list of all 12 possibilities

5	$1 - (0.3 + 0.25 + 0.15 + 0.1)$ or 0.2	M1	or any one probability $\times 600$
	their 0.2×600	M1 dep	$600 - (180 + 150 + 90 + 60)$ or by implication from their answer
	120	A1	0.2 on answer line = A0 if other working correct
			Allow $600 \div 5 = 120$ 3 marks Seen 120 then penalise 1 mark for incorrect further working

6(a)	Tally column correct with 5 bar gates	B1	
	Frequency column correct 2, 5, 8, 5	B1 ft	Correct or follow through their tallies
6(b)	Football	B1	

7(a)	All 3 days completed Wed 10, 16 Thurs 15, 12 Fri 14, 11	B3	B1 for each day
7(b)	No. On Wednesday orange juice was more popular No with valid reason	B1	Accept: Orange juice may be more popular in other weeks

8(a)	9	B1	
8(b)	42	B1	
8(c)	36	B1	
8(d)	Working out median for year 7 was 41 and Yes On average year 7 took longer or Yes 41 is greater than 36	B2	Yes comparing shapes B1 41 alone B1 Median year 7 is longer B1

9(a)(i)	£1	B1	
9(a)(ii)	20p and 5p	B1	Either order
9(b)	Six combinations £1, 20p £1, 10p £1, 5p 20p, 10p 20p, 5p 10p, 5p	B2	Ignore repeats Ignore fw B1 at least 3 correct combinations (ignore repeats)

10(a)	At least 3 choices, not overlapping, covering at least 5 days including none	B2	Only 2 choices loses 1 mark One error B1 eg overlapping or gaps or missed 'none' Ignore errors on more than 5 days
10(b)	Too time consuming/too much data to analyse	B1	
10(c)	Only year 11 or only female	B1	Accept biased

11(a)	Plotted at mid class intervals (7500, 14) (12500, 39) (17500, 26) (22500, 18) (27500, 3)	B1	$\pm \frac{1}{2}$ square
	Heights correct and joined with a 'straight' line through their points $\pm \frac{1}{2}$ sq	B1	Ignore ends Heights within or on cb's $\pm \frac{1}{2}$ square
11(b)	$\frac{21}{100}$ or 0.21	B1	