



General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 1 Tier H 43051H

Mark Scheme

2008 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 1 HIGHER TIER**43051H****Note: Probability - Accept fraction, decimal or percentage. Do not accept ratio.**

1(a)	As the time spent practising increases, the number of errors decreases	B1	Accept negative correlation
1(b)(i)	Straight line of best fit from between (9, 1) and (10, 2) to between (2, 6.4) and (2, 7.6)	B1	Line must pass vertical at 2 and 9
1(b)(ii)	Reading from their line OR No line and answer of 7	B1 ft	Must be an integer If reading is exactly halfway between 2 integers accept either
1(c)	Valid reason eg good/experienced typist, good computer skills, office worker	B1	oe
1(d)	Idea that cannot always keep improving or other factors may affect score or not possible to predict from the graph as outside data range OR Still possible to make a mistake no matter how long you practise	B1	Accept: Trend may not continue or trend/line levels out at 2

2(a)(i)	$12 + 7 (= 19)$	M1	
	$\frac{19}{50}$ or 0.38 or 38%	A1	SC1 $\frac{12}{50}$ or 0.24 or 24% or $\frac{6}{25}$
2(a)(ii)	Explanation that the original data is not known/we don't know if any of the 18 people spent exactly £8	B1	Accept: The data has been grouped
2(a)(iii)	$10 < x \leq 20$	B1	
2(a)(iv)	$(18 \times 5) + (13 \times 15) + (12 \times 25) + (7 \times 35)$ or $90 + 195 + 300 + 245$ or 830	M1	Attempt at $\sum fx$ with at least 3 "correct" products using "midpoints" within or on the boundaries
	their $830 \div 50$	M1 dep	Can be implied by answer
	16.60 (not 16.6)	A1	207.5 with no working implies M1M0A0 589.9 implies M1M0A0 $16.6 \Rightarrow$ M2 with no working $1660p \Rightarrow 3$
2(b)	Average amount spent is greater on the Saturday in December/less on the Saturday in November	B1 ft	Comparison of mean/average in context Accept: Mean is higher in December
	More variation in amounts on the Saturday in December/less variation on the Saturday in November	B1	Comparison of range/spread or maximum spent on the Saturday in December is greater than the maximum spent on the Saturday in November Do not accept: Range is higher in December

3(a)	$156 - 136$	M1	Accept: 136 - 156 or 136 to 156
	20	A1	Accept 24
3(b)	25	B1	

4	Correct method for Y6 or Y5 eg $\frac{235}{1000} \times 50$ or $235 \div 20$	M1	or $235 - 178$ or 57
	11.75 and 8.9 or 12 and 9	A1	$57 \div 20$ or $\frac{57}{1000} \times 50$ or 2.85
	3	A1	For this method ft from incorrect subtraction eg $235 - 178 = 157$ M1 $\frac{157}{1000} \times 50$ A0 $= 7$ A1 ft

5	$\frac{1}{6} \times \frac{9}{15}$ or $\frac{5}{6} \times \frac{3}{10}$	M1	
	$\frac{1}{6} \times \frac{9}{15} + \frac{5}{6} \times \frac{3}{10}$ or $\frac{1}{10} + \frac{1}{4}$	M1 dep	Adding both correct products
	$\frac{7}{20}$	A1	oe eg $\frac{63}{180}$, $\frac{126}{360}$, $\frac{189}{540}$ Ignore incorrect cancelling

6(a)(i)	8	B1	
6(a)(ii)	(0) (+) 8 (+) 12 (+) 3	M1	
	23	A1	
6(a)(iii)	(0) (+) 5 (+) 12 (+) 2	M1	
	19	A1	
6(b)	No box for zero or no TV watched Gap between 0 and 1 or gap between 3 and 4 or there are gaps 4 - 6 and 6 - 8 overlap	B2	Any two criticisms B1 for each correct criticism B2 for a completely correct alternative response section with at least 3 boxes - covering all possibilities with no overlap

7(a)	$1 - (0.3 + 0.35 + 0.15)$ or $1 - 0.8$	M1	
	0.2	A1	
7(b)	0.3×0.3	M1	oe
	0.09	A1	oe 0.9 with no working SC1

8(a)	$(38 + 29 + 53 + 84) \div 4$ or $204 \div 4$	M1	$48 + \frac{(84 - 72)}{4}$
	51	A1	
8(b)	All three plotted at correct horizontal position	B1	$\pm \frac{1}{2}$ sq
	All three correct heights	B1 ft	SC1 for the two given points plotted correctly both horizontally and vertically $\pm \frac{1}{2}$ sq
8(c)	Reading of next moving average	M1	ft their line
	their $54 \times 4 - (29 + 53 + 84)$ or $54 \times 4 - 166$	M1	
	50	A1 ft	$53 \rightarrow 46, 54 \rightarrow 50, 55 \rightarrow 54$ Allow seasonal adjustment method oe

9	$4 \text{ cm}^2 = 10$ runners	M1	or fd scale rises in 0.1 or 10 little squares = 1 runner or 10 - 15 represents 2 runners or 140 seen
	$28 \div 4 \times 10$	M1	$(5 \times 0.4) + (5 \times 1.6) + (10 \times 2.2) + (10 \times 2.8) + (20 \times 0.5)$ or $10 + 22 + 28 + 10$ oe Allow one error or $140 \div 2$
	70	A1	

10	$\frac{5}{16} \div \frac{3}{8}$ or $\frac{5}{16} \times \frac{8}{3}$	M1	Accept: $\frac{3}{8} \times x = \frac{5}{16}$ or similar
	$\frac{5}{6}$	A1	