



General Certificate of Secondary Education

Mathematics 4307

Specification B

Module 1 Tier F 43051F

Final

Mark Scheme

2010 examination - June 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.
E	Marks awarded for an explanation.
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.

MODULE 1 FOUNDATION TIER

43051F

1(a)	10	B1	
1(b)	18 (+) 13	M1	
	31	A1	
1(c)	3 or week 3	B1	
1(d)	There were more boys than girls in this week	B1	

2	'Throwing a number 8' matched to 'Impossible'	B1	Line or clear indication of matching
	'Snow falling' matched to 'Unlikely'	B1	
	'Fair coin landing on heads' matched to 'Evens'	B1	

3(a)(i)	Football	B1	
3(a)(ii)	$\frac{60}{360}$ or $\frac{1}{6}$	B1	oe
3(a)(iii)	Athletics	A1	
3(b)	Boys $\frac{75}{360} \times 120$ or $75 \div 3$	M1	or $360 \div 75 = 4.8$ and $120 \div 4.8$
	25	A1	25 seen \rightarrow M1 A1
	48 – their 25	M1 dep	dep on first M1
	23	A1	
	Alternative method		
	Girls $\frac{48}{120} \times 360$ or 48×3 or 144	M1	
	their 144 – 75	M1 dep	dep on first M1
	their $69 \div 3$	M1 dep	dep on both M1s
	23	A1	

4(a)	All 7 points plotted correctly (2, 10.5) (3, 10.2) (5, 8.5) (6, 8.1) (7, 7) (9, 6.1) (10, 6.3)	B2	B1 for 5 or 6 plotted correctly $\pm \frac{1}{2}$ sq Ignore extras
4(b)	The more time spent training, the less time it took to complete the test	B1	Must mention 'training' and 'test' oe

5(a)	$1 < w \leq 2$	B1	
5(b)	One correct midpoint used leading to one correct fx	B1	
	$(10 \times 0.5) + (17 \times 1.5)$ $+ (3 \times 2.5) + (7 \times 3.5)$ $+ (3 \times 4.5)$ or $5 + 25.5 + 7.5 + 24.5 + 13.5$ or 76	M1	Attempt at $\sum fx$ with x 's used on or between the class boundaries for at least 4 products
	their $76 \div 40$	M1 dep	dep on M1 Accept incorrect $\sum f$ if clear evidence shown of adding the values
	1.9	A1	Allow 2 from correct working seen

6(a)(i)	10	B1	
6(a)(ii)	Thursday	B1	
6(a)(iii)	Tuesday and Wednesday	B2	B1 for 10 and 8 seen or 2 and 2.5 or 4.5 or 18 seen
6(b)	Kevin total 63	M1	Alternative using differences Mon -6, Tues +7, Wed +6, Thurs -2, Fri -5 oe
	Tina total 63	M1	-13 and +13 seen or total zero
	No or they both sold the same	A1	dep on both M1s Working must be shown No, they both sold 63 \rightarrow M1 M1 A1

7	A hypothesis/question referring to the change in the elephant population numbers eg have the number of elephants decreased/increased/stayed the same (over the last 50 years)? Are the number of elephants decreasing/increasing? Are there more/less elephants now?	B1	
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8(a)	Jade	B1	
8(b)	All ten correct times shown for girls	B1	Extracting the data 33, 25, 38, 22, 41, 40, 30, 49, 37, 19
	Their ten girls times ordered or at least six ordered from either end	M1	ft from ten times shown The correct times ordered are 19, 22, 25, 30, 33, 37, 38, 40, 41, 49
	'35'	A1 ft	ft 10 values some incorrect but ordered
8(c)	All eleven correct times shown for the boys	B1	Extracting the data 41, 17, 28, 33, 20, 34, 37, 29, 35, 29, 30 Can be implied from correct SL diagram
	Stem and leaf diagram completed correctly 7 0 8 9 9 0 3 4 5 7 1	B2 ft	ft a list of at least 9 values and if no list given B2 ft for ordered diagram B1 for one error or unordered
	Key completed with any 2 digit number	B1	
8(d)	Boys median 30	M1	ft or correct ft ordered SL diagram for boys or ordered boys list must be ≥ 9 values
	Boys took less time/boys ran faster/were quicker	A1 ft	ft from comparison of their two medians unless other working shown oe

9(a)(i)	6	B1	
9(a)(ii)	6 seen	M1	6 : 9 \rightarrow M1 A0 Not 6 in denominator or a list
	$\frac{6}{9}$ or $\frac{2}{3}$	A1	oe
9(b)	'All equally likely' circled	M1	
	Explains that every result is equally likely each throw/or throws independent/or starts again each throw/random	A1	oe