



**General Certificate of Secondary Education
June 2012**

Statistics

43101F

Unit 1: Statistics Written Paper (Foundation)

Final

Mark Scheme

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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process 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 standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

- M** Method marks are awarded for a correct method which could lead to a correct answer.
- A** Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
- B** Marks awarded independent of method.
- E** Explain marks are awarded for a full and detailed explanation.
- M Dep** A method mark dependent on a previous method mark being awarded.
- B Dep** A mark that can only be awarded if a previous independent mark has been awarded.
- ft** Follow through marks. Marks awarded following a mistake in an earlier step.
- SC** Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
- oe** Or equivalent. Accept answers that are equivalent.
eg, accept 0.5 as well as $\frac{1}{2}$

Unit 1 Foundation Tier

Q	Answer	Mark	Comments
1(a)(i)	(Unlikely) Evens Impossible Likely Certain	B3	B2 Two or three correct B1 One correct
1(a)(ii)	$\frac{6}{20}$	B2	oe fraction (condone decimals or percentages) B1 $\frac{6}{n}$ $n > 6$ or $\frac{m}{20}$ $m > 0$ $m \neq 6$ $m < 20$ SC1 $6 \div 20$ (correct answer not seen)
1(b)	$40 \div 5$	M1	oe
	8	A1	
2(a)	50	B1	
2(b)	$\frac{16}{\text{their } 50}$	B2ft	B1 sight of 16 or $11 + 5$ Their 50 must be > 16
2(c)	2	B1	
2(d)	Key stated correctly	B1ft	ft their numerical c or correct
	All symbols correct	B2ft	B1ft At least one of the rows with half symbols correct
2(e)(i)	Any correct difference	B1	eg, males favourite is theme park
2(e)(ii)	Any correct similarity	B1	eg, coach trip least popular for both

Q	Answer	Mark	Comments
3(a)(i)	30	B1	
3(a)(ii)	25	B2	+/- 1 B1 Sight of 55 (+/- 1)
3(b)	Carrots from 0% to 50%	B1	+/- ½ small square
	Peas from their 50% to their (50+25)%	B1	+/- ½ small square
	Shades 3 sections with the 3 types of shading	B1	
4(a)	Read from 60 on cf	M1	
	[1300 – 1400]	A1	
4(b)	96	B1	
4(c)	$\frac{their96}{120}$	B1ft	ft their 96 or correct oe e.g. 0.8 or 80%
5(a)	Lower fares means more customers	B1	oe
5(b)	Only one driver's passengers asked	B1	oe eg, only one week's data only asking current customers
5(c)	$2568 \div 12$	M1	
	214	A1	
5(d)	$219 + 198 + 247 + \dots$	M1	adding
	2880 or 240	A1	Totalling or mean correct
	(On average) more journeys after fares lowered	B1 ft	oe
5(e)	Ticks cannot tell	B1	Any indication
	Only have information about number of journeys not fares	B1dep	oe eg, do not know the size of the reductions

Q	Answer	Mark	Comments
6(a)	Ticks or implies Yes and explains there are more 2200s than any other value	B1	oe
6(b)	Ticks No and explains it is the lowest value	B1	oe Ticks Yes and discusses that this is the largest measure of agreement
6(c)	Mean and Range	B2	and no others B1 Correct two and one incorrect B1 One correct and not more than one incorrect
7a(i)	Luxembourg	B1	
7a(ii)	Netherlands	B1	
7(b)	117.7 – 43(.0)	M1	Condone 118 – 43(.0)
	74.7	A1	Accept £0.747(p) SC1 digits 747
7(c)	There was a general fall	B1	oe
8(a)	Number the ducks	B1	oe
	Use random numbers (to obtain 3 values in range)	B1	Oe put numbers in a hat and pick 3 out
8(b)(i)	Ticks Muscovy duck	B1	
	Other ducks are lighter than that	B1dep	oe
8(b)(ii)	sight of 25%, $\frac{1}{4}$ or 0.25	M1	oe e.g halving twice or dividing by 4
	15	A1	SC1 45

Q	Answer	Mark	Comments
9(a)	Rows or columns for ending A or ending B	B1	oe
	Rows or columns for male and female	B1	oe
9(b)(i)	People happier to write responses	B1	oe
9(b)(ii)	Definitely get responses / get immediate responses	B1	oe
10(a)	00 - 49 range includes 50 numbers	B1	
	$40/80 \times 100 (= 50)$	B1	SC1 for 50 or 50% or $\frac{1}{2}$ seen
10(b)(i)	(S C S S C) M S S S M S M C C S C S S S S	B2	B1 for 10 - 14 correct
10(b)(ii)	Use of 5 bar gates	B1	
	Tallies all correct	B1 ft	ft their table
	Frequencies correct	B1 ft	5, 12, 3 if correct but ft their tallies SC1 B0B0B0 but one correct use of a five bar gate
10(b)(iii)	Greater than expected for Serious Less for Critical now As expected for Minor	B2ft	Any 2 for B2 Any 1 for B1
11(a)	Fully correct	B2	Up to 2 errors B1
11(b)	$8 + 6.6$	M1	At least one correct
	14.6	A1	
11(c)	50 - 59	B1	

Q	Answer	Mark	Comments
12(a)	Use of the toothpaste Wondershine (E)	B1	
12(b)	The number of fillings the child needs during the experiment (B)	B1	
12(c)	How many sweets the child eats (C) or How often the child cleans his/her teeth (A)	B1	
13(a)	The values are 100	B1	oe
13(b)	No change 2007 – 2009	B1	oe
13(c)	Clothing	B1	
14(a)(i)	positive agreement	B1	oe Students doing well in one oral test likely to do well in the other oral test
14(a)(ii)	No agreement between the two tests	B1	
14(b)(i)	18	B1	
14(b)(ii)	2	B1	
14(b)(iii)	80 and 11 lessons missed	B1B1	SC1 for 11 and 80 or 80 and 11 in second box only