Free-Standing Mathematics Qualification MATHEMATICS

4983 – Using Data
Mark scheme

4983
June 2015

Version 1.0: Final Mark Scheme

Mark schemes are prepared by the Lead Assessment Writer 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 associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

Key to mark scheme abbreviations

M	mark is for method
m or dM	mark is dependent on one or more M marks and is for method
A	mark is dependent on M or m marks and is for accuracy
B	mark is independent of M or m marks and is for method and accuracy
E	mark is for explanation
√or ft or F	follow through from previous incorrect result
CAO	correct answer only
SC	special case
OE	or equivalent
A2,1	2 or 1 (or 0) accuracy marks
NMS	no method shown
sf	significant figure(s)
dp	decimal place(s)

No Method Shown

Where the question specifically requires a particular method to be used, we must usually see evidence of use of this method for any marks to be awarded.

Where the answer can be reasonably obtained without showing working and it is very unlikely that the correct answer can be obtained by using an incorrect method, we must award **full marks**. However, the obvious penalty to candidates showing no working is that incorrect answers, however close, earn **no marks**.

Where a question asks the candidate to state or write down a result, no method need be shown for full marks.

Where the permitted calculator has functions which reasonably allow the solution of the question directly, the correct answer without working earns **full marks**, unless it is given to less than the degree of accuracy accepted in the mark scheme, when it gains **no marks**.

Otherwise we require evidence of a correct method for any marks to be awarded.

Q	Solution	Mark	Total	Comment
1 (a)	1748 or 5.48 (pm)	B1	1	
1 (b)	1852 or 6.52 (pm)	B1	1	Accept 1852-1922 (dep and arr times)
1 (c)	2044 – 2009 or use of 2044 and attempt to work out time difference 35 minutes	M1 A1	2	Condone 2009-2044 Accept use of 8.44
	Total		**4**	
2 (a)	3+2 or 5 132.2 ÷ their 5 or 26.44 or 132.2 × 2 or 264.4 their 26.44 × 2 or their 264.4 ÷ their 5 (£)52.88 or 5288p	M1 M1 M1 A1	4	Accept working in pence for M marks SC3 79.32
2 (b)(i)	0.3	B1	1	Accept 0.30, 0.300 etc
2 (b)(ii)	30%	B1ft	1	ft their (b)(i) ×100 if <1 to 2dp if not whole number MUST see % sign
	Total		**6**	
3 (a)(i)	Hollyoaks	B1	1	
3 (a)(ii)	Coronation Street	B1	1	
3 (b)	27	B1	1	
3 (c)	Orders data, eg 15, 18, 22, 31, 32, 47 (22+31)÷2 or circles 22 **and** 31 or clear indication that answer lies between 22 and 31 eg arrow or just 22, 31 on answer line 26.5	M1 M1 A1	3	At least first 4 or last 4
	Total		**6**	

4 (a)	Scatter diagram Suitable scales Points plotted correctly	B1 B1 B2	 4	 B1 for at least 4 points plotted correctly
4 (b)(i)	Trendline through (20, 15) to (20, 25) and (50, 35) to (50, 50)	B1	1	Ignore other "lines" eg points joined if trendline shown
4 (b)(ii)	Correct conclusion, eg that the longer the programme runs, the more births there are	B1	1	
	Total		**6**	

5 (a)	45(°) or $\frac{1}{8}$ their 45 ÷ 360 × 40 or 360 ÷ their 45 = 8 **and** 40 ÷ 8 or 360 ÷ 40 = 9 **and** their 45 ÷ 9 5	B1 M1 A1ft	 3	Allow 2° tolerance Choc = 162°, Vanilla = 81°, Pistachio = 27°, Cookies = 45° ft for any flavour: Choc = 18, Vanilla = 9, Pistachio = 3, Cookies = 5
5 (b)(i)	$\frac{3}{18}$ $\frac{1}{6}$	M1 A1	 2	 SC1 for any proper fraction correctly simplified
5 (b)(ii)	1 - $\frac{7}{18}$ or 3+5+1+2 or 18 – 7 or 11 seen as numerator of a proper fraction $\frac{11}{18}$	M1 A1	 2	 oe fraction, decimal, percentage
	Total		**7**	

6	8 ÷ 36 or $0.2\dot{2}$ or 36 ÷ 8 or 4.5 or 100 ÷ 36 or $2.7\dot{7}$	M1		oe
	8 ÷ 36 × 100 or $0.2\dot{2}\times 100$ or 100 ÷ (36 ÷ 8) or 100 ÷ 4.5 or 8 × $2.7\dot{7}$	M1 dep		oe
	22% or 22.2%	A1	3	or better
	Total		**3**	
7 (a)	16 in distance covered for Stage 3 Guildford in End point for Stage 7	B1 B1	2	
7 (b)(i)	144.75 × 8 1158	M1 A1	2	
7 (b)(ii)	(209.9 + 16 + 188.4 + … + 88) or 971.4 Their 1158 – their 971.4 186.6 187	M1 M1 A1 B1ft	4	 ft their table for M2 dep on M2 ft any non-integer answer correctly rounded
	Total		**8**	
	TOTAL		**40**	