

FSMQ 2005

January Series



Mark Scheme

Handling and Interpreting Data (6986)

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.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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 to download from the AQA Website:
www.aqa.org.uk

Copyright © 2005 AQA and its licensors. All rights reserved.

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales 3644723 and a registered charity number 1073334. Registered address AQA, Devas Street, Manchester. M15 6EX.

Dr Michael Cresswell Director General

Key to Mark Scheme

M	mark is for	method
m	mark is dependent on one or more M marks and is for	method
A	mark is dependent on M or m mark and is for	accuracy
B	mark is independent of M or m and is for	method and accuracy
E	mark is for	explanation
√ or ft		follow through from previous incorrect result
cao		correct answer only
cso		correct solution only
awfw		anything which falls within
awrt		anything which rounds to
acf		any correct form
ag		answer given
sc		special case
oe		or equivalent
sf		significant figure(s)
dp		decimal place(s)
A2,1		2 or 1 (or 0) accuracy marks
- x ee		deduct x marks for each error

Abbreviations used in marking

MC - x	deducted x marks for mis-copy
MR - x	deducted x marks for mis-read
isw	ignored subsequent working
bod	gave benefit of doubt
wr	work replaced by candidate

Application of mark scheme

Correct answer without working	mark as in scheme
Incorrect answer without working	zero marks unless specified otherwise

Award method and accuracy marks as appropriate to an alternative solution using a correct method or partially correct method.

Free-Standing Mathematics Qualification
Intermediate Level – Handling and Interpreting Data (6986)
Answers and Marking Scheme - January 2005

Answers and Marking Scheme

Question 1

(a)	15	B1	
(b)	12 times faster in the first half Only 3 times faster in second half	B1 B1	Need values OR 2 min 6 sec quicker in first half B1
(c)	Time is 138 minutes 47 seconds = 138.78 minutes Times is $\frac{138.78}{26.2}$ = 5.2969 = 5 minutes 18 seconds	B1 M1 A1 A1	Allow $\frac{138.47}{26.2}$ or $\frac{138 \text{ min } 47 \text{ sec}}{26.2}$ M1 = 5.285 A1 5 minutes 17 seconds SC3
	TOTAL	7	

Question 2

(a)(i)	$\text{Mean} = \frac{1418}{5}$ $= 283.60$	M1 A1	Accept 284 and 283.6
(ii)	$\text{Mean} = \frac{17.03}{5} = 3.41$	B1	Accept 3.406 & 3.4 or 3.40 M1A1 for (ii) if 0 in (i)
(b)	Plotting points Suitable scale	B2 B1	
(c)	Plot mean point Draw line	B1 B1	
(d)	Positive	B1	
(e)	£460	M1A1✓	Allow 450 – 470
(f)	$\frac{7 \times 72000}{100}$ $£5,040$	M1 A1	
	TOTAL	13	

Question 3

(a)	Cumulative frequency 0,1,7,19,35,39,47,53,57,58,60 Scale; Axes Plot at upper boundary Smooth curve passing all plotted points	B1 B1 B1 B1	
(b)(i)	450 – 470	M1A1✓	Ft if cum freq drawn But not full marks if B4 in (a) M1 440 – 480
(ii)	370	B1✓	Accept 360 – 380
(iii)	680	B1✓	Accept 675 – 685
(iv)	310	B1	ft (iii) – (ii)
(c)	Median Whiskers Quartiles	B1 B1 B1	At 100 and 1100
(d)	Much greater distances at Gatwick Greater range Interquartile range	B2 B1 B1	Maximum B3
	TOTAL	15	

Question 4

(a)	Angle 190° Number is $\frac{190}{360} \times 7200$ = 3800	B1 M1 A1	$\pm 2^\circ$ (3760 – 3840)
(b)	Radii are 5cm and 2cm Areas are in ratio 25 : 4 Number is $\frac{4}{25} \times 7200$ = 1152	B1 M1 A1 M1 A1	
(c)	Number is $\frac{210}{360} \times 1152$ = 672	M1 A1✓	ft: dep at least M1 gained in (b)
(d)	Fewer lorries Greater proportion of buses Fewer total overall Fewer vans Fewer cars	B1 B1 B1 B1 B1	OR same number of buses Maximum B2 More vehicles using the by pass.
	TOTAL	12	

Question 5

(a)	1993 – 1015 [thousands]		
	978 000	B1	Condone 978
(b)	Totals 1993 and 1015 given, not in millions	B2	Maximum B2
	False zero, zero is 1000	B2	
	Decreasing is correctly shown	B2	
	Imprecise answer; no mark for 1100 etc	B1	
	Diagram out of date	B1	
	TOTAL	3	