UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper

for the guidance of teachers

0580 MATHEMATICS

0580/12   Paper 1 (Core), maximum raw mark 56

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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Abbreviations

cao   correct answer only
cso   correct solution only
dep   dependent
ft   follow through after error
isw   ignore subsequent working
oe   or equivalent
SC   Special Case
www   without wrong working

Qu.	Answers	Mark	Part Marks
1	$-2(°C)$	1	
2	95.52	1	
3	35	2	**M1** for $4 \times 8 + 3$ or $4 \times 8\frac{3}{4}$ or $4 \times 8\frac{1}{2} + 1$ or $\frac{525}{15}$ or $\frac{510}{15} + 1$ **SC1** for answer 34
4	$\frac{9}{8} < 115\% < 1\frac{1}{6} < 1.2$	2	**M1** for all decimals (or %), allow 1 error or **B1 for 3 in correct order** eg $115\% < \frac{9}{8} < 1\frac{1}{6} < 1.2$ **SC1** for reverse order
5	7.5	2	**M1** for $12 \times 5 \div (1 + 5 + 2)$ oe
6	4.58 cao	2	**B1** for 4.6(0) or 4.57 or 4.579 or 4.578 or 4.5789 or 4.5788… **SC1** for 4.58^3 only
7	**(a)** 7.34×10^8	1	
	(b) 5.87×10^{-4}	1	
8	$399\,500\ (\le P <)\ 400\,500$	1, 1	**SC1** for both correct reverse order
9	**(a)** 6.25 cao	1	
	(b) 0.16 cao	1	
10	**(a)** $(x =)$ 20	1	
	(b) $(y =)$ 65	2	**B1** for $ABD = 65°$ or $ADB = 95°$
11	**(a)** $x + 2x + 2x + 75 = 360$	1	Allow $4x + x + 75 = 360$ or $5x + 75 = 360$ or $5x = 285$
	(b) $(x =)$ 57 cao	2	**M1** correct first step after $5x + 75 = 360$ ie $5x = 360 - 75$ or $x + 15 = 72$ If zero **SC1** for correct solution to their linear equation seen in part **(a)** or in part **(b)** if **(a)** is blank

12	$2\frac{1}{12}$ cao **with correct working**	3	**M1** $(1+)\frac{6}{12}+\frac{4}{12}+\frac{3}{12}$ oe **A1** $(1)\frac{13}{12}$ or $=\frac{}{12}$
13	$(x =)\ 3\quad (y =) -1$ www	3	**M1** for consistent multiply and consistent add/ subtract as appropriate Allow computational but not method errors Likely $5x + 4x = 17 + 10$ Other methods allowed **A1** for correct x or y
14	**(a)** 13	1	
	$(\text{Red})\frac{19}{60}\quad (\text{Yellow})\frac{\text{their }13}{60}$ oe	1ft	All needed for the mark isw cancelling or decimals after correct fractions seen
	$(\text{Blue})\frac{28}{60}$ oe		
	(b) Blue	1ft	**Strict** ft their highest frequency
15	11.3	3	**M2** $22 \times 1.852 \times 1000/3600$ oe or **M1** $22 \times$ figs 1852 or $22 \times 1000/3600$
16	**(a)** Any multiple of 56	1	
	(b) (i) 3, 9, 27 (in any order)	2	**B1** for 2 correct
	(ii) 3 cao	1	
17	**(a)** $y = -2$ or $y + 2 = 0$	1	
	(b) (i) Ruled line parallel to **B** through $(0, 2)$	1	Must at least go through $(-1, -1)$
	(ii) $(y =)\ 3x + 2$ cao final answer	2	**B1** $3x + j\ \ j \neq -1$ or 2 or $kx + 2\ \ k \neq 3$ **SC1** for $3x + 2$ then spoiled by the final answer
18	**(a)** 30	1	
	(b) (i) 12	2ft	**M1** for $360 \div$ their **(a)** (Any answer for **(a)** for method) Only ft for **A1** if $360 \div$ their **(a)** is an integer Other methods allowed if complete
	(ii) 150 cao	1	
19	**(a) (i)** $(1, 5)$	1	
	(ii) D at $(5, 2)$	1	
	(iii) Lines $x = 3$ and $y = 3.5$ only drawn	1	Dep on **(a)(ii)** Extra line(s) zero Lines should at least meet the sides
	(b) Kite Trapezium	1, 1	1 mark for each
20	**(a)** Petrol cao	1	
	(b) 72	2	**M1** for $360 \times 12 \div 60$
	(c) $\frac{1}{10}$	2	**B1** $\frac{6}{60}$ or $\frac{3}{30}$ or $\frac{2}{20}$ or 0.1 or 10%