UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 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.

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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	134	1	
2	512(.00)	1	
3	**(a)** –7 **(b)** (+)6	1 1ft	 ft –1 – their **(a)**
4	1.43×10^9 final answer	2	**B1** for answers of 1.43×10^n ($n \neq 0$) or figs 143 or $1.429(\ldots.) \times 10^9$ **SC1** for answer of 1.42×10^9 or 1.4×10^9
5	$899.5 \leqslant w < 900.5$	2	**B1** for 1 correct or **SC1** for correct but reversed.
6	10 www	2	**M1** for $15 \div 6$ soi or **B1** for $\frac{6}{4} = \frac{15}{EF}$ oe or better
7	662.794 to 663.304…. final answer	3	**M2** for 600×1.034^3 or **M1** for $(600 + 0.034 \times 600) \times 0.034$ or $(600 \times 1.034) \times 0.034$ and **M1 dep** correct method for the remaining time.
8	**(a)** $4p(2q + 3r)$ **(b)** $(p =) \frac{s}{4(2q+3r)}$ oe	2 1ft	**B1** for $p(8q + 12r)$ or $2p(4q + 6r)$ or $4p(aq + br)$ a, b integers or $4(2pq + 3pr)$ ft if p is a common factor in **(a)** or in working in **(b)**
9	**(a)** 245 **(b)** 360	1 2	 **M1** for $\frac{3}{7} \times 840$ or **SC1** for answer 480

10	**(a)** $\frac{15}{43}$ cao final answer	1	If zero in **(a)** and **(b)** then **SC1** if both **(a)** and **(b)** are correct decimals or percentages as answers. (Mark as 0 for **(a)** and SC1 for **(b)**)
	(b) $\frac{42}{43}$ cao final answer	1	
	(c) 0 or $\frac{0}{43}$	1	
11	**(a)** (x=) 35	2	**B1** for angle $BDC = 90$ soi May be marked on the diagram
	(b) (y=) 55	1ft	ft 90 – their x
12	**(a)** **(i)** (x=) 6 **(ii)** (x=) –2	1 1	
	(b) 3	1	
13	**(a)** Two stage proof	2	**M1** for $\frac{1\times7+2\times5}{5\times7}$ or $\frac{1\times7}{5\times7}+\frac{2\times5}{5\times7}$ or alt $\frac{4}{5}-\frac{2}{7}$ or $\frac{5}{7}-\frac{1}{5}$ **M1dep** for 1– their $\frac{17}{35}$ or $\frac{18}{35}+\frac{17}{35}=\frac{35}{35}$ or alt $\frac{28-10}{35}$ oe or $\frac{25-7}{35}$ oe
	(b) $\frac{6}{35}$ final answer	2	**M1** for $\frac{1}{3}\times\frac{18}{35}$ oe If zero **SC1** for answer of $\frac{12}{35}$
14	**(a)** **(i)** $\frac{10\times8-0.5\times90}{5}$	1	
	(ii) 7(.0) cao	2	**B1** for 80 (from 10 × 8) or 45 (from 0.5 × 90) or 5 (denominator) seen
	(b) 5.92 or 5.919(…..)	1	
15	**(a)** **(i)** 175 **(ii)** 70	1 1	
	(b) 2 points plotted correctly (±1mm).	1	
	(c) Positive	1	

16	**(a)** Rotation or enlargement 180° (SF) –1 (about or centre) origin oe **(b)** Correct translation 5 right and 3 down	1 1 1 2	Two transformations named, zero for **(a)** Independent Independent **B1** for 5 right or 3 down applied
17	**(a)** $\begin{pmatrix}-12\\-3\end{pmatrix}$ **(b)** $\begin{pmatrix}-3\\3\end{pmatrix}$ **(c)** **(i)** Vector **AB** drawn **(ii)** 134° to 136°	2 1 1 1	**B1** for 1 component correct. Diagonal line, ignore working lines
18	**(a)** **(i)** 12.7 to 12.73 **(ii)** 161 to 162.1 **(b)** 254 to 255	2 2ft 2	**M1** for $\frac{x}{18} = \sin 45$ or $\frac{x}{18} = \cos 45$ or better **M1** for method for squaring their **(a)(i)**. **M1** for $\pi \times 9^2$