UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0580 MATHEMATICS

0580/13 Paper 13 (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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Qu.	Answers	Mark	Part Marks
1	109	1	
2	10 26 (am), 10:26, 10.26	1	
3	12, 16, 24	2	**W1** for any **2** correct out of their 2 or 3 answers in the range **or W1** for **all 3** with other factors outside the range.
4	**(a)** > **(b)** <	1 1	
5	20	2	**M1** for $\frac{\text{their}\,(21000-16800)}{21000}$ or $\frac{4200}{21000}$
6	$y = 3x - 2$ oe final answer	2	**W1** for $3x + j,\ j \neq 5$ **or W1** for $kx - 2,\ k \neq 0$
7	$\frac{11}{40}$ or equivalent fraction isw www Condone if followed by 0.275 or 27.5%	2 cao	**M1** for $\frac{3\times8}{5\times8}+\frac{5\times1}{8\times5}$ or $\frac{5}{40}+\frac{24}{40}$ or 0.6 + 0.125 or $1-\frac{5}{40}-\frac{24}{40}$ or 1 – 0.6 – 0.125 or 600 + 125 or 60 + 12.5 or 1000 – 600 – 125 **seen** If **M0,** then **SC1** for $\frac{11}{40}$ with no, incomplete or wrong working.
8	**(a)** 519.504 **(b)** 520	1 1ft	 Only ft if their **(a)** is **4 figs** or more
9	44.2 or 44.15 to 44.19	2	**M1** for $3.75^2 \times \pi$
10	**(a)** 2 **(b)** A M T	1 2	 **W1** for 4 letters listed, 3 of them correct **or W1** for 2 and only 2 correct
11	**(a)** m^{-2}, $\frac{1}{m^2}$ o.e. **(b)** $5k^6$	1 2	 **W1** for $5k^n$ $(n \neq 0)$ or mk^6 $(m \neq 0)$.
12	12	3	**M1** for exterior angle 180 – 150 implied by 30 (could be on the diagram) **and M1 dep** for 360 ÷ their 30
13	**(a)** $15 - 20h$ final answer **(b)** $24d^3 + 4de^2$ final answer	1 2	 **W1** for $24d^3$ **or** $(+)4de^2$ seen
14	**(a)** 16.1 **(b)** 16100	2 1ft	**M1** for 4 × 2.3 × 1.75, or better 1000 × their **(a)**

15	**(a)** $2r + 3s$ final answer **(b)** $g - 5f^2$ final answer	1 2	 **W1** for g **or** for $-5f^2$ seen
16	276 or 276.3 to 276.5	3	**M2** for $2\pi \times 4 \times 11$, or better, seen **or M1** for $2\pi \times 4$ **SC1** for $4 \times \pi \times 11$ or 138…., seen
17	(x =) 4 (y =) 7 www	3	**M1** for adding or multiplying and subtracting (allow errors in arithmetic operations) **or** any other correct methods **A1** for one correct variable.
18	**(a)** 90° **(b)** 70° **(c)** 35°	1 1 1ft	 ft their **(b)** ÷ 2 only
19	**(a)** $\begin{pmatrix} 18 \\ 0 \end{pmatrix}$ **(b)** $\begin{pmatrix} -5 \\ 8 \end{pmatrix}$	1, 1 1, 1	
20	**(a)** 45 **(b)** 1.5 o.e. **(c)** horizontal line from (5.5, 40) to (6.5, 40) diagonal line from their (x, 40) to (x + ½ , 0)	1 1 1 1ft	 Allow 1 h(our) 30(min) or 1:30 Independent
21	**(a)** 13.2 or 13.22 to 13.23 **(b)** 8.22 to 8.23	3 2	**M2** for $\sqrt{(16^2 - 9^2)}$ or $\sqrt{175}$ **or M1** for $16^2 = x^2 + 9^2$ or better **M1** for $\cos 24 = \frac{CD}{9}$ or better