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

0580/11 Paper 11 (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	10 18 (am)	1	
2	**(a)** 41% 0.43 $\frac{4}{9}$	1	accept decimals
	(b) $0.3 < \frac{1}{3}$ only	1	
3	$\frac{3}{5}$	2	**W1** for $\frac{21}{35}$ **M1** $1 - \frac{14}{35}$ oe **SC1** answer $\frac{2}{5}$
4	$y = 4x - 3$ oe	2	**W1** for $y = 4x + j$, or $y = kx - 3$ If zero, **SC1** for $4x - 3$ $k \neq 0$
5	287°	2	**W1** for 73 or 107 marked in correct position **at *P*** or **M1** 107 + 180
6	**(a)** –7	1	
	(b) 13	1	
7	10	2	**M1** for $\frac{\text{their}\,(17000 - 15300)}{17000}$ **W1** for $\frac{15300}{17000} \times 100$ or answer 90(%)
8	**(a)** $x + x + 3 + 2x - 7 = 52$ or better	1	
	(b) 14	2ft	**W1** for $4x$ or 56 seen Follow through their **(a)** if linear and equal to 52 for 1 or 2 marks.
9	2.5(0) or 2.503…. to 2.504	3	**M1** for $\pi r^2 = 19.7$ soi **M1** dep for $19.7 \div \pi$
10	**(a)** p^7	1	
	(b) $4q^6$	2	**W1** for $4q^n$ or kq^6 $k \neq 0$
11	18	3	**M1** for exterior angle 180 – 160 implied by 20 (could be on diagram) **M1 dep** for 360 ÷ their 20
12	**(a)** 0.01 or $\frac{1}{100}$	1	
	(b) 1	1	
	(c) 7	1	

13	(x =) 4 (y =) – 1	3	**M1** for multiplying and subtracting or adding as appropriate. (allow errors in arithmetic operations) or any other correct methods. **A1** for one correct variable
14	**(a)** 90° **(b)** 72° **(c)** 90° **(d)** 36°	1 1 1 1	 Ft 180 – (54 + their **(c)**)
15	**(a)** $\begin{pmatrix} 4 \\ -9 \end{pmatrix}$ **(b)** $\begin{pmatrix} 0 \\ 28 \end{pmatrix}$	1, 1 1, 1	
16	lines of symmetry 1 0 order rotational 1 4	1, 1 1, 1	
17	**(a)** **(i)** 0.3 oe **(ii)** 18 **(b)** horizontal line to (30,3) line from (30,3) to (45,0) OR from their (x,3) to (their x + 15, 0)	1 1 1 1ft	 Follow through their **(a)(i)** × 60
18	**(a)** $y(3y - 7x)$ final answer **(b)** $4p^2 + 17pr + 2r^2$ final answer	1 3	 **W2** for 2 correct terms in answer. **W1** for 1 correct term in answer. OR **M1** for $4p^2 + 5pr$ and **M1** ind for $12pr + 2r^2$
19	**(a)** **(i)** 12 **(ii)** 120 ft **(b)** **(i)** 625 **(ii)** 0.0625	1 2 1 1ft	 **M1** for attempt to multiply their **(a)(i)** by 10 soi. or their **(b)(i)** ÷ 10 000