UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

0581 MATHEMATICS

0581/12 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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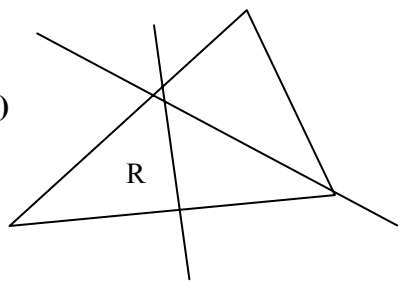
Abbreviations

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	64	**1cao**	
2	52	**1**	
3	**(a)** $\frac{3}{10}$ or 0.3 or 30% **(b)** 0 or $\frac{0}{10}$ or 0%	**1** **1**	
4	$58.25 \leqslant d < 58.35$	**1,1**	**SC1** for both correct values but reversed
5	Working must be shown.	**2**	**M1** $\frac{14}{9}$ and $\frac{16}{9}$ **M1** $\frac{14}{16} = \frac{7}{8}$ oe or visible cancelling
6	0.8^2	**2**	**M1** conversion of $\frac{16}{27}$ (= 0.5(9..)) and 0.8^2 (= 0.64) to decimals seen
7	5.51×10^3	**2**	**B1** for 5.508×10^3 or figs 551 or 5.5×10^3
8	euros (with correct working) or (6)€	**2**	**M1** one of 6×1.9037 or $11.5 \div 1.9037$ or $11.5 \div 6$ seen
9	$4x^{-24}$ or $\frac{4}{x^{24}}$	**2**	**B1** $4x^n$ **B1** $\frac{k}{x^{24}}$ or kx^{-24} for any numerical k, n
10	14.4(……)	**3**	**M2** for $\sqrt{(17^2 - 9^2)}$ or **M1** for $17^2 = x^2 + 9^2$ or better seen
11	**(a)** (0)700 or 7 am **(b)** 1700 or 5 pm	**2** **1**	**M1** $100 - (5 \times \text{their}(22 - 6) + \text{their}(13 - 8))$ or better soi

12	**(a)** $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$ **(b)** $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$	**1,1** **1ft**	**B1** for 1 correct component. **SC1** for both correct but written as coordi the answer. ft their **(a)** with signs reversed. Not a strict follow through.
13	**(a)** $\frac{80}{20-4\times4}$ **(b)** 20 **(c)** 14.0	**1** **1** **2**	Condone either 78 for 80 or 22 for 20 but not both. **SC1** for answer 13 if clearly from $78 \div (22 - 4 \times 4)$ or $78 \div (22 - 16)$. **B1** for 13.9(9…….) or 14 in working or in the answer.
14	**(a)** (1, 2,) 3, 6, 9, (18) **(b)** 2, 3 **(c)** 54, 72, 90	**2** **1** **1cao**	**B1** for 2 correct.
15	**(a)** $2x - 11y$ final answer **(b)** $3x(2x - 3y)$ final answer	**2** **2**	**M1** for $6x - 15y$ or $-4x + 4y$ or better seen or **B1** for $2x \pm jy$ or $kx - 11y$. **B1** for $3(2x^2 - 3xy)$ or $x(6x - 9y)$ or $3x(2x - by)$ or $3x(ax - 3y)$ $(a, b \neq 0)$
16	**(a)** 17.5(……) **(b)** 20.38 to 20.44	**2** **2ft**	**M1** for $\sin 38 = \frac{x}{28.5}$ or better **M1** for tan (*BCD* =) their **(a)** ÷ 47.1
17	**(a)** Diameter **(b)** 27	**1** **3**	 **M1** for (180 – 54) ÷ 2 **M1** ind for 90 – their angle *OBD*.
18	**(a) (i)** **(ii)** **(b)** 	**2** **2** **1**	**B1** correct line **B1** 2 sets of correct arcs **B1** correct line **B1** two sets of correct arcs correct region, shaded or shown by the letter R

19	**(a) (i)** 8 (min) **(ii)** 7.8 (km) **(b) (i)** Ruled line from (07 20, 0) to (08 16, 9.4) **(ii)** (0)7 38 to (0)7 40 **(iii)** 5.8 (km) to 6.4 (km) **(iv)** 17 to 19 (min)	**1** **1** **1** **1ft** **1ft** **1ft**	 Ignore line continued above school. Follow through their graph Follow through their graph. Follow through their graph