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

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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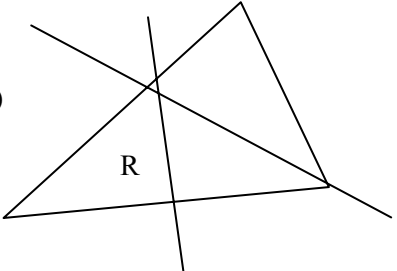
Abbreviations

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	64	1cao	
2	52	1	
3	**(a)** $\frac{3}{10}$ or 0.3 or 30%	1	
	(b) 0 or $\frac{0}{10}$ or 0%	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	2	**M1** $100 - (5 \times \text{their}(22 - 6) + \text{their}(13 - 8))$ or better soi
	(b) 1700 or 5 pm	1	

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

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