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

0580/33 Paper 33 (Core), maximum raw mark 104

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
art anything rounding to
soi seen or implied

Qu.	Answers	Mark	Part Marks
1 (a)	1750	2	M1 $\frac{7}{4+7} \times 2750$ oe
(b)	660	2	M1 $\frac{24 \times 2750}{100}$
(c)	$\frac{3}{25}$	2	W1 for equivalent fractions
(d)	3135 cao	3	M2 $\frac{114}{100} \times 2750$ oe If M0 then M1 for $\frac{14}{100} \times 2750$ or 385 seen
(e)	9475	1	cao
(f)	3.5×10^4	1	cao
2 (a) (i)	Any 5 multiples of 7	2	–1 each error or omission
(ii)	Two multiples of 28	2	W1, W1
(b) (i)	25	1	cao
(ii)	17	1	cao
(c)	4	1	cao
(d)	(k =) 2, (m =) 19	2	W1, W1

3 (a)	3, 5, –1	3	1 each
(b)	7 points plotted reasonable freehand curve	P3ft C1	P2 for 5 or 6 points, P1 for 3 or 4 points
(c)	–1.3, 2.3 strict ft their intercept with $y = 2$	2ft	W1 for either
(d) (i)	–7, –1, 5	2	W1 for 2 correct
(ii)	Correct ruled line	2	SC1 for freehand line, or ruled short line crossing curve twice Or their 3 points plotted
(iii)	2	1	cao
(e)	(–3, –7) and (2, 3)	2ft	1 for either
4 (a)	(x =) 7.5	3	W1 for correct bracket expansions M1ft for collecting their terms correctly
(b)	(f =) $\frac{g+5}{7}$	2	M1 for one correct step seen
(c)	$2y(3x-5z)$	2	W1 for $2(3xy-5yz)$ or $y(6x-10z)$ or $2y(ax+bz)$ where a and b are integers
5 (a)	Congruent	1	cao
(b)	36° or 36.0° art	2	M1 for tan angle = $\frac{8}{11}$
(c) (i)	20	2	M1 for $\frac{1}{2}\times 5\times(5+3)$ oe
(ii)	40	1ft	ft is 2 × their **(c)(i)**
(d)	14	3	W1 for $x+x+x+3+x+3=62$ o.e. M1ft for correct first step but must be from a linear equation $ax+b=k$

6 (a)	Point *C* constructed with arcs, AC = 11 cm BC = 9 cm	2	W1 if correct without arcs
(b)	46°	1ft	
(c) (i)	Bisector of angle *ABC* with 4 correct arcs and reaches AC	2ft	W1 if accurate without arcs or accurate with arcs and short
(ii)	Perpendicular bisector of *AC*, with correct arcs	2ft	W1 if accurate without arcs
(d) (i)	0.7 to 0.8 cm	1ft	ft their PQ provided on their AC
(ii)	Region of triangle between their constructions	1	dep on W1 and W1 in **(c)(i)** and **(c)(ii)**
(e)	500	2	W1 for figs 5 or 9 and 4500 oe seen
7 (a) (i)	21	1	cao
(ii)	33	1	cao
(iii)	$4n + 1$ oe	2	W1 for $4n + j$ or $kn + 1$, where k not equal to zero, seen
(b) (i)	40	1	cao
(ii)	3	2	W1 for embedded answer or M1 for $1(1 + p) = 4$ oe
(iii)	10300	1ft	ft is $100 \times (100 +$ their p) evaluated
8 (a) (i)	$\frac{19}{50}$	1	Accept 0.38 or 38%
(ii)	$\frac{29}{50}$	1	Accept 0.58 or 58%
(iii)	$\frac{40}{50}$ oe	1	Accept 0.8 or 80%
(iv)	0	1	Accept $\frac{0}{50}$, 0%, nil or zero
(b)	50 or all	1	

9 (a)	67	2	M1 their 469 ÷ 7
(b)	62	1	cao
(c)	Correct labelled vertical scale Bars equal width (with consistent/without gaps), or lines All 7 bars/lines correct height	1 1 3ft	W2ft for 5 or 6 bars correct, W1ft for 3 or 4
10 (a)(i)	325.65	2	M1 for 500 × 0.6513 soi
(ii)	460.62 or 460.61	3	M1 for 300 ÷ 0.6513 A1 for 460.6 or 461 or 460.617…. W1 **indep** for their visible answer corrected to 2dp
(b)	349.70	3	M1 for $\frac{325\times2\times3.8}{100}$ or 24.7(0) M1dep for their interest added to 325
(c)	617.98	3	M2 for 550×1.06^2 or M1 for 550 × 1.06 oe and M1 dep for second year Penalise accuracy only once in the question
11 (a)(i)	Reflection in the x-axis (or $y = 0$)	1, 1	
(ii)	Rotation, about origin, 90° (anti-clockwise)	1, 1, 1	Accept (0,0) or O Accept (+) 90, – 270, ¼ turn
(b)(i)	Correct translation	2	W1 for correct shape and orientation translated by $\begin{pmatrix}6\\0\end{pmatrix}$ or $\begin{pmatrix}0\\4\end{pmatrix}$ or $\begin{pmatrix}4\\6\end{pmatrix}$
(ii)	Correct enlargement	2	W1 for correct orientation and size but wrong position