CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

0580 MATHEMATICS

0580/37 **Paper 3**

Due to a security breach we required all candidates in Kuwait who sat the paper for 0580/32 to attend a re-sit examination in June 2014. Candidates outside Kuwait sat only the original paper and were not involved in a re-sit.

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MARK SCHEME for the May/June 2014 series

0580 MATHEMATICS

0580/37 Paper 3 (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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Abbreviations

cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

Question	Answers	Mark	Part Marks
1 (a)	14 30 or 2 30pm	**2**	**B1** for 1930 or [0]610 or 2 30 or 2 30am or **M1** 11 10 + (8 20 – 5)
(b)	18 40	**1**	
(c) (i)	540	**3**	**B2** for 539.6[…] or 539.7 or **M1** for 862 ÷ 1.5972 **B1** for rounding their answer if decimal, to nearest integer
(ii)	481.6[0]	**2**	**M1** for 3 × 430 × 0.04 soi by 51.6 [0] or 430 × 1.12 oe
(d) (i)	96 80 18 30	**1** **1** **1**	if 0 scored **SC1** for time total of 114 and angle total of 110
(ii)	2 correct sectors with labels ± 2°	**2**	**B1** for correct line ± 2° **B1** for correct labels.
(iii)	25	**1**	
2 (a)	1 [h] 50 [min]	**2**	**M1** for 4.5 × 20 + 20 soi by 110
(b)	2.8	**2**	**M1** for 4.8 × 7 ÷ (3 + 7 + 2) or better or for 2 .8 seen in working
(c)	27	**1**	
(d)	B A 34.9 or (34.8 to 35)	**5**	**M1** for 24 × 28 soi **A1** for 672 **M1** for $15^2 \times \pi$ soi **A1** for 706.8 to 707 **SC4** for correct area, accept negative value for area for 4 marks.

3	(a) (i)	correct reflection (− 5, 1)(−4, 1)(−4, 3)	2	**SC1** for correct reflection in $x = k$ or $y = -1$
	(ii)	correct rotation (−3,−1)(−2,−1)(−2,−3)	2	**SC1** for correct rotation, incorrect centre
	(iii)	Enlargement [SF] 3 [Centre] (0,0) oe	1 1 1	
	(b)	9	2	**M1** for $0.5 \times 6 \times 3$ oe
	(c) (i)	(−5, 4)	1	
	(ii)	Z plotted at (2, 4)	1	
	(iii)	Parallelogram	1	
4	(a) (i)	4096	1	
	(ii)	1.5	1	
	(iii)	1	1	
	(b)	53 or 59	1	
5	(a) (i)	3	2	**M1** for ordered list of at least 11 numbers
	(ii)	2	1	
	(iii)	11	1	
	(iv)	4.15	2	**M1** for *their* sum of frequencies $\sum f \div 20$
	(b) (i)	Same [total] oe	1	
	(ii)	XR united are more consistent oe	1	
	(c) (i)	75 550	1	
	(ii)	76 000	1	
	(d)	13.2(0)	3	**B1** for $152 + 4c = 86 + 9c$ oe **M1FT** for correct first step dep on linear equation

6	**(a) (i)**	Blackcurrant	**1**	
	(ii)	Arrow at 0.25	**1**	
	(b)	1000	**1**	
	(c) (i)	1.23×10^5	**2**	**B1** for figs 123
	(ii)	50	**1**	
	(d)	6.25	**2**	**M1** for $50 - 5 \times 8.75$ or better
7	**(a) (i)**	Radius	**1**	
	(ii)	Chord	**1**	
	(b)	37	**2**	**M1** for $180 - (90 + 53)$ or **B1** 90 implied at F
	(c)	41 Alternate angles	**1** **1**	
8	**(a)**	200 or 198 to 202	**1**	
	(b)	5600	**2**	5244 to 5964 with supporting working is 2 **M1** for figs14 × figs4 soi by figs56
	(c)	Correct shaded area	**2**	**B2** for circle 3cm from centre of pond or **B1** for circle round pond
			2	**B2** for line drawn 5cm from EF or **B1** for line parallel to EF
			1	Correct region shaded dep on at least B1 B1
	(d)	Correct angle bisector of ABC with 2 correct sets of arcs ± 2°	**2**	**B1** for correct line without arcs.
	(e)	91	**3**	**M2** for $(2836.35 \div (3 \times 495)) \times 100 - 100$ oe or better or $\frac{2836.35 - 1485}{1485} \times 100$ oe or better
	(f)	62.8 or 62.83 – 62.84	**2**	or **M1** for 3×495 or $\frac{2836.35}{3}$ oe **M1** for $20 \times \pi$

9 (a) (i)	11, −1, −5	**3**	**B1** for each correct
(ii)	7 correct points plotted	**3FT**	**B2** for 5 or 6 points correctly plotted **B1** for 3 or 4 points correctly plotted
	Correct smooth curve through all 7 correct points	**1**	
(iii)	− 0.8 to − 0.6 and 2.6 to 2.8	**2**	**B1** for each correct
(b)	$y = -x \pm k$ oe $k \neq 0$	**3**	**B2** for $y = -x$ **M1** for rise over run with correct values or **SC2** for $-x \pm k$, $k \neq 0$ **SC1** for $y = x \pm j$, j can = 0
10 (a) (i)	3.5	**1**	
(ii)	5	**2**	**M1** for one correct step
(b)	$2p$	**1**	
(c)	$5(x + 3y)$	**1**	
(d)	$x + 13$	**2**	**M1** for kx +13 or $x + k$ or $4x$ −8 or $-3x$ +21
(e)	$\frac{2-3b}{2}$ or $1-\frac{3b}{2}$	**3**	**M2** for $2a = 2 - 3b$ or **M1** for $3a + 3b = a + 2$ or better