

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.

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 $862 \div 1.5972$ B1 for rounding their answer if decimal, to nearest integer
		(ii)	481.6[0]	2	M1 for $3 \times 430 \times 0.04$ 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 $\pm 2^\circ$	2	B1 for correct line $\pm 2^\circ$ B1 for correct labels.
		(iii)	25	1	
2	(a)	1 [h] 50 [min]	2	M1 for $4.5 \times 20 + 20$ soi by 110	
	(b)	2.8	2	M1 for $4.8 \times 7 \div (3 + 7 + 2)$ 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.	

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3	(a) (i)	correct reflection $(-5, 1)(-4, 1)(-4, 3)$	2	SC1 for correct reflection in $x = k$ or $y = -1$ SC1 for correct rotation, incorrect centre M1 for $0.5 \times 6 \times 3$ oe
	(ii)	correct rotation $(-3, -1)(-2, -1)(-2, -3)$	2	
	(iii)	Enlargement [SF] 3 [Centre] (0,0) oe	1 1 1	
	(b)	9	2	
	(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 M1 for <i>their</i> sum of frequencies $\sum f \div 20$ B1 for $152 + 4c = 86 + 9c$ oe M1FT for correct first step dep on linear equation
	(ii)	2	1	
	(iii)	11	1	
	(iv)	4.15	2	
	(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	

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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 figs $14 \times \text{figs } 4$ so by figs 56
	(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 $\pm 2^\circ$	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 $20 \times \pi$	

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9	(a) (i)	11, -1, -5	3	B1 for each correct
	(ii)	7 correct points plotted Correct smooth curve through all 7 correct points	3FT 1	B2 for 5 or 6 points correctly plotted B1 for 3 or 4 points correctly plotted
	(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	