CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0580 MATHEMATICS

0580/33 Paper 3 (Core), maximum raw mark 104

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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	Answer	Mark	Part marks
1 (a) (i)	2, 1, 3, 5, 4, 3, 2	**2**	**M1** for 4 correct frequencies or all tallies correct and frequency column blank or for all frequencies correct in tally column
(ii)	13	**1**	
(iii)	13.25	**2**	**M1FT** for attempt at *their* $\Sigma(xf) \div 20$
(iv)	23 50 cao	**1**	
(b) (i)	16	**1**	
(ii)	6	**1**	
(iii)	one correct comment	**1**	examples; Mode for Sparke(16) greater than mode for Pherlak(13) ; the range is the same for both; the mean is the same for both [13.25]; the total [number of trains] is the same [265]; median for Sparke(13.5) greater than median for Pherlak(13)
2 (a)	equilateral isosceles right-angled or scalene	**3**	**B1** for each
(b) (i)	40	**1**	
(ii)	86 **cm²**	**2** **1**	**M1** for $8 \times 12 - 2 \times 5$ oe **B1indep** for cm^2
(c) (i)	angle [in a] semi-circle [=90]	**1**	accept any correct equivalent statement
(ii)	14.8	**3**	**M2** for $\sqrt{16^2 - 6^2}$ oe or better or **M1** for $AC^2 + 6^2 = 16^2$ or better
(iii)	56.0 to 56.144	**5**	**M2** for $\pi \times 8^2 \div 2$ oe or **M1** for $\pi \times 8^2$ **M1** for $6 \times$ *their* **(c)(ii)** $\div 2$ oe or 44.4[…] **M1dep** for the area of *their* semi-circle – the area of *their* triangle

Question	Answer	Mark	Part marks
3 (a) (i)	76, 124	2	**B1** for each or **SC1** for two angles adding to 200
(ii)	pie chart with two correct sectors	1	**FT** their table providing two angles adding to 200
(b)	$\frac{4}{15}$ final answer **cao**	2	**M1** for $\frac{96}{360}$ or $\frac{24}{90}$ isw oe
(c)	72	2	**M1** for $\frac{405\times64}{360}$ or $\frac{405\times16}{90}$ oe
4 (a)	lines *AC* and *BC* correct and with correct arcs	2	**B1** for one of their lines the correct length or correct triangle no arcs
(b)	correct bisector with two pairs of correct arcs	2FT	**M1FT** for correct line without arcs or two pairs of correct arcs
(c)	5.9 to 6.3	1FT	
(d)	119 to 123	1FT	
5 (a)	47 200	3	**M2** for $40\,000 + \frac{40\,000\times3.6\times5}{100}$ or **M1** for $\frac{40\,000\times3.6\times5}{100}$ or 7200
(b)	443.8[0] cao	1	
(c)	142	3	**M2** for 24 × 1.25 + 32 × 3.5 or 30 + 112 or **M1** for either 24 × 1.25 or 32 × 3.5 or 30 or 112
(d)	45 30 105	3	**M2** for 3 (or 2 or 7) $\times\frac{180}{3+2+7}$ or better or **M1** for $\frac{180}{3+2+7}$ or better If zero scored **SC2** for the correct answers in the incorrect places
(e)	52.5	2	**M1** for 2 of 8[h] 45[m], 9[h] 30[m] and 8[h] oe
(f)	8 × 20 = 160	2	**B1** for 8 or 20 seen

Question	Answer	Mark	Part marks
6 (a)	0920	1	
(b)	1000	1	
(c)	20	1	
(d)	50	3	**M1** for use of 125 ÷ *their* time **B1** for time = 2.5
(e) (i)	points (0950, 125) and (1140, 0) plotted and joined with a ruled continuous line	1	
(ii)	1040 to 1050	1FT	**FT** *their* line
(f)	56.28 final answer cao	1	
7 (a)	–1	1	
(b) (i)	16.…–2.…–2….16	2	**B1** for 2 correct
(ii)	10 points correctly plotted Correct smooth curve	4	**B3FT** for 9 or 10 points correctly plotted **B2FT** for 7 or 8 points correctly plotted **B1FT** for 5 or 6 points correctly plotted
(iii)	Strict **FT** their intersection	2FT	**B1** for one correct value
8 (a) (i)	394.1 cao	2	**M1** for 394[. …] or $4 \times \pi \times 5.6^2$
(ii)	$7a - 4b$ final answer	2	**B1** for either $7a$ or $-4b$ in their final answer
(iii)	18	1	
(iv)	11	1	
(b)	[x =] 5 [y =] –2 Working must be shown	4	**M1** for correctly equating one set of coefficients **M1** for correct method to eliminate one variable **A1** for [x =] 5 **A1** for [y =] −2 If zero scored **SC1** for 2 values satisfying one of the original equations **SC1** if no working shown but 2 correct answers

Question	Answer	Mark	Part marks
9 (a) (i)	17	**1**	
(ii)	add 3 or +3	**1**	
(iii)	$3n + 2$ oe as final answer	**2**	**B1** for $3n + k$ or $jn + 2$ ($j \neq 0$)
(iv)	300 is in the 3 times table [and all the terms are 1 less or 2 more than the 3 times table]	**1**	accept any correct reason
(b) (i)	22 29	**2**	**B1** for either correct or **SC1** for a difference between the two terms of 7
(ii)	the difference increases by one each time	**1**	accept any correct explanation
10 (a)	three correct points	**2**	**B1** for two correct points
(b)	correct ruled continuous line of best fit	**1**	
(c)	negative	**1**	
(d)	2.25 to 2.30	**1**	**FT** *their* straight line of best fit if negative
(e)	460 to 560	**1**	**FT** *their* straight line of best fit if negative
11 (a)	correct reflection, points at (1, –4), (4, –4) and (1, –5)	**2**	**B1** for reflection in $y = k$
(b)	correct translation, points at (–4, 2), (–1, 2) and (–4, 3)	**2**	**B1** for translation $\begin{pmatrix} -5 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ 4 \end{pmatrix}$
(c) (i)	rotation [centre] (0, 0) oe 90° (anti-clockwise) oe	**3**	**B1** for each part
(ii)	enlargement [centre] (–4, –1) [sf] 2	**3**	**B1** for each part