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Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0580 MATHEMATICS

0580/32 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

Qu	Answer	Mark	Part answers
1 (a) (i)	2, 3, 4	**1**	
(ii)	2 or 3	**1**	
(iii)	7	**1**	
(iv)	7	**1**	
(v)	3	**1**	
(b) (i)	9754	**1**	
(ii)	Nine thousand seven hundred [and] fifty four	**1FT**	**FT** *their* **(b)(i)** provided it has at least four figures
(c) (i)	120	**1**	
(ii)	361	**1**	
2 (a)	$11e - 6f$ as final answer	**2**	**B1** for either $11e$ or $-6f$ in their final answer
(b)	67	**2**	**B1** for $8 \times 5 - 9 \times -3$ or 40 or +27
(c)	9	**2**	**M1** for algebraic first step correct $4x = 29 + 7$ or $x - \frac{7}{4} = \frac{29}{4}$ or better
(d)	k^{-7} oe	**1**	
(e) (i)	220	**1**	
(ii)	$4p + 10w = 350$	**1**	
(iii)	$[p =]$ 45, $[w =]$ 17	**3**	**M1FT** for correct elimination of one variable from their equations **A1** for $p = 45$ **A1** for $w = 17$ If zero scored, **SC1FT** for 2 values satisfying one of their original equations

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Qu	Answer	Mark	Part answers
3 (a) (i)	66.0 or 65.97 to 65.98 …	**2**	**M1** for $\pi \times 21$
(ii)	346 or 346.3 to 346.4 …	**2**	**M1** for $\pi \times (21 \div 2)^2$
(b) (i)	90	**1**	
(ii)	$\sqrt{(21^2 - 9^2)}$	**M2**	**M1** for $21^2 = AB^2 + 9^2$ or $[AB^2] = 21^2 - 9^2$
	18.97(……)	**A1**	
(c) (i)	85.5	**2**	**M1** for $0.5 \times 19 \times 9$
(ii)	87.5 or 87.65 to 87.823	**2FT**	**M1FT** for $0.5 \times$ *their* **(a)(ii)**
(d) (i)	Tangent	**1**	
(ii)	Radius	**1**	
(iii)	33.3 or 33.27(……)	**2**	**M1** for $\tan[\ ] = \frac{(21 \div 2)}{16}$ or better
4 (a) (i)	10 −2	**1, 1**	
(ii)	6 points correctly plotted correct smooth curve	**3**	**B2FT** for 5 or 6 points correctly plotted or **B1FT** for 3 or 4 points correctly plotted
(iii)	(1.4 to 1.6, 10.1 to 10.4)	**1**	
(b) (i)	6 3	**1, 1**	
(ii)	5 points correctly plotted correct curve	**3**	**B2FT** for 4 or 5 points correctly plotted or **B1FT** for 2 or 3 correct points
(c)	1.1 to 1.3 4.1 to 4.3	**1FT, 1FT**	

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Qu	Answer	Mark	Part answers
5 (a) (i)	Kite	**1**	
(ii)	1	**1**	
(b)	12	**1**	
(c) (i)	Translation	**1**	
	$\begin{pmatrix} 7 \\ -9 \end{pmatrix}$	**1**	
(ii)	Reflection	**1**	
	$y = -1$ oe	**1**	
(iii)	Enlargement [Scale Factor] $\frac{1}{2}$ [Centre] (−6, 0)	**1** **1** **1**	
(d)	Correct rotation	**2**	**B1** for a 'correct' rotation of 90° anti-clockwise or correct orientation but wrong position
6 (a) (i)	$3\frac{1}{4} \times 60$ [= 195]	**1**	
(ii)	22 45	**2**	**B1** for [Total time =] 6 [hours] 30 [minutes] or $6\frac{1}{2}$ [hours] or 390 [minutes] or **M1** for adding to 16 15 *their* attempt at $3\frac{1}{4} + 2\frac{1}{2} + 45$
(iii)	13 : 10 : 3	**2**	**B1** for $3\frac{1}{4} : 2\frac{1}{2} : \frac{3}{4}$ or 195 : 150 : 45 or better or **SC1** for 13,10,3 in the wrong order in a ratio
(b) (i)	78	**1**	
(ii)	30	**1**	
(iii)	87	**1FT**	195 – (*their* **(b)(i)** + *their* **(b)(ii)**)
(c)	8	**3**	**M2** for $\frac{22.5 - 20.7}{22.5} \times 100$ or better or **B1** for 22.5 – 20.7

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Qu	Answer	Mark	Part answers
7 (a) (i)	15	**1**	
(ii)	65	**1**	
(iii)	4	**1**	
(iv)	64.77 or 64.8	**3**	**M1FT** for $63 \times 12 + 64 \times 30 + 65 \times 35 + 66 \times$ *their* $15 + 67 \times 8$ **M1FT** dep for *their* total ÷ 100
(v)	Line at 72° to the given line	**3**	**M2** for 288° or 72° or **M1** for $\frac{80}{100} \times 360$ or $\frac{20}{100} \times 360$
(b)	64.5 65.5	**1, 1**	If zero scored, **SC1** for correct but wrong way round
8 (a) (i)	116	**2**	**B1** for 5.8 seen
(ii)	[0]65	**1**	
(b)	Correct construction of point *C* with arcs	**2**	**B1** for correct position but no arcs or incorrect arcs or **B1** for one correct arc
(c)	Correct point *D* with *AD* drawn	**3**	**B1** for [bearing] 135° **B1** for [*AD* =] 10 cm
(d)	630 [m] to 646 [m]	**3**	**M2FT** for *their* **(a)(i)** + 140 + 200 + *their CD* × 20 **M1FT** for *their CD* or *their CD* × 20

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Qu	Answer	Mark	Part answers
9 (a)	650 225 875	**1** **1** **1FT**	
(b)	546 or 546.4 or 546.44 or 546.45	**2**	**M1** for 10 000 ÷ 18.3
(c) (i)	1937 ÷ 2.83[3…] or 1937 ÷ 170 × 60	**M1**	
	683.6 to 684.4.....	**A1**	but not 684
(ii)	14 35	**2**	**B1** for 16 05 [time in Mumbai on arrival] or **B1** for 11 45 [time in Dubai on departure from Mumbai] or **M1** for 2 hours 50 mins – 1 hour 30 mins + 1315 or **SC1** for answer 2 35pm

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