**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
	5
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	l	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	<b>M1FT</b> for attempt at <i>their</i> $\Sigma(xf) \div 20$
	(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	<b>B1</b> for each
(b)	(i)	40	1	
	(ii)	86 <b>cm</b> <sup>2</sup>	2 1	M1 for $8 \times 12 - 2 \times 5$ oe B1indep for cm <sup>2</sup>
(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	<b>M2</b> for $\pi \times 8^2 \div 2$ oe or <b>M1</b> for $\pi \times 8^2$
				<b>M1</b> for 6 × <i>their</i> (c)(ii) ÷ 2 oe or 44.4[]
				<b>M1dep</b> for the area of <i>their</i> semi-circle – the area of <i>their</i> triangle

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Qu	estion	Answer	Mark	Part marks
3	(a) (i)	76, 124	2	<b>B1</b> for each or <b>SC1</b> for two angles adding to 200
	(ii)	pie chart with two correct sectors	1	<b>FT</b> their table providing two angles adding to 200
	(b)	$\frac{4}{15}$ final answer <b>cao</b>	2	<b>M1</b> for $\frac{96}{360}$ or $\frac{24}{90}$ isw oe
	(c)	72	2	<b>M1</b> for $\frac{405 \times 64}{360}$ or $\frac{405 \times 16}{90}$ oe
4	(a)	lines AC and BC correct and with correct arcs	2	<b>B1</b> for one of their lines the correct length or correct triangle no arcs
	(b)	correct bisector with two pairs of correct arcs	2FT	<b>M1FT</b> for correct line without arcs or two pairs of correct arcs
	(c)	5.9 to 6.3	1FT	
	( <b>d</b> )	119 to 123	1FT	
5	(a)	47 200	3	<b>M2</b> for $40000 + \frac{40000 \times 3.6 \times 5}{100}$
				or <b>M1</b> for $\frac{40000 \times 3.6 \times 5}{100}$ or 7200
	(b)	443.8[0] cao	1	
	(c)	142	3	<b>M2</b> for 24 × 1.25 + 32 × 3.5 or 30 + 112 or <b>M1</b> for either 24 × 1.25 or 32 × 3.5 or 30 or 112
	( <b>d</b> )	45 30 105	3	<b>M2</b> 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 <b>SC2</b> 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)	$8 \times 20 = 160$	2	<b>B1</b> for 8 or 20 seen

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Qu	estion		Answer	Mark	Part marks		
6	(a)		0920	1			
	(b)		1000	1			
	(c)		20	1			
	(d)		50	3	<b>M1</b> for use of $125 \div their$ time		
					<b>B1</b> 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	<b>FT</b> <i>their</i> line		
	(f)		56.28 final answer cao	1			
7	(a)		-1	1			
	(b)	(i)	16216	2	<b>B1</b> for 2 correct		
	(	(ii)	10 points correctly plotted Correct smooth curve	4	<b>B3FT</b> for 9 or 10 points correctly plotted		
			Correct smooth curve		<b>B2FT</b> for 7 or 8 points correctly plotted		
					B1FT for 5 or 6 points correctly plotted		
	(i	iii)	Strict <b>FT</b> their intersection	2FT	B1 for one correct value		
8	(a)	(i)	394.1 cao	2	<b>M1</b> for 394[] or $4 \times \pi \times 5.6^2$		
	(	(ii)	7a - 4b final answer	2	<b>B1</b> for either $7a$ or $-4b$ in their final answer		
	<b>(</b> i	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		

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Que	Question		Answer	Mark	Part marks
9	(a)	(i)	17	1	
		(ii)	add 3 or +3	1	
		(iii)	3n + 2 oe as final answer	2	<b>B1</b> 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	<ul><li>B1 for either correct</li><li>or</li><li>SC1 for a difference between the two terms of</li><li>7</li></ul>
		(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 <i>their</i> straight line of best fit if negative
	(e)		460 to 560	1	FT <i>their</i> straight line of best fit if negative
11	(a)		correct reflection, points at $(1, -4)$ , $(4, -4)$ and $(1, -5)$	2	<b>B1</b> for reflection in $y = k$
	(b)		correct translation, points at $(-4, 2), (-1, 2)$ and $(-4, 3)$	2	<b>B1</b> 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	<b>B1</b> for each part
		(ii)	enlargement [centre] (-4, -1) [sf] 2	3	<b>B1</b> for each part