CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/63 Paper 6 (Extended), maximum raw mark 40

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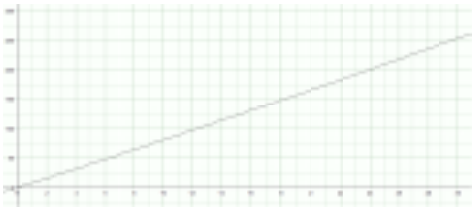
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Abbreviations
cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

A	**INVESTIGATION**			
1	**(a)**	561 601 641	**2**	**B1** for one from 561, 601 and 641 If 0 scored **SC1** for $24^2 - 3\times5$, $25^2 - 4\times6$, $26^2 - 5\times7$
	(b)	[T_9=] 801	**1**	**C** opportunity
	(c)	$40n + 441$ oe	**2**	**B1** for $40n + k$ or $jn + 441$ ($j > 0$) or **B1** for $(n + 21)^2$ and **B1** for $-n(n + 2)$ or better
	(d)	55	**1FT**	**FT** *their* **(c)** if answer is linear **C** opportunity
	(e)	All T-results end in 1 oe [and this ends in 3 oe] or [n =] 10.05 or 843 – 441 in not divisible by 40 oe	**1**	
2	**(a)**	11 or eleven	**1**	
	(b)	(top right) $n + 2$ oe (bottom) $n + 23$ oe	**1** **1**	
	(c)	[$(n + \mathbf{23})(n + \mathbf{23}) - n(n + \mathbf{2})$ oe] $n^2 + 46n + 529 \quad - n^2 - 2n$	**2**	**B1** for $n^2 + 46n + 529$ **B1** for $-n^2 - 2n$
3		$48n + 625$	**2**	**M1** for $(n + 25)^2 - n(n + 2)$
4	**(a)** **(i)**	$(n + 1 + 2w)^2 - n(n + 2)$ $n^2 + n + 2w + n + 1 + 2w + 2wn + 2w + 4w^2 - n^2 - 2n$	**M1** **A1**	or better Methods based on extending sequences or justifying by substitution do not score
	(ii)	15	**2**	**M1** for attempt at solving $4w^2 + 40w + 1 = 1501$ by factorising, formula, sketch, completing the square **C** opportunity
	(b)	[even +] even + 1 = odd	**1**	No wrong statements
Communication seen in one of **1(b)**, **1(d)**, **4(a)(ii)**			**1**	

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B		**MODELLING**		
1	**(a)**	180	**1**	**C** opportunity
	(b) (i)	131.4[0]	**1FT**	**FT** *their* **(a)** × 0.2 × 365 ÷ 100 without wrong working **C** opportunity
	(ii)	$\frac{150 \times 60 \times 365 \times [0].2}{1000 \times 100} \times d$ oe	**1**	
	(iii)	24	**1**	**C** opportunity
2	**(a)**	$\tan 60 = \frac{10}{AB}$ or $\tan 30 = \frac{AB}{10}$ oe	**1**	$\frac{10 \sin 30}{\sin 60}$ or $\frac{1}{3} \times \frac{30}{\tan 60}$ etc.
	(b)	Anything rounding to 166	**4**	**B1** for $\frac{30}{\tan 60}$ [=17.3..]oe **B1** for [Area =] $(144 + k) \times \frac{20}{2}$ oe or one trapezium (side 144) calculated using rectangles and triangles **M1FT** for *their* area × $\frac{60}{1000}$ oe
	(c)	$[DE =]\ 150 - \frac{30}{\tan 60}$	**1**	
		$\frac{BC + DE}{2} \times \frac{d \times 60}{1000}$ oe	**1**	
	(d)		**1**	[Almost] linear through (0, 0) **C** opportunity
	(e)	18[.1…]	**1**	**C** opportunity

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3	**(a)**	$0.001095dw\left(300-\frac{(30-d)}{\tan 60}-\frac{30}{\tan 60}\right)$	**2**	Accept $\frac{0.03d\times 365\times w}{100\times 100}\left(300-\frac{(30-d)}{\tan 60}-\frac{30}{\tan 60}\right)$ or better **M1** for 2 of the operations $\frac{\times 365\times w}{100}$
	(b) (i)	$0.001095dw\left(300-\frac{(30-d)}{\tan \theta}-\frac{30}{\tan \theta}\right)$	**1FT**	**FT** *their* **3(a)**
	(ii)	Decreases oe	**1**	
	(iii)	No place to sit oe or Base of bath sloping oe	**1**	Not stable Not enough water
	(c)	Anything truncating to 155	**1FT**	**FT** *their* **b(i)** **C** opportunity
Communication seen in two of **1(a)**, **1(b)(i)**, **1(b)(iii)**, **2(d)**, **2(e)**, **3(c)**			**1**	

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