Cambridge IGCSE

CAMBRIDGE INTERNATIONAL MATHEMATICS	**0607/63**
Paper 6 (Extended)	**May/June 2016**
MARK SCHEME	
Maximum Mark: 40	

Published

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Abbreviations

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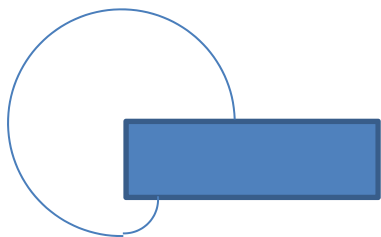nfww   not from wrong working
soi   seen or implied

A		INVESTIGATION		AREAS AND PERIMETERS		

	Question		Answer	Marks	Part Marks
1	(a)		30 26	1	
	(b)	(i)	6	1	
		(ii)	18	1FT	**FT** $2 \times$ (*their* 6) + 6
	(c)	(i)	$7x$ oe	1	
		(ii)	$14 + 2x$ oe isw	1	
		(iii)	2.8 oe	FT1	**FT** *their* c(i) and c(ii) if same form **C** opportunity
2	(a)	(i)	xy oe	1	
		(ii)	$2x + 2y$ oe	1	
	(b)		$xy - 2y = 2x$	1	
			$y(x - 2) = 2x$	1	
3	(a)		2.4	1	**C** opportunity
	(b)		-2	1	**C** opportunity
	(c)		2 correct curves 	2	**B1** for each branch **SC1** for correct curve but branches joined **C** opportunity
	(d)		$[0 \leqslant]\, x \leqslant 2$	1	

Question		Answer	Marks	Part Marks
4	(a)	$xy < 2x + 2y$ $xy - 2y < 2x$ $y(x - 2) < 2x$	1	
	(b)	Point clearly between x-axis, $x = 2$ and curve	1	
	(c)	Valid check using co-ordinates where Area < Perimeter	1	Not dependent on (b)
5		[Yes,] showing solution of 6	1	**C** opportunity
Communication in 2 from 1(c)(iii), 3(a), 3(b), 3(c) or 5			1	

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B   MODELLING   **HOW MUCH GRASS CAN THE GOAT EAT?**

Question	Answer	Marks	Part Marks
1	314 or 314.1…	**1**	
2 **(a)**	236 or 235.6…	**1FT**	**FT** $\frac{3}{4}$ (*their* 314) **C** opportunity
(b)	Quarter circle shown on diagram or 5m radius implied	**1**	
3 **(a)**		**1**	A $\frac{3}{4}$ circle and a $\frac{1}{4}$ circle of smaller radius **C** opportunity
(b)	$236 + \pi$ oe or 238.8 or 238.76 …	**2FT**	**FT** *their* 2(a) **M1** for $\frac{1}{4} \times \pi \times 2^2$ oe **C** opportunity
4 **(a)** **(i)**	$0 < x < 8$	**2**	**B1** for each limit
(ii)	$\frac{3}{4}\pi x^2$ oe	**1**	
(b) **(i)**	$8 < x < 15$	**2**	**B1** for each limit
(ii)	$\frac{3}{4}\pi x^2 + \frac{1}{4}\pi(x-8)^2$ oe isw	**2FT**	**FT** *their* (a)(ii) **M1** for $+\frac{1}{4}\pi k^2$
(c) **(i)**	(*their* (b)(ii)) $+ \frac{1}{4}\pi(x-15)^2$	**2FT**	**FT** *their* (b)(ii) **M1** for (*their* (b)(ii)) $+ \frac{1}{4}\pi k^2$ or $+\frac{1}{4}\pi(x-15)^2$ **C** opportunity

Question	Answer	Marks	Part Marks
(ii)	16.5 [m]	**1FT**	**FT** any model including a term in $(x-a)^2$ **C** opportunity
(d)	14.1 [m]	**2**	**M1** for attempt at solving with 500 in any model including a term in $(x-a)^2$ **C** opportunity
Communication in 3 of 2(a), 3(a), 3(b), 4(c)(i), 4(c)(ii) or 4(d)		**2**	**C1** if seen in 2 of these