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Cambridge International General Certificate of Secondary Education

CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/63

Paper 6 (Extended)

May/June 2016

MARK SCHEME

Maximum Mark: 40

Published

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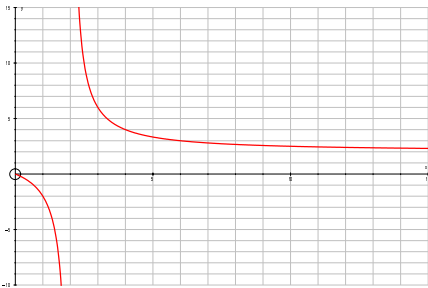
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Abbreviations

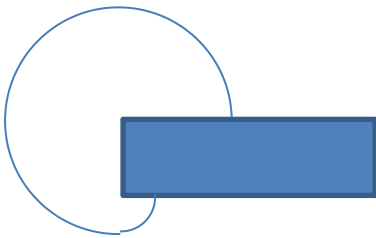
awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfww	not from wrong working
soi	seen or implied

A INVESTIGATION		AREAS AND PERIMETERS	
Question	Answer	Marks	Part Marks
1 (a)	30 26	1	FT $2 \times (\text{their } 6) + 6$
	(b) (i) 6	1	
	(ii) 18	1FT	
	(c) (i) $7x$ oe	1	
	(ii) $14+2x$ oe isw	1	
	(iii) 2.8 oe	FT1	
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) 2 correct curves	2	
			
(d)	$[0 \leq]x \leq 2$	1	B1 for each branch SC1 for correct curve but branches joined C opportunity

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Question	Answer	Marks	Part Marks
4 (a)	$xy < 2x + 2y$ $xy - 2y < 2x$ $y(x - 2) < 2x$	1	Not dependent on (b)
(b)	Point clearly between x -axis, $x = 2$ and curve	1	
(c)	Valid check using co-ordinates where Area < Perimeter	1	
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

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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