



CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/63

Paper 6 (Extended)

May/June 2016

MARK SCHEME

Maximum Mark: 40

Published

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Abbreviations

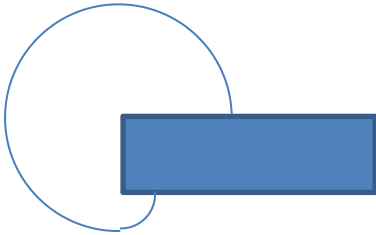
| | |
|------|----------------------------|
| awrt | answers which round to |
| cao | correct answer only |
| dep | dependent |
| FT | follow through after error |
| isw | ignore subsequent working |
| oe | or equivalent |
| SC | Special Case |
| nfw | not from wrong working |
| soi | seen or implied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

| A INVESTIGATION | | AREAS AND PERIMETERS | | |
|-----------------|---------|----------------------|---------------|--|
| Question | Answer | Marks | Part Marks | |
| 1 (a) | 30 26 | 1 | | |
| | (b) (i) | 6 | 1 | |
| | (ii) | 18 | 1FT | FT $2 \times (\text{their } 6) + 6$ |
| | (c) (i) | $7x$ oe | 1 | |
| | (ii) | $14+2x$ oe isw | 1 | |
| | (iii) | 2.8 oe | FT1 | FT <i>their</i> 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) | $[0 \leq]x \leq 2$ | 1 | |



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| 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 | |

| 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 |