**Cambridge International Examinations**
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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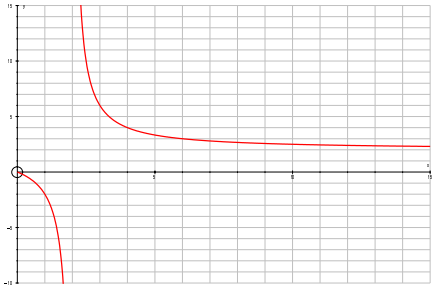
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**Abbreviations**

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

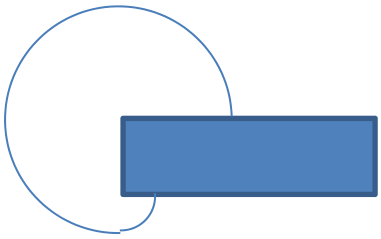
| A INVESTIGATION AREAS AND PERIMETERS | | | |
|---|---|---|---|
| **Question** | **Answer** | **Marks** | **Part Marks** |
| **1 (a)** | 30 26 | **1** | |
| **(b) (i)** | 6 | **1** | |
| **(ii)** | 18 | **1FT** | **FT** 2 × (*their* 6) + 6 |
| **(c) (i)** | $7x$ oe | **1** | |
| **(ii)** | $14+2x$ oe isw | **1** | |
| **(iii)** | 2.8 oe | **FT1** | **FT** *their* c(i) and c(ii) if same form<br>**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<br> | **2** | **B1** for each branch<br>**SC1** for correct curve but branches joined<br>**C** opportunity |
| **(d)** | $[0 \leqslant ]x \leqslant 2$ | **1** | |

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| Question | Answer | Marks | Part Marks |
|---|---|---|---|
| **4 (a)** | $xy < 2x + 2y$<br>$xy - 2y < 2x$<br>$y(x-2) < 2x$ | **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)<br>**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<br>**C** opportunity |
| **(b)** | $236 + \pi$ oe or 238.8 or 238.76 … | **2FT** | **FT** *their* 2(a)<br>**M1** for $\frac{1}{4}\times\pi\times 2^2$ oe<br>**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)<br>**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)<br>**M1** for (*their* (b)(ii)) + $\frac{1}{4}\pi k^2$<br>or $+\frac{1}{4}\pi(x-15)^2$<br>**C** opportunity |

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| Question | Answer | Marks | Part Marks |
|---|---|---|---|
| **(ii)** | 16.5 [m] | **1FT** | **FT** any model including a term in $(x-a)^2$<br>**C** opportunity |
| **(d)** | 14.1 [m] | **2** | **M1** for attempt at solving with 500 in any model including a term in $(x-a)^2$<br>**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 |

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