

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the October/November 2015 series**

# **0607 CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/63**

Paper 6 (Extended), maximum raw mark 40

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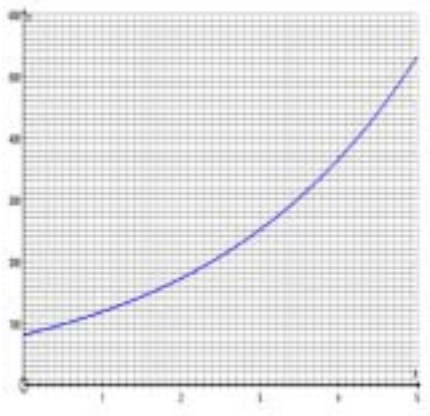
**Abbreviations**

- 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		SECURITY CAMERAS		
Question	Answer	Mark	Part Marks	
1	(a) (i)	$\begin{array}{cc} X & X \\ \square & \square \\ X & X \end{array} \text{ oe}$	1	
	(ii)	$\begin{array}{ccc} X & & X \\ \square & \square & \square \\ X & & X \end{array} \text{ oe}$	1	
	(iii)	$\begin{array}{cccc} X & & X & & X \\ \square & \square & \square & \square & \square \\ X & & X & & X \end{array} \text{ oe}$	1	
	(b)	$n + 1$	1	
2	(a) (i)	$\begin{array}{c} X \\ \square \\ X \\ \square \\ X \\ \square \\ X \end{array} \text{ oe}$ <p>[Minimum =] 4</p>	1	<b>B1</b> for diagram <b>and</b> 4
	(ii)	$\begin{array}{ccc} X & & X \\ \square & \square & \\ \square & X & \square \\ X & \square & \square \\ \square & & X \\ X & & X \end{array} \text{ oe}$	1	
	(iii)	$\begin{array}{cccc} X & & X & \\ \square & \square & \square & \\ \square & X & \square & X \\ X & \square & \square & \\ \square & & X & \\ \square & \square & \square & X \\ X & & X & \\ \square & & \square & \\ \square & & \square & X \end{array} \text{ oe}$ <p>[Minimum =8]</p>	1	
	(b)	$2n + 2$ oe	1	

**A INVESTIGATION SECURITY CAMERAS**

Question	Answer	Mark	Part Marks																																									
3	9 12	1 1	C opportunity																																									
4 (a)	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="6">Number of squares in each row</th> </tr> <tr> <th>1 square</th> <th>2 squares</th> <th>3 squares</th> <th>4 squares</th> <th>5 squares</th> <th><math>n</math> squares</th> </tr> </thead> <tbody> <tr> <td>One row</td> <td></td> <td></td> <td></td> <td></td> <td>6</td> <td></td> </tr> <tr> <td>Three rows</td> <td></td> <td></td> <td>8</td> <td>10</td> <td>12</td> <td></td> </tr> <tr> <td>Five rows</td> <td></td> <td></td> <td></td> <td>15</td> <td>18</td> <td></td> </tr> <tr> <td>Seven rows</td> <td></td> <td>12</td> <td>16</td> <td>20</td> <td>24</td> <td><math>4n + 4</math></td> </tr> </tbody> </table> <p style="text-align: right;">oe</p>		Number of squares in each row						1 square	2 squares	3 squares	4 squares	5 squares	$n$ squares	One row					6		Three rows			8	10	12		Five rows				15	18		Seven rows		12	16	20	24	$4n + 4$	2	<b>B1</b> for 8, 9 or 10 number cells correct  <b>B1</b> for $4n + 4$ oe
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(b)	$\frac{1}{2}(r+1)n + \frac{1}{2}(r+1)$ oe	1																																										
(c)	1, 3, 7, 15	1	C opportunity																																									
5 (a)	10 13	1	C opportunity																																									
(b)	$\frac{3n}{2} + 1$	1	C opportunity																																									
6 (a)	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="5">Number of squares in each row</th> </tr> <tr> <th>2 squares</th> <th>4 squares</th> <th>6 squares</th> <th>8 squares</th> <th><math>n</math> squares</th> </tr> </thead> <tbody> <tr> <td>Two rows</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Four rows</td> <td></td> <td></td> <td>17</td> <td>22</td> <td></td> </tr> <tr> <td>Six rows</td> <td></td> <td>17</td> <td></td> <td>31</td> <td></td> </tr> <tr> <td>Eight rows</td> <td></td> <td>22</td> <td>31</td> <td></td> <td><math>\frac{9n}{2} + 4</math></td> </tr> </tbody> </table>		Number of squares in each row					2 squares	4 squares	6 squares	8 squares	$n$ squares	Two rows						Four rows			17	22		Six rows		17		31		Eight rows		22	31		$\frac{9n}{2} + 4$	2	<b>B1</b> for 4, 5 or 6 number cells correct  <b>B1</b> for $\frac{9n}{2} + 4$ oe						
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Communication seen in two of 2(b), 3, 4(c), 5(a), 5(b)		1																																										

B MODELLING		BACTERIA	
Question	Answer	Mark	Part Marks
1 (a)	Correct curve between $x = 1$ and $x = 5$ 	2	<b>B1</b> for 5 points correctly plotted (within 1 mm)  <b>B1</b> for curve through plotted points (within 1 mm)
(b)	Answer in range 80 to 100	1	
2 (a)	$[n =] pq^x$	1	
(b)	$[q =] 1.48$	1FT	<b>FT</b> $n = px^2 + q$ in their (a)  C opportunity
(c)	$[p =] 77.1[...]$	1FT	<b>FT</b> their $q$ in $n = pq^x$ Or their $q$ in $n = px^2 + q$  C opportunity
(d) (i)	Answer in range 1099 to 1200	1FT	<b>FT</b> their $p$ and their $q$ in non-linear models  C opportunity
(ii)	77[.1...]	1FT	
(iii)	Correct statement about similarity of answers	1FT	<b>FT</b> their 1(b) and their 2(d)(ii)

B		MODELLING	BACTERIA				
Question		Answer		Mark	Part Marks		
3	(a)	2.23	2.4[0]	2.57	2.72	2	<b>B1</b> for accuracy to 3 s.f. and <b>B1</b> for all correct if rounded
	(b)	3[.0]	2.4[...]			1	Correct to 1d.p.
	(c)					2FT	<b>B1FT</b> for 5 correctly plotted points  <b>B1FT</b> for correct ruled line between $x = 1$ and $x = 5$ through (3, <i>their</i> 2.4)
	(d) (i)	1.9 to 1.95				1	<b>FT</b> <i>their</i> correct line of best fit if outside range
	(ii)	0.15 to 0.17				1	<b>C</b> opportunity
	(e)	890 to 1390				1	<b>C</b> opportunity
	(f)	79 to 90				1	
4		Correct statement comparing the <u>models</u>				1FT	<b>FT</b> <i>their</i> 3(e) and <i>their</i> 2(d)(i)
Communication seen in two of 2(b), 2(c), 2(d)(i), 3(d)(ii), 3(e)						1	