

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/52

Paper 5 (Core), maximum raw mark 24

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1	(a)	8	1																																			
	(b)	Response implying some faces hidden within the large cube	1	bod for 'can't see'																																		
	(c)	24	1FT	FT 3 × <i>their</i> (a)																																		
2	(a)	27	1																																			
	(b)	8	1																																			
	(c)	6	1																																			
3	(a)	4 by 4 by 4 cube drawn	2	If 0 scored, B1 for one correct face C opportunity																																		
	(b) (i)	8	1																																			
	(ii)	24	1																																			
4	<table border="1"> <thead> <tr> <th rowspan="2">Size of cube</th> <th rowspan="2">Total number of small cubes</th> <th colspan="4">Number of small cubes with</th> </tr> <tr> <th>0 crosses</th> <th>1 cross</th> <th>2 crosses</th> <th>3 crosses</th> </tr> </thead> <tbody> <tr> <td>2 by 2 by 2</td> <td>8</td> <td>0</td> <td>0</td> <td><u>0</u></td> <td><u>8</u></td> </tr> <tr> <td>3 by 3 by 3</td> <td>27</td> <td>1</td> <td>6</td> <td>12</td> <td>8</td> </tr> <tr> <td>4 by 4 by 4</td> <td>64</td> <td>8</td> <td>24</td> <td>24</td> <td>8</td> </tr> <tr> <td>5 by 5 by 5</td> <td><u>125</u></td> <td>27</td> <td>54</td> <td><u>36</u></td> <td>8</td> </tr> </tbody> </table>				Size of cube	Total number of small cubes	Number of small cubes with				0 crosses	1 cross	2 crosses	3 crosses	2 by 2 by 2	8	0	0	<u>0</u>	<u>8</u>	3 by 3 by 3	27	1	6	12	8	4 by 4 by 4	64	8	24	24	8	5 by 5 by 5	<u>125</u>	27	54	<u>36</u>	8
Size of cube	Total number of small cubes	Number of small cubes with																																				
		0 crosses	1 cross	2 crosses	3 crosses																																	
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5 by 5 by 5	<u>125</u>	27	54	<u>36</u>	8																																	
			4	B1 for 0 in row 1 column 5 B1 for 8 in row 1 column 6 B1 for 125 in row 4 column 2 B1 for 36 in row 4 column 5																																		

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0607	52

5	(a)	1 small cube with 0 crosses gives 0 crosses 6 small cubes with 1 cross gives 6 crosses 12 small cubes with 2 crosses gives 24 crosses 8 small cubes with 3 crosses gives 24 crosses Total = 54 crosses	2	B1 for either 24
	(b)	9 54	1 1FT	FT <i>their</i> 9×6
	(c)	96	1	C opportunity
6	(a)	$(n - 2)^3$ oe isw	2	B1 for $[kn] - 2$ Or B1 for n^3 soi C opportunity
	(b)	$6(n - 1)^2$ oe isw	1	Accept $6(n - 2)^2$ from cubes C opportunity
	(c)	$12(n - 1)$ oe isw	1	$12(n - 2)$ from cubes C opportunity
		Communication in two of 3(a) , 5(c) , 6(a) , 6(b) or 6(c)	1	