CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/51 Paper 5 (Core), maximum raw mark 24

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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International Examinations

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 × *their* **(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		See table below	**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

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	**0**	**8**
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	**125**	27	54	**36**	8

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** *their* 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**	