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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

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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 × *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**	

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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

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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

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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**	

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