CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/63 Paper 6 (Extended), maximum raw mark 40

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.

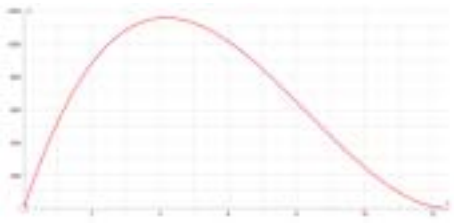
Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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A		**INVESTIGATION TOTALS**		
1	**(a)**	[1 ×]2 + [1 ×]3 4 × 2 or [1 ×]2 + 2 × 3 X [1 ×] 5 2 × 2 [1 ×]2 + [1 ×]7	**3**	**B2** for four or five correct or **B1** for two or three correct
	(b)	$y - 2$ oe	**1**	
2	**(a)**	[1 ×]3 + [1 ×]5 2 × 5 3 × 3 2 × 3 + [1 ×]7 oe X [1 ×]3 + [1 ×]8	**1**	**B2** for four or five correct or **B1** for two or three correct
	(b)	you only get multiples of 3 oe	**1**	Equivalent to having just one number
3	**(a)**	$4y - 5$ oe final answer	**1**	Condone n, x, etc **C** opportunity
	(b)	$6y - 7$ oe final answer	**1**	**C** opportunity
4	**(a)**	$12y - 13$ oe final answer	**1**	
	(b)	$(x - 1)y - x$ oe	**1**	
5	**(a)**	551	**1**	**C** opportunity
	(b)	5 × 24 + 8 × 25	**1**	
6	**(a)**	*their* **4(b)** + 1	**1FT**	
	(b)	$xy - x - y + 1$	**1**	**B1** dependent
	(c)	2, 25 3, 13 4, 9 5, 7	**3**	**B2** for 2 or 3 pairs or **B1** for 1 pair **C** opportunity
		Communication seen in one of **3(a)**, **3(b)**, **5(a)** or **6(c)**	**1**	

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B		**MODELLING DESIGNING AN OPEN BOX**		
1		$0 < x < 12.5$	**2**	**B1** for each limit **SC1** limits reversed
2		$625 - 4x^2$ oe	**1**	
3		$100 - 4x$ or $4(25 - x)$ or $2(50 - 2x)$	**2**	**M1** for $4x + 4(25 - 2x)$ or better **C** opportunity
4	**(a)**	$(25 - 2x)(25 - 2x)x$ soi	**M1**	
		$(625 - 50x - 50x + 4x^2)x$ or $(625 - 100x + 4x^2)x$ or $(25 - 2x)(25x - 2x^2)$	**M1**	
	(b)	Loss of metal through cutting or thickness of the metal or the width of the seal.	**1**	
	(c)	Correct shape through (0, 0) (intention), with right skew with one turning point (maximum) 	**2**	**B1** curve with one turning point (maximum) at (0, 12.5) or **SC1** for correct cubic drawn beyond 12.5 **C** opportunity
	(d)	1160 [cm^3] or 1157[.4 … cm^3]	**1**	
5	**(a)**	$2.5 < x < 6.1$	**2**	**B1** for each limit **SC1** if limits reversed **C** opportunity
	(b)	$625 - 4 \times 6.1^2 = 476[\ldots]$ or Solving $625 - 4x^2 = 450$ giving $x = 6.6$	**1FT**	**FT** *their* 6.1 if answer > 450 no **FT** for this method
	(c)	$5.59[\ldots] < x$ [< 6.1]	**1**	**C** opportunity

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6	**(a)**	$2(625 - 4x^2) + (100 - 4x) + 500$ oe $[=1850 - 4x - 8x^2]$	**3**	**FT** *their* **2** and **3**
	(b)	1.2 (*their* **(a)**) oe isw	**1FT**	**FT** only if **(b)** is quadratic with at least two terms
	(c)	*their* **(b)** with $x =$ *their* 6.1 from **5(a)**	**1FT**	
Communication seen in two from **3**, **4(c)**, **5(a)**, **5(c)**, **6(c)**			**2**	**1** Communication seen in one question

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