

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2015 series**

**0607 CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/62**

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  
 nfw not from wrong working  
 soi seen or implied

<b>A INVESTIGATION</b>				
<b>1</b>	<b>(a)</b>		<b>1</b>	
	<b>(b)</b>	4 3 5 4 6 5	<b>1</b>	
	<b>(c)</b>	$[s =] m$	<b>1</b>	
<b>2</b>	<b>(a)</b>	8 10 10 13 12 16	<b>1</b>	
	<b>(b) (i)</b>	$[s =] 2m$ oe	<b>1</b>	
	<b>(ii)</b>	$[r =] 3m - 2$ oe	<b>1</b>	C opportunity
<b>3</b>	<b>(a)</b>	12 17 15 22 18 27	<b>1</b>	
	<b>(b) (i)</b>	$[s =] 3m$ oe	<b>1</b>	
	<b>(ii)</b>	$[r =] 5m - 3$ oe	<b>1</b>	C opportunity

4	(a)	<table border="1"> <tr> <td><math>m</math></td> <td><math>m - 1</math></td> </tr> <tr> <td><math>2m</math></td> <td><math>3m - 2</math></td> </tr> <tr> <td><math>3m</math></td> <td><math>5m - 3</math></td> </tr> <tr> <td><math>4m</math></td> <td><math>7m - 4</math></td> </tr> <tr> <td><math>5m</math></td> <td><math>9m - 5</math></td> </tr> <tr> <td><math>6m</math></td> <td><math>11m - 6</math></td> </tr> </table>	$m$	$m - 1$	$2m$	$3m - 2$	$3m$	$5m - 3$	$4m$	$7m - 4$	$5m$	$9m - 5$	$6m$	$11m - 6$	2	<b>B1</b> for row 4 <b>B1</b> for row 6 If <b>0</b> scored, <b>SC1</b> for one correct column of 6 items
	$m$	$m - 1$														
	$2m$	$3m - 2$														
	$3m$	$5m - 3$														
	$4m$	$7m - 4$														
$5m$	$9m - 5$															
$6m$	$11m - 6$															
(b) (i)	$[s =] hm$ oe	1														
(ii)	$[r =] (2h - 1)m - h$ oe isw	1														
(c)	$[m =] \frac{s}{h}$	1														
(d)	$[r =] (2h - 1)\frac{s}{h} - h$ oe isw	1FT	FT substituting <i>their 4(c)</i> in <i>their 4(b)(ii)</i>													
5	(a)	$\frac{s}{h} = w$ oe	2	<b>B1</b> can be implied by seeing substitution of $w = \frac{s}{h}$ or $s = wh$ in <i>their 4(d)</i>												
	(b)	$r = (2h - 1)w - h$ Yes, if $h = 17$ (only) oe	2	<b>B1</b> <b>M1</b> for $544 = 2h^2 - 2h$ with attempt to solve by factorisation, formula, sketch, completing the square, approximation or trial and improvement with three improving trials If <b>0</b> scored, <b>SC1</b> for 17 (without wrong working) or for Yes if 17 and -16												
Communication seen in one of <b>2(b)(ii)</b> , <b>3(b)(ii)</b> , <b>5(b)</b>			1													

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B MODELLING				
1	(a)	8 points correctly plotted	2	B1 for 6 or 7 correct
	(b) (i)	$y = x + 3$ oe	2	M1 for $m = 1$ soi by, e.g. $y = x$
	(ii)	3	1	C opportunity
2	(a)	$0 = 0^{[2]} + 0 + c$	1	
	(b) (i)	$5 = 4a + 2b$ oe isw	1	
	(ii)	$8 = 25a + 5b$ oe isw	1	
	(c)	Equating coefficients soi or writing one equation correctly as $a =$ or $b =$  Combining <i>their</i> equations correctly to eliminate one variable or substitution of $a$ or $b$  $a = -0.3$ or $b = 3.1$ oe  <i>their</i> second variable correct	M1FT  M1FT  A1  B1FT	FT <i>their</i> 2(b) if coefficients not equal   dep on both method marks  dep on one method mark FT <i>their</i> first variable in one of <i>their</i> equations in 2(b)  If 0 scored, SC1 for $a = -0.3$ and $b = 3.1$ or correct model without working
	(d)	Parabola through (0, 0) with local maximum seen	1	C opportunity
	(e)	Not valid oe and $y$ decreases soi by, e.g. max = 8 or Valid oe for $[0 <] x < 5$ or less than max or Invalid oe for $x > 5$ or Not valid oe and negative oe	1	dep on mark in (d)

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3	(a)	$5 = a2^b$ $8 = a5^b$ isw	1	
	(b)	$\frac{8}{5} = \frac{a5^b}{a2^b}$ soi	1	
	(c)	$\frac{\log 1.6}{\log 2.5}$ or $\log_{2.5} 1.6$ or $2.5^{0.513} = 1.6$ or $2.5^m =$ a value less than 1.6 with $2.5^n =$ a value more than 1.6	1	$2.5^b = 1.6$ and $b = 0.513$ $0.45 \leq m < 0.5125\dots$ with $0.5135\dots < n \leq 0.55$ .
	(d)	$y = 3.5x^{0.5}$ oe	1	Model must be written in full
	(e)	close fit or suitable oe	1	<b>dep</b> on model in (d)
Communication seen in one of <b>1(b)(ii)</b> , <b>2(d)</b>			1	