CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/62 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.

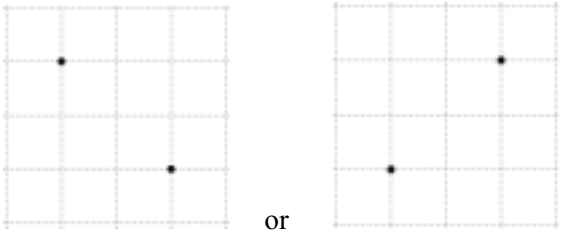
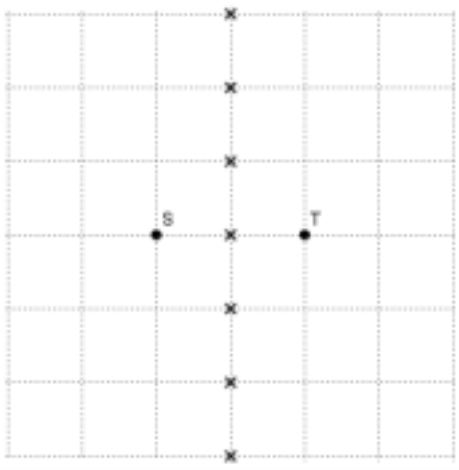
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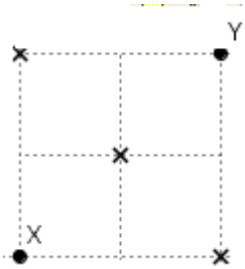
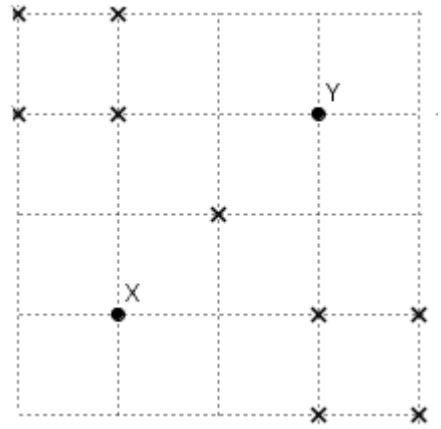
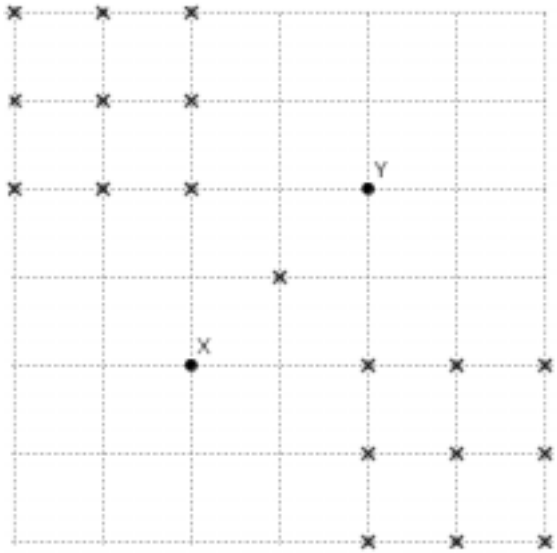
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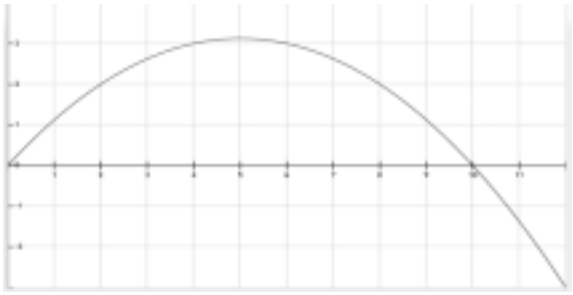
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A	**INVESTIGATION**	**TAXICAB GEOMETRY**		
1	**(a)**	[*CD* =] 3 [*DE* =] 4	**1** **1**	
	(b)	For 3 correct routes	**1**	
	(c)	For 4 correct routes	**2**	**B1** for 3 correct
	(d) (i)		**1**	Could be vertical
	(ii)	 or	**1**	If answer grid blank, mark working grid – must have only 2 correctly placed dots
2	**(a)**	1 beside each destination on *x*- and *y*- axes	**1**	
	(b)	Add [both] shortest routes oe	**1**	1 + 2 = 3 with 1 and 2 correctly defined
	(c)	(1) 4 10 20 [35] (1) 3 6 10 15 (1) 2 3 4 5 (1) (1) (1) (1)	**2**	**B1** for one complete row or column
	(d)	84 9	**1** **1**	**C** opportunity
3	**(a)**		**1**	
	(b)	0	**1**	

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(c) (i)		**1**	
(ii)		**1**	
(iii)		**1**	
(iv)	$2\left(\frac{1}{2}n\right)^2 + 1$ oe	**1FT**	**FT** $n + 1$ following 3 leading diagonals in **(i)**, **(ii)** and **(iii)**. **C** opportunity
	Communication seen in at least one of **2(d)** or **3(c)(iv)**	**1**	

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B	**MODELLING**	**THROWING A BALL**		
Throughout, accept distances as metres. Accept distances given as centimetres provided cm included.				
1	**(a) (i)**		**1**	Negative parabola intended through (0, 0) and before 12 on x-axis
	(ii)	10	**1**	
	(iii)	3.125 or 3.13	**1**	
	(iv)	1	**1**	
	(v)	8	**1**	Accept (8, 0)
	(b)	$y = \frac{1}{8}x^2 + \frac{5}{4}x + 1.5$ oe	**1**	Accept + 1.5 or $c = 1.5$
2	**(a)**	$0 = 0 + 0 + c$ oe isw $1.2 = 9a + 3b$ [+ c or + 0] isw $0 = 25a + 5b$ [+ c or + 0] isw	**2**	Accept 3^2 for 9 and 5^2 for 25 **B1** for 2 correct If **0** scored **SC1** for $c = 0$
	(b)	[a =] –[0].2 oe [b =] 1 [c = 0]	**1FT** **1FT**	**FT** from *their* three equations in **2(a)** if $c = 0$ If 0 scored and 0 scored in **2(a)** then **SC1** for $c = 0$
		[$y = -0.2x^2 + x$] oe		**C** opportunity
	(c)	Yes oe and 1.2 or [0].8 seen or Yes oe and 1.25 and maximum height or midpoint oe	**1**	Accept on sketch **C** opportunity

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3	**(a) (i)**	$\frac{2x(x-10)}{2(2-10)}$ seen or better	**1FT**	**FT** for $\frac{2x(x-\textit{their}\ \textbf{1(a)(ii)})}{2(2-\textit{their}\ \textbf{1(a)(ii)})}$ or $\frac{2x(x-10)}{8(8-10)}$ or $\frac{2x(x-10)}{\textit{their}\ \textbf{1(a)(v)}(\textit{their}\ \textbf{1(a)(v)}-10)}$ or $\frac{2x(x-\textit{their}\ \textbf{1(a)(ii)})}{\textit{their}\ \textbf{1(a)(v)}(\textit{their}\ \textbf{1(a)(v)}-\textit{their}\ \textbf{1(a)(ii)})}$ or if 0 scored **SC1** for $\frac{\textit{their}3.125x(x-\textit{their}\textbf{1(a)(ii)})}{5(5-\textit{their}\ 1(a)(ii))}$
	(ii)	Statement involving origin (ground level) or 1.5	**1**	Ignore extra comments
	(b) (i)	$y=\frac{2x(x-12)}{8(8-12)}$ or better isw	**1**	**SC1** for $y=\frac{2x(x-12)}{4(4-12)}$ isw
	(ii)	4	**1**	Accept (4, 0)
	(c) (i)	15 30	**1**	**C** opportunity
	(ii)	$y=\frac{2.5x(x-15)}{10(10-15)}$ or $y=\frac{2.5x(x-15)}{5(5-15)}$ isw	**1FT**	**FT** *their* **(c)(i)**
		$y=\frac{2.5x(x-30)}{10(10-30)}$ or $y=\frac{2.5x(x-30)}{20(20-30)}$ isw	**1FT**	**FT** *their* **(c)(i)**
	(iii)	2.81[25]	**1**	Allow $\frac{45}{16}$ Condone 2.8 or 2.813
		Communication seen in at least one of **2(b)**, **2(c)** or **3(c)(i)**	**1**	

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