MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/12 Paper 1 (Core), 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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Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
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(b) $3.56(000) \times 10^5$ B1 2 (a) $5x = 15$ M1 (b) $4x + 3$ (final answer) B2 If B0 award B1 for $4x + k$ or $kx + 3$ 3 (a) 120° B2 If B0 award B1 for angle $(BCA =) 60^\circ$ see (b) (0)60^\circ B2 If B0 award B1 for angle $(BAC =) 70^\circ$ see (b) (0)60^\circ B2 If B0 award B1 for 4×3 or 4×5 (b) (0)60^\circ B2 If B0 award B1 for 4×3 or 4×5 (b) (0) (16 cao B3 If B0 award B1 for 4×3 or 4×5 (b) 12 B2 If B0 award B1 for $\frac{5}{15} = \frac{4}{h}$ soi 5 (a) $\frac{1}{9}$ B1 (b) $4q(2p - q)$ B2 If B0 award B1 for $q(8p - 4q)$ or $4(2pq - q^2)$ or $2(4pq - 2q^2)$ or $2q(4p - 2q)$ seen (c) x^3 B1 B1 6 78 B3 If B0 award M1 for 5h soi, M1 for distand divided by time 7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1 ft B1 ft	1	(a)	2000	B1	Allow 2×10^3
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(b) 12 B2 If B0 award B1 for $\frac{5}{15} = \frac{4}{h}$ soi 5 (a) $\frac{1}{9}$ B1 (b) $4q(2p-q)$ B2 Accept $4q(2p-1q)$ (c) x^3 B1 6 78 B3 If B0 award M1 for 5h soi, M1 for distance divided by time 7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1 If B0 award M1 for 5h soi, M1 for distance divided by time	4	(a)	16 cao	В3	
(b) 12 B2 If B0 award B1 for $\frac{5}{15} = \frac{4}{h}$ soi 5 (a) $\frac{1}{9}$ B1 (b) $4q(2p-q)$ B2 Accept $4q(2p-1q)$ (c) x^3 B1 6 78 B3 If B0 award M1 for 5h soi, M1 for distance divided by time 7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1 If B0 award M1 for 5h soi, M1 for distance divided by time					M1 for $\frac{1}{2} \times 4 \times 2$ seen
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(c) x^3 B1 6 78 B3 If B0 award B1 for $q(8p - 4q)$ or $4(2pq - q^2)$ or $2(4pq - 2q^2)$ or $2q(4p - 2q)$ seen 7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1 If B0 award B1 for $q(8p - 4q)$ or $4(2pq - 2q^2)$ or $2q(4p - 2q)$ seen	5	(a)	$\frac{1}{9}$	B1	
6 78 B3 If B0 award M1 for 5h soi, M1 for distance divided by time 7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1 If B0 award M1 for 5h soi, M1 for distance divided by time		(b)	4q(2p-q)	B2	If B0 award B1 for $q(8p - 4q)$ or $4(2pq - q^2)$ or $2(4pq - 2q^2)$ or $2q(4p - 2q)$
7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1		(c)	<i>x</i> ³	B1	[4]
7 (a) Parallelogram drawn with C at (6, 4) P1 (b) (6, 4) B1ft Ft their C (c) 0 B1 Image: Compare the second seco	6		78	B3	-
(b) (6, 4) B1ft Ft their C (c) 0 B1 Image: Comparison of the second	7	(9)	Parallelogram drawn with C at $(6, 4)$	P1	[3]
(c) 0 B1	,				
		(b)	(0, 4)	Blft	Ft their C
		(c)	0	B1	[3]
	8	(a)	<i>p</i> = 13, <i>q</i> = 7	B1B1	
(b) 4, 13, 19 B1ft Ft their value of p		(b)	4, 13, 19	B1ft	Ft their value of <i>p</i> [3]
9 (a) -3 B1	9	(a)	-3	B1	
(b) 115 B1		(b)	115	B1	[2]

Paç	ge 3	Mark Scheme: Teachers' version			Syllabus	Paper	
		IGCSE – May/June 2011			0607	12	
10 (a)	Translation $\begin{pmatrix} -3 \\ -4 \end{pmatrix}$ Rotation, 90° anticlockwise, centre (0, 0) Correct reflection, points (5, 1), (5, 3) (4, 2)		B2	B1 for Translation, B1 for correct vector, accept words. Mention of a second transformation scores 0.			
(b)			B3	B1 for rotation, B1 for 90° anticlockwise (accept +90°), B1 for centre (0, 0). Mention of a second transformation scores 0.			
(c)			B2	If B0 award B1 for reflection in $y = 3$ or 3 points correct and none incorrect. [7]			
11 (a)	Negative	e oe	B1				
(b)	(i) Co	rrect point plotted	P1				
	(ii) Lir	e drawn	L1		e through (22, 65) ne when temperate 30 and 45	•	