CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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CAMBRIDGE
International Examinations

A	**INVESTIGATION**	**FRACTIONS WITHIN FRACTIONS**		
1	**(a)**	$\frac{1}{1+\frac{2}{3}}$ seen	**1**	
	(b)	$\frac{1}{1+\frac{3}{5}}$ seen	**1**	**C** opportunity
	(c)	$\frac{1}{1}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{5}$ $\frac{5}{8}$ $\frac{8}{13}$ $\frac{13}{21}$ $\frac{21}{34}$	**2**	**B1** each
	(d)	[Numerator =] denominator of 7th or previous fraction or added the two previous numerators oe or denominator of (previous term + 1) oe [Denominator =] numerator + denominator of 7th or previous fraction or added the two previous denominators oe or numerator of (previous term + 1) oe	**2**	**B1** each
2	**(a)**	$\frac{10}{11}$ $\frac{22}{21}$	**2**	**B1** each **FT** *their* $\frac{10}{11}$ **C** opportunity
	(b)	[Numerator =] 2 × previous denominator or 2 × 11 = 22 or previous numerator + 2 × numerator before previous numerator. [Denominator =] numerator + denominator of previous fraction or 10 + 11 = 21 or previous denominator + 2 × denominator before previous denominator.	**2**	**B1** each

3 (a) (i) $x(1 + x) = 1$ seen — **1**

(ii) 0.618[0…] — **1** — **C** opportunity

(iii) — **1FT** — **FT** *their* **1 (c)**

$\frac{1}{1}$	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{5}$	$\frac{5}{8}$	$\frac{8}{13}$	$\frac{13}{21}$	$\frac{21}{34}$
1	0.5	0.667	0.6	0.625	0.615 or 0.6153 to 0.6154	0.619	0.618 or 0.6176[...]

(b) (i) — **1FT** — **FT** *their* **2 (a)**

$\frac{2}{1}$	$\frac{2}{3}$	$\frac{6}{5}$	$\frac{10}{11}$	$\frac{22}{21}$	$\frac{42}{43}$	$\frac{86}{85}$
2	0.667	1.2	0.909 or 0.9090 to 0.9091	1.048 or 1.0476[…]	0.977	1.012

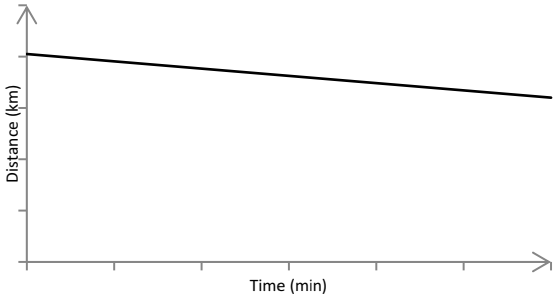
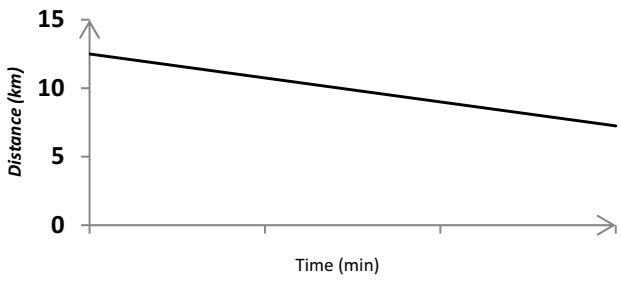
(ii) [x =] 1 — **1** — **C** opportunity

(iii) The decimals in part **(i)** are getting closer to the answer in part **(ii)** oe — **1**

(c) (i) $\frac{-1+\sqrt{1+4N}}{2}$ oe — **1**

(ii) Any three of [N =] 2, 6, 12, 20, 30, 42, etc. — **1** — **C** opportunity

Communication seen in 3 or more of **1(b), 2(a), 3(a)(ii), 3(b)(ii), 3(c)(ii)** — **2** — **C1** for two

B	**MODELLING**	**FITNESS TRAINING**		
1	**(a)**	$1.5 \div \frac{20}{60}$ oe	**1**	
	(b)	18	**1**	**C** opportunity
	(c)	[Day] 5	**1**	
2		2.7 [km] or 2700 m	**1**	**C** opportunity
3	**(a)**	$[D =] \frac{6.4x}{60} + 8.1\left(1 - \frac{x}{60}\right)$ or $\frac{6.4x}{60} + 8.1\left(\frac{60-x}{60}\right)$ or $\frac{6.4x+8.1(60-x)}{60}$ or $\frac{6.4x}{60} + \frac{8.1}{60}(60-x)$ soi	**1**	
	(b)	$[D =] \frac{6.4x+486-8.1x}{60}$ oe	**1**	dep. on **3(a)**
	(c)		**1**	**B1** Correct line approximately with negative gradient
	(d)	7.25 [km]	**1**	**C** opportunity
	(e)	12.5 [km / h]	**1**	**C** opportunity
	(f) (i)	$[D =] \frac{6.4x}{60} + \frac{8.1y}{60} + 12.5\left(1 - \frac{x}{60} - \frac{y}{60}\right)$ oe isw	**1FT**	**FT** *their* **(e)**
	(ii)	$[D =] \frac{1}{60}(6.4x + 8.1y + 750 - 12.5x - 12.5y)$ soi www	**1**	dep on **(f)(i)**
	(g) (i)	$[D =] \frac{1}{60}(750 - 6.1n - 4.4n)$ oe isw	**1**	If 0 scored then **FT** *their* correct **(f)(i)**
	(ii)		**2**	**B1** for line from 12.5 with negative gradient **B1** dependent for (30, 7.25)

(iii)	Running or No walking and/or jogging	**1**	
(iv)	No running or Walking and/or jogging	**1**	
(v)	$D = \frac{1}{60}(486H - 1.7x)$ or $\frac{6.4x}{60} + 8.1\left(H - \frac{x}{60}\right)$ oe $D = \frac{1}{60}(750H - 6.1x - 4.4y)$ or $\frac{6.4x}{60} + \frac{8.1y}{60} + 12.5\left(H - \frac{x}{60} - \frac{y}{60}\right)$ oe	**2**	**B1** for each
	Communication seen in 3 from **1(b), 2, 3(d), 3(e)**	**C2**	**C1** for one