CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

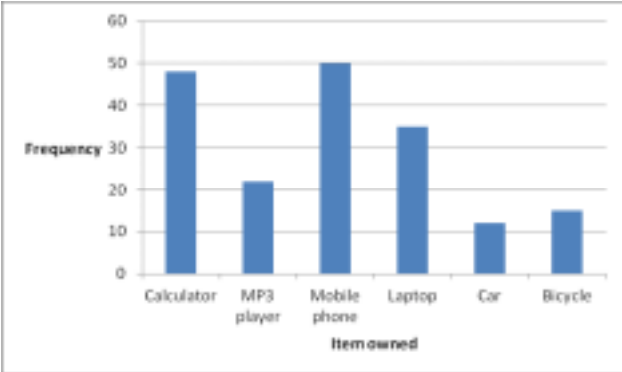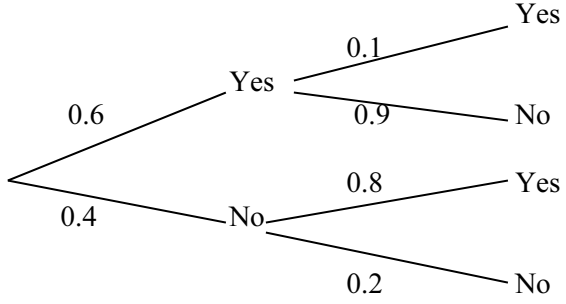## 0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

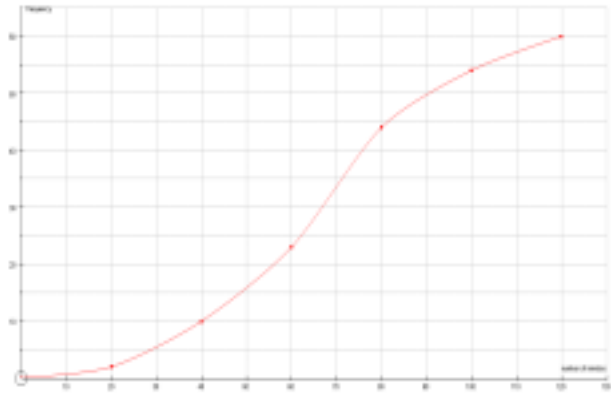**0607/03**   Paper 3 (Core), maximum raw mark 96

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.

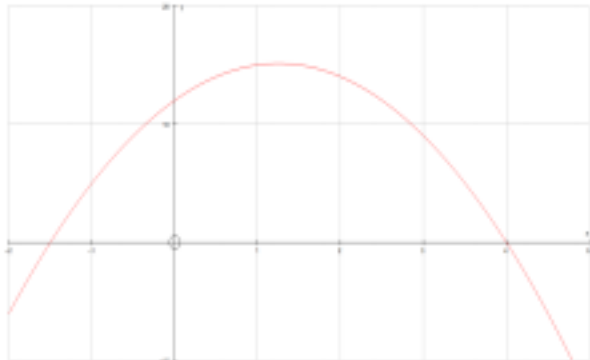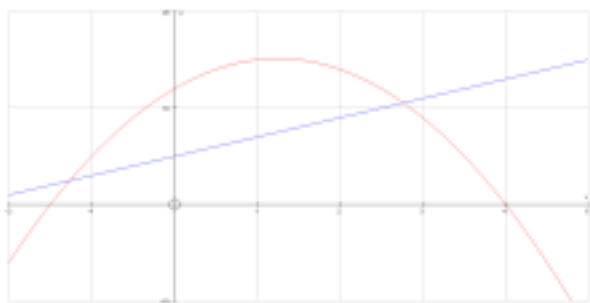Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

1	(a)		2	**B1** for 2 correct bars.
	(b)	10 : 7 : 3	2	**B1** for 50 : 35 : 15 oe including decimals
	(c) (i)	$\dfrac{35}{50}$ oe	1	
	(ii)	50/50 oe	1	
2	(a)	$\dfrac{17}{50} \times 1400 = 476$ Answer given	2	**M1** for $\dfrac{17}{50}$ or 1400/(15+17+18) or 28 seen.
	(b)	504	2	**M1** for 476 + 28 or $\dfrac{18}{50} \times 1400$
	(c)	28	1FT	
	(d)	2%	2 FT	**M1** for $\dfrac{their\ 28}{1400}$
3	(a)		3	**B1** for each pair correct
	(b)	0.06 oe isw	2FT	**M1** for $0.6 \times their$ 0.1
	(c)	0.62 oe isw	3	**M2FT** for $0.6 \times their\ 0.9 + their\ 0.4 \times their$ 0.2, **M1** for one of these products
4	(a)	10	1	
	(b)	65.7 (65.66 – 65.67)	2	**M1** for at least three mid-values seen.

(c)

	Cumulative frequency
< 20	2
< 10	10
< 60	23
< 80	44
< 100	54
< 120	60

1

(d)

2 **B1 FT** for 4 points plotted correctly.
C1FT for reasonable curve through *their* points

(e) 65 – 69 **1 FT** **FT** from line or mark on curve at 30.

(f) 31 – 35 www **2** **M1 FT** for reading off their UQ (45th value, 81 – 83) or LQ (15th value, 48 – 50)

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5 (a) (i) 900 **1**

(ii) 4500 **1FT**

(b) (i) 707 (706.5 – 707.0) **1**

(ii) 22.5 **1**

(iii) 44.2 (44.15 – 44.1875) **1FT**

(c) 24 **2** **M1** for attempted correct use of $\dfrac{4}{5}$ oe

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6 (a) (i) [0]8 05 **1**

(ii) 9 **2** **M1** for $\dfrac{3}{\text{time}}$ oe. e.g. $\dfrac{3000}{20}$

(b) [0]8 [00] **2** **M1** for $\dfrac{1}{4}$ or 15 minutes seen

(c) 12.5 **2** **M1** for 30×25 or $\dfrac{25}{60}$ or SC1 for 7.5

	(d)		Ana	1 FT	FT *their* (a)(i) and (b)
7	**(a)**	**(i)**	Reflection , $x = 7$	1, 1	
		(ii)	Translation $\begin{pmatrix} -8 \\ -6 \end{pmatrix}$	1, 1	Accept in words
	(b)		Shape with coordinates (–2, 2), (–5, 2), (–5, 4), (–6, 4), (–6, 5) and (–2, 5)	2	**SC1** for correct reflection in the *x*-axis or reflection in $y = k$
8	**(a)**		16 and 13	1, 1	
	(b)		$31 - 3n$	2	**M1** for $-3n + k$ or $31 + kn$
9	**(a)**		Pentagon	1	
	(b)		540	2	**M1** for attempt to divide into triangles or $(5 - 2) \times 180$ oe
	(c)		105	2 FT	**M1** for *their* $540 - (90 + 85 + 135 + 125)$ **FT** only if the answer is positive
10	**(a)**		1, 2, 3, 4, 6, 12	1	
	(b)			2 FT	Award **B1** for one correct subset
	(c)	**(i)**	3	1 FT	
		(ii)	1	1 FT	
		(iii)	5	1 FT	

11	(a)	54.5 (54.54...)	3	**M2** for $\sqrt{(60^2 - 25^2)}$ oe **M1** for correct Pythagoras statement.
	(b)	131 (130.5 – 130.8)	3	**M2** for $2\cos^{-1}(\dfrac{25}{60})$ oe or **B2** for 65.4 or 65.27 to 65.40 **M1** for [cos O =] $\dfrac{25}{60}$ oe or multiplying their angle AOB by 2. Accept reflex angle (229.2 – 229.3).
	(c)	57.0 or 57.1 or 57.2 (57.02 – 57.16)	2	**M1** for $\dfrac{their\,131}{360}$. Accept major arc (100.0 – 100.1).
12	(a)		2	**C1** for smooth curve, correct shape. **C1** for axes intercepts in approximately the correct place.
	(b)	–1.5 and 4	1, 1	No co-ordinates
	(c)	(1.25, 15.125)	1, 1	Allow 15.1 or better
	(d)		1	
	(e)	–1.27 and 2.77	3	**B2** for one correct to 2 dp **B1** for –1.265 – –1.266, **B1** for 2.765 – 2.766 If 0, **SC1** for 2.76 and –1.26 or 2.8 and –1.3

13	(a)	(i)	$4x + 3$	2	**M1** for $2x + 4$ or **SC1** fo $4x + 1$
		(ii)	$15p^7$	2	**B1** for kp^7 or $15p^k$
		(iii)	$\dfrac{3}{2}r^3$ oe	2	**B1** for kr^3 or $\dfrac{3}{2}r^k$, accept $1.5r^3$ for 2 marks.
		(iv)	$36t^8$	2	**B1** for kt^8 or $36t^k$
	(b)		$6pq(2p + 3)$	2	**B1** for any correct partial factorisation
	(c)		$s = \dfrac{r - 2pm}{n}$ oe	2	**B1** for subtracting $2pm$ or dividing by n.