Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **May/June 2016**

MARK SCHEME

Maximum Mark: 40

Published

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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Abbreviations

awrt answers which round to
cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

Question	Answer	Mark	Part Marks
1	$4\frac{5}{6}$	**2**	**M1** for $4+\frac{3}{6}+\frac{2}{6}$ or $\frac{9}{6}+\frac{20}{6}$ oe
2	1 [h] 39 [min]	**2**	**M1** for 90 × 1.1 oe
3	69	**2**	**M1** for $0.5(180-42)$
4	$[\pm]\frac{1}{\sqrt{t}}$ oe	**2**	**M1** for $tp^2=1$ or $\sqrt{t}=\frac{1}{p}$ or better
5 (a)	$\frac{42}{60}$ oe	**1**	
(b)	840	**1FT**	**FT** *their* (a) × 1200
6	$[x=]$ 1 $[y=]-2$	**1** **1**	If 0 scored **SC1** for correct substitution and evaluation of other variable
7	1.6×10^{19}	**2**	**B1** for 1.6×10^{n} or $k\times10^{19}$ or correct answer not in SF
8	$x<1$ or $1>x$	**2**	**M1** for $9-2>x+6x$ oe or answer of 1 with incorrect inequality
9 (a)	-2	**1**	
(b) (i)	8	**1**	
(ii)	2	**2**	**M1** for $8^{\frac{1}{3}}$ or $\frac{1}{\frac{1}{2}}$ oe If 0 scored then **SC1** for answer $\frac{1}{2}$

Question	Answer	Mark	Part Marks
10	$\begin{pmatrix}9\\6\end{pmatrix}$	**4**	**B3** for (9, 6) or **B1** for (0, 12) soi **B1** for (18, 0) soi **M1** for (0.5 *their* 18, 0.5 *their* 12)
11	$(2p-q)(1+x)$	**2**	**B1** for $2p-q+x(2p-q)$ or $2p(1+x)-q(1+x)$
12	$5(\sqrt{2}-1)$ or $5\sqrt{2}-5$	**2**	**M1** for $\times\dfrac{\sqrt{2}-1}{\sqrt{2}-1}$
13	$8\pi+16$ oe	**3**	**B1** for radius = 8 and **M1** for $\pi\times$ *their* radius or *their* curved length + 2 × *their* radius or if 0 scored **SC2** for final answer $\sqrt{32}(\pi+2)$ oe
14	32 13	**1** **1**	
15	$\dfrac{6}{\sqrt{x}}$ oe	**2**	**M1** for $y=\dfrac{k}{\sqrt{x}}$ or **M1** for $k = 6$ with no correct equation seen
16	12	**3**	**B1** for $2\log 3=\log 9$ or $3\log 2=\log 8$ and **M1** for correct use of $\log a+\log b=\log ab$ or $\log a-\log b=\log\left(\dfrac{a}{b}\right)$
17	Stretch x-axis invariant, factor 3	**1** **1**	