

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**0607 CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/02**

Paper 2 (Extended), maximum raw mark 40

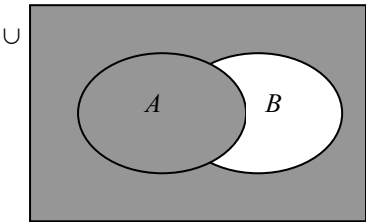
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – October/November 2011	0607	02

1 (a)	$3.75 \times 10^{14}$	1	
(b)	1.8(0)	2	<b>M1</b> for $0.75 \times 2.4$ or complete equivalent method
(c)	-3, 1	<b>B1, B1</b>	If <b>B0</b> , <b>M1</b> for $x + 1 = \pm 2$
2 (a) (i)	7	1	
(ii)	4	1	
(b)		1	
3	$-\frac{3x}{4} + 3$ o.e.	2	<b>M1</b> for $4y = 12 - 3x$ or $\frac{3x}{4} + y = \frac{12}{4}$
4	36	2	<b>M1</b> for $\frac{4}{3}\pi \times 3^3$
5 (a)	$5\sqrt{5}$	1	
(b)	$\frac{\sqrt{6} + \sqrt{3}}{3}$ o.e.	2	<b>M1</b> for intention to $\times \frac{\sqrt{6} + \sqrt{3}}{\sqrt{6} + \sqrt{3}}$
6 (a)	192	1	
(b)	768	1	
(c)	$3 \times 2^n$ o.e. $6 \times 2^{n-1}, 2^{n+2} - 2^n$	2	<b>M1</b> for power of 2 in terms of $n$ in answer and not spoiled

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7 (a)	$(x - 6)(x + 4)$	2	SC1 for $(x + a)(x + b)$ where $ab = -24$ or $a + b = -2$
(b)	$x(y - 2z)(y + 2z)$	2	SC1 for $x(y^2 - 4z^2)$ or $(xy - 2xz)(y + 2z)$ or $(y - 2z)(xy + 2xz)$
8 (a)	$-p + q$ or $q - p$	1	
(b)	$\frac{1}{4}p + \frac{3}{4}q$ o.e. (in simplest form)	2	M1 for $\overrightarrow{OR} = \overrightarrow{OQ} + \overrightarrow{QR}$ or $\overrightarrow{OP} + \overrightarrow{PR}$ s.o.i.
9	$\frac{4}{27}$ o.e.	2	M1 for $\frac{4}{6} \times \frac{4}{6} \times \frac{2}{6}$ o.e.
10	7	3	M1 for multiplying all three terms by 6 or all over 6 or left hand side over 6 = 9 A1 for $2(2x + 1) + 3(x + 1) = 54$ or $\frac{7x + 5}{6} = 9$ 7 may be seen correctly embedded – accept
11 (a)	2	2	M1 for $p^3 = 8$
(b)	$q = 2, r = 3$	3	M1 for use of $\log ab = \log a + \log b$ or $\log a^b = b \log a$ M1 dep for $\log 12$ and $\log 9$ in terms of $\log 2$ and $\log 3$ only, or $\log 2^2 + \log 3^3$ seen, or $108 = 2^3 \times 3^3$
12 (a)	$F = 8v^2$	2	M1 for $F = kv^2$ o.e. $k \neq 1$
(b) (i)	32	1 ft	ft their (a) only if $kv^2$ $k \neq 1$
(ii)	11	1 ft	ft their (a) only if $kv^2$ $k \neq 1$