

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2015 series**

**0607 CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/22**

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

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Page 2	Mark Scheme	Syllabus 11	Paper 22
	Cambridge IGCSE – October/November 2015	0607	22

### Abbreviations

cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfw	not from wrong working
soi	seen or implied

Question	Answer	Mark	Part Marks
1 (a)	20	1	
(b)	$1.6 \times 10^{-6}$	2	<b>B1</b> for correct answer not in standard form
2 (a)	1.25 oe	3	<b>M1</b> Correct expansion; condone 1 slip <b>M1</b> Correct simplification of <i>their</i> equation into the form $kx = a$
(b)	-2 3.5	1 1	
3	50	3	<b>B2</b> for $x = 2y^2$ oe or <b>M1</b> for $x = ky^2$ <b>B1</b> for $k = 2$
4 (a)	$\frac{1}{36}$	2	<b>M1</b> for $\frac{1}{6} \times \frac{1}{6}$ or $\frac{k}{36}$
(b)	0 oe	1	
(c)	$\frac{6}{36}$ oe	2	<b>M1</b> for establishing all 6 possible combinations <b>SC1</b> for $\frac{3}{36}$
5 (a)	$\begin{pmatrix} -1 \\ -3 \end{pmatrix}$	2	<b>B1</b> for each component
(b)	13	2	<b>M1</b> for $\sqrt{5^2 + (-12)^2}$ or better
6 (a)	$(4x + y)(2a - b)$	2	<b>B1</b> for factor of $4x + y$ , or factor of $2a - b$ or factor of $b - 2a$ seen
(b)	$(3x + 4)(x - 3)$	2	<b>M1</b> for $(3x + a)(x + b)$ , where $ab = -12$ , or $a + 3b = -5$
7 (a)	1	1	
(b)	$\frac{1}{25}$	1	

Question	Answer	Mark	Part Marks
<b>8</b>	(a) 72	<b>1</b>	
	(b) 144	<b>1FT</b>	$2 \times \text{their (a)}$
	(c) 18	<b>1FT</b>	$\frac{180 - \text{their } 144}{2}$
	(d) 18	<b>1FT</b>	$\text{their (c)}$
<b>9</b>	(a) 4	<b>3</b>	<b>M2</b> for $\sqrt{8^2 - \sqrt{48}^2}$ or <b>M1</b> for $8^2 = \sqrt{48}^2 + BC^2$ or better
	(b) 30	<b>2</b>	<b>B1</b> for $\sin = \frac{4}{8}$ or $\cos = \frac{\sqrt{48}}{8}$ or $\tan = \frac{4}{\sqrt{48}}$
<b>10</b>	[h=] 2	<b>1</b>	
	[k=] -3	<b>1</b>	
<b>11</b>	Bars with correct column widths	<b>1</b>	
	Bars with heights 0.8, 3.2, 4, 1.2, 0.7	<b>2</b>	<b>B1</b> for 3 or 4 correct