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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/21**

Paper 2 (Extended)

**May/June 2016**

MARK SCHEME

Maximum Mark: 40

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**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.

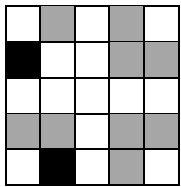
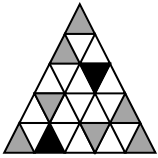
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### Abbreviations

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 (a)	200	1	
(b)	$\frac{11}{20}$ oe	2	M1 for $\frac{a}{20} - \frac{b}{20}$ with $a = 16$ or $b = 5$
2 (a)		1	
(b)		1	
3	$\frac{10 \times 300}{50 + 100}$ 20	M1 A1	Accept any 3 from 4
4 (a)	$2^6 \times 3^8 \times 5^2$	1	
(b)	$2^3 \times 3^2$	1	
(c)	$2^5 \times 3^4 \times 5^{[1]} \times 7^3$	2	B1 for 3 of 4 factors correct
5 (a)	0.13, 0.36, 0.32, 0.19 oe	2	B1 for 2 or 3 correct
(b) (i)	1600	1	
(ii)	Sufficient trials oe	1	
6	$x = 14$	3	M2 for $3x - 2x - 2 = 12$ or M1 for $\frac{3x - 2(x+1)}{6} = 2$ or better

Question	Answer	Mark	Part Marks
7 (a)		2	<b>B1</b> for 1 or 2 numbers omitted or misplaced
(b) (i)	5, 7, 11, 13, 17	1FT	
(b) (ii)	8, 10, 14, 16	1FT	
8	$x < 1.25$ oe	3	With no wrong working seen <b>M1</b> for $2x + 3 > 6x - 2$ <b>M1FT</b> for $3 + 2 > 6x - 2x$ oe <b>M1FT</b> for $x < \frac{b}{a}$ from $ax < b$ oe
9 (a)	65	1	
(b)	115	1FT	<b>FT</b> 180 – <i>their</i> (a)
10 (a)	$3x(4x - 9y)$ final answer	2	<b>B1</b> for $3(4x^2 - 9xy)$ or $x(12x - 27y)$
(b)	$(a + 2b)(4a - c)$ final answer	2	<b>B1</b> for $4a(a + 2b) - c(a + 2b)$ or $a(4a - c) + 2b(4a - c)$
11	$\frac{\sqrt{7}}{7}$	1	
12	$\mathbf{p} = \mathbf{a} + \mathbf{b}$ oe $\mathbf{q} = 2\mathbf{a} + \mathbf{b}$ oe $\mathbf{r} = -2\mathbf{a} + \mathbf{b}$ oe	3	<b>B1</b> for each
13	$a = 2$ $b = 30$	1 1	

<b>Page 4</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
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<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Part Marks</b>
<b>14</b>	[a =] 3 [b =] -12	<b>3</b>	<p><b>M1</b> for <math>kx(x - 4)</math>  <b>M1</b> for substituting (8, 96) or <math>b = -4a</math> soi</p> <p>OR</p> <p><b>M1</b> for <math>0 = 4^2a + 4b</math> or <math>b = -4a</math> soi  <b>M1</b> for <math>96 = 8^2a + 8b</math></p> <p>OR</p> <p><b>M1</b> for <math>[y =]a((x - 2)^2 - 4)</math>  <b>M1</b> for substituting (8, 96) or <math>b = -4a</math> soi</p> <p>If zero scored, <b>SC1</b> for <math>a = 3</math>, or <math>b = -12</math></p>