



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/33

Paper 3 (Core)

May/June 2016

MARK SCHEME

Maximum Mark: 96

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

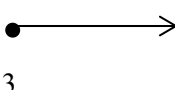
awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfwf	not from wrong working
soi	seen or implied

Question	Answer	Mark	Part Marks
1 (a)	(7, 2)	1	
	(b) Right-angled <u>or</u> isosceles	1	
	(c) 45	1	
	(d) Straight line from (3, 2) to (5, 4) at least	1	
2 (a)	171 000	4	M3 for $300 \times (210 + 150 + 210)$ oe or M2 for $3 \times (2.1 + 1.5 + 2.1)$ oe soi or M1 for 3×2.1 or 3×1.5 oe soi
	(b) (i) 190	3	M2 for $\frac{300}{30} \times \frac{570}{30}$ oe or B1 for $\div 30$ soi
	(ii) 38 pattern tiles 152 plain tiles 16 boxes plain, 4 boxes pattern	2 2 1FT	M1 for <i>their</i> $190 \div 5 (\times 1)$ oe M1 for <i>their</i> $190 \div 5 \times 4$ oe
	(c) 9.45	2	M1 for $3 \times 2.1 \times 1.5$
3 (a)	(i) Green	1	
	(ii) Yellow	1	
	(iii) $\frac{2}{12}$ oe isw	1	
	(iv) 0	1	
	(b) G 1 or 1 R 2 1 O 2 3 Y 5 5	3	B1 for $G + R + O + Y = 10$ B1 for 5 yellow
4 (a)	(i) 290	2	M1 for 65×4
	(ii) 7	2	M1 for $(485 - 30) \div 65$ soi
	(b) 24	2	M1 for distance \div time soi

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Question	Answer	Mark	Part Marks	
5 (a) (i)	$\begin{array}{l l} 13 & 1 \ 1 \ 4 \\ 14 & 1 \ 2 \ 7 \ 7 \\ 15 & 1 \ 2 \ 2 \ 3 \ 5 \ 9 \\ 16 & [0] \ 4 \end{array}$ <p>e.g. $16 \mid 0$ represents 16.0 [years]</p>	2	B1 for correct table with 1 or 2 errors or 'correct' table but unordered leaves	
(ii)	3.3	1		
(iii)	15.1	1		
(b)	14.6	2		M1 for $7 \div 12$ soi
6 (a) (i)	1 or 4 or 6	1	If 0 scored SC1 for 2, 4, 6, 8, 10, 12, 14 only anywhere in B	
(ii)	9	1		
(iii)	15	1		
(iv)	8	1		
(v)	7	1		
(b)	$\begin{array}{ll} 7, 9 & \text{in } A \\ 6, 8 & \text{in } A \cap B \\ 2, 10, 14 & \text{in } B \end{array}$	1 1 1		
7 (a)	Correct reflection	1	B1 for correct rotation 90 anti-clockwise or for correct orientation, wrong position	
(b)	Correct rotation	2		
(c)	Correct translation	2		B1 for either 3 horizontal to right or 2 vertical up or for correct $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ translation
(d)	Enlargement [Scale factor] 2	1 1		If more than one transformation, question scores zero.

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Question	Answer	Mark	Part Marks
8 (a) (i)	8	1	
(ii)	-4	1	
(iii)	$1\frac{1}{2}$ oe	3	B1 for $12x - 10 = 8$ or $6x - 5 = 4$ B1 for $12x = 8 + their 10$ Or for $6x = their 4 + 5$
(b)	$x = -2$ $y = 5$	2	B1 for $x = -2$ B1 for $y = 5$ If 0 scored SC1 for two values satisfying one of the original equations
9 (a)	Maths and E:80% M:85% S: 70%	3	B2 for 2 values correct or M1 for mark ÷ total implied by 1 value correct
(b)	81	3	M2 for 60×1.35 oe or M1 for 60×0.35 oe
10 (a)	Substitute $x = 4$ and $y = 5$ Show this balances	1 1	OR Substitute $x = 4$ into equation Show get $y = 5$
(b)	2	1	
(c)	$y = 2x + 1$ oe final answer	2	B1 for $y = 2x + n$ oe $n \neq -3$ or for $y = px + 1$ oe $p \neq 0$ or for $2x + 1$
(d)	$[x =] \frac{y+3}{2}$ oe final answer	2	M1 for correct first step M1FT for correct second step
11 (a)	Correct diagram	2	B1 for 0.7 oe correctly placed once
(b)	0.09 oe	2	M1 for $0.3 \times their 0.3$
12 (a)	$9x$ final answer	2	B1 for $\frac{9x^2}{[1]x}$ or $\frac{18x}{2}$ seen
(b)	$3x([1]x + 2)$ final answer	2	B1 for $3([1]x^2 + 2x)$ or $x(3x + 6)$
(c)		1	
(d)	5, 6, 7	1	
(e)	$x^2 + [1]x - 6$ final answer	2	B1 for any three of x^2 , $-2x$, $(+)3x$, -6 seen
13 (a)	13.8 or 13.82...	2	M1 for $7.2^2 + 11.8^2$ soi
(b)	37.8 or 37.82...	2	M1 for $\tan [y =] 11.8 \div 15.2$

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Question	Answer	Mark	Part Marks	
14	(a)	Correct shape	1	
		Correct position	1	
	(b)	Max $(-2, 20)$	1	
		Min $(1, -7)$	1	
	(c)	$(-3.31, 0)$	1	
		$(0, 0)$	1	
		$(1.81, 0)$	1	
				If 0 scored SC1 for $-3.3, 0, 1.8$ seen as x