



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/33**

Paper 3 (Core)

**May/June 2016**

MARK SCHEME

Maximum Mark: 96

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**Published**

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### Abbreviations

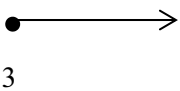
awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfwf	not from wrong working
soi	seen or implied

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

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

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Question	Answer	Mark	Part Marks
8 (a) (i)	8	1	<b>B1</b> for $12x - 10 = 8$ or $6x - 5 = 4$ <b>B1</b> for $12x = 8 + their 10$ Or for $6x = their 4 + 5$
(ii)	-4	1	
(iii)	$1\frac{1}{2}$ oe	3	
(b)	$x = -2$ $y = 5$	2	
9 (a)	Maths and E:80% M:85% S: 70%	3	<b>B2</b> for 2 values correct or <b>M1</b> for mark ÷ total implied by 1 value correct
(b)	81	3	<b>M2</b> for $60 \times 1.35$ oe or <b>M1</b> for $60 \times 0.35$ 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	<b>B1</b> 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	<b>M1</b> for correct first step <b>M1FT</b> for correct second step
11 (a)	Correct diagram	2	<b>B1</b> for 0.7 oe correctly placed once
(b)	0.09 oe	2	<b>M1</b> for $0.3 \times their 0.3$
12 (a)	$9x$ final answer	2	<b>B1</b> for $\frac{9x^2}{[1]x}$ or $\frac{18x}{2}$ seen
(b)	$3x([1]x + 2)$ final answer	2	<b>B1</b> 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	<b>B1</b> for any three of $x^2$ , $-2x$ , $(+)3x$ , $-6$ seen
13 (a)	13.8 or 13.82...	2	<b>M1</b> for $7.2^2 + 11.8^2$ soi
(b)	37.8 or 37.82...	2	<b>M1</b> for $\tan [y = ] 11.8 \div 15.2$

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