



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

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/52**

Paper 5 (Core)

**October/November 2016**

MARK SCHEME

Maximum Mark: 24

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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.

Cambridge will not enter into discussions about these mark schemes.

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<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
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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

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Part Marks</b>																		
<b>1 (a)</b>	<table border="1"> <tr> <td><i>PQBA</i></td> <td><i>PQDC</i></td> <td><i>PQRS</i></td> </tr> <tr> <td><i>ABDC</i></td> <td><i>ABRS</i></td> <td></td> </tr> <tr> <td><i>CDRS</i></td> <td></td> <td></td> </tr> </table>	<i>PQBA</i>	<i>PQDC</i>	<i>PQRS</i>	<i>ABDC</i>	<i>ABRS</i>		<i>CDRS</i>			<b>2</b>	<b>B1</b> for each									
<i>PQBA</i>	<i>PQDC</i>	<i>PQRS</i>																			
<i>ABDC</i>	<i>ABRS</i>																				
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<b>(b)</b>	<table border="1"> <tr> <td><i>PQBA</i></td> <td><i>PQDC</i></td> <td><i>PQFE</i></td> <td><i>PQRS</i></td> </tr> <tr> <td><i>ABDC</i></td> <td><i>ABFE</i></td> <td><i>ABRS</i></td> <td></td> </tr> <tr> <td><i>CDFE</i></td> <td><i>CDRS</i></td> <td></td> <td></td> </tr> <tr> <td><i>EFRS</i></td> <td></td> <td></td> <td></td> </tr> </table>	<i>PQBA</i>	<i>PQDC</i>	<i>PQFE</i>	<i>PQRS</i>	<i>ABDC</i>	<i>ABFE</i>	<i>ABRS</i>		<i>CDFE</i>	<i>CDRS</i>			<i>EFRS</i>				<b>3</b>	<b>B2</b> for 3 or 4 correct or <b>B1</b> for 2 correct		
<i>PQBA</i>	<i>PQDC</i>	<i>PQFE</i>	<i>PQRS</i>																		
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<b>(c)</b>	15	<b>1</b>	C opportunity																		
<b>(d)</b>	<table border="1"> <tr> <td>Number of lines</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Number of rectangles</td> <td>1</td> <td>3</td> <td>6</td> <td>10</td> <td>15</td> <td>21</td> <td>28</td> <td>36</td> </tr> </table>	Number of lines	0	1	2	3	4	5	6	7	Number of rectangles	1	3	6	10	15	21	28	36	<b>3</b>	<b>B1</b> each cell  C opportunity
Number of lines	0	1	2	3	4	5	6	7													
Number of rectangles	1	3	6	10	15	21	28	36													
<b>(e)</b>	Triangle [numbers]	<b>1</b>																			
<b>(f)</b>	66	<b>1</b>	C opportunity																		
<b>2 (a)</b>	6	<b>1</b>																			
<b>(b)</b>	<table border="1"> <tr> <td>Number of lines</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Number of rectangles</td> <td>1</td> <td>3</td> <td>6</td> <td>10</td> <td>15</td> <td>21</td> <td>28</td> <td>36</td> </tr> </table>	Number of lines	0	1	2	3	4	5	6	7	Number of rectangles	1	3	6	10	15	21	28	36	<b>1</b>	Allow one error
Number of lines	0	1	2	3	4	5	6	7													
Number of rectangles	1	3	6	10	15	21	28	36													
<b>(c)</b>	same	<b>1</b>																			
<b>3</b>	91 shown as answer to calculation 91 shown as 13 <sup>th</sup> term in the sequence oe	<b>1</b> <b>1</b>																			

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Question	Answer	Marks	Part Marks
4 (a)	$[a=] \frac{3}{2}$ oe $[b=] 1$	3	<b>B2</b> for either $a$ or $b$ correct If 0 scored <b>SC2</b> for $\frac{n^2 + 3n + 2}{2}$ seen or <b>M1</b> for one correct substitution of $T$ and $n$ C opportunity
(b)	Substitution of 7 in <i>their</i> formula	1	<b>FT</b>
(c)	20	2	<b>M1</b> for $n^2 + 3n + 2 = 462$ or for sketch or for correct sequence to 15th term or further
5	496	1	<b>FT</b> from <i>their</i> formula in 4(a) C opportunity
<b>Communication:</b> Seen in one of the following questions		1	
1 (c)	Method of counting (implied addition), e.g. drawing or $5 + 4 + 3 + 2 + 1$ Or listing rectangles		
1 (d)	Differences shown		
1 (f)	Working shown, e.g. sequence continued – 45, 55, 66		
4 (a)	Working shown e.g. difference method or substitution to give two equations		
5	Working shown e.g. substitution		