

**MARK SCHEME for the October/November 2011 question paper
for the guidance of teachers**

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/05

Paper 5 (Core), maximum raw mark 24

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 must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

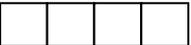
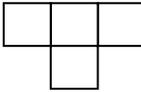
Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

INVESTIGATION MAXIMISING THE PERIMETER

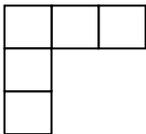
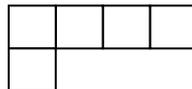
1

(a) e.g.

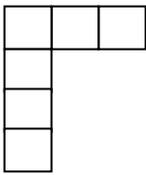
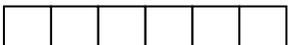
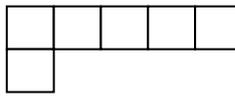
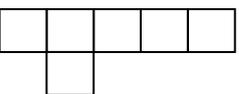
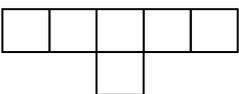
3 squares 

4 squares  or  or 

(b) (i) 2 arrangements required with perimeter > 10 (= 12). e.g.

 or  or 

(ii) 2 arrangements required with perimeter > 12 (= 14). e.g.

 or  or 
 or  or 

(c) (i) 10 (cm)

(ii) 12 (cm)

(iii) 14 (cm)

(d) (i)

Number of square	2	3	4	5	6	7	8	9	10
Greatest perimeter (cm)	6	8	10	12	14	16	18	20	22

(ii) 36 (cm)

(iii) 15 (squares)

(e) (i) (then add) 2

(ii) (by) 2, (then add) 2

1

Shapes may not be rotations or reflections of those given

1

1

Shapes may not be rotations or reflections of those given or of each other

1

1

Shapes may not be rotations or reflections of those given or of each other

1

1

1

1

C opportunity for shapes drawn on grid

2

-1 eooo

1

1

1

1

	(f) $2x + 2$	1																	
2	(a) 8 (cm)	1	C opportunity for shapes drawn on grid																
	(b) (i)																		
	<table border="1"> <tr> <td>Number of equilateral triangles</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>Greatest perimeter (cm)</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> </table>	Number of equilateral triangles	2	3	4	5	6	7	8	Greatest perimeter (cm)	4	5	6	7	8	9	10	2	-1 eeo
	Number of equilateral triangles	2	3	4	5	6	7	8											
	Greatest perimeter (cm)	4	5	6	7	8	9	10											
(ii) 12 (cm)	1																		
(iii) 16	1																		
(c) $x + 2$	1																		
3	$4x + 2$	2	1 for $4x + k$ C opportunity for attempt to explain																
		C2	C2 for 3 C opportunities seen C1 for 1 or 2 C opportunities seen																
		[Total: 26 scaled to 24]																	