

MARK SCHEME for the May/June 2010 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.

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Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2010	0607	05

M marks are given for a correct method.

A marks are given for an accurate answer following a correct method.

B marks are given for a correct statement or step.

D marks are given for a clear and appropriately accurate drawing.

P marks are given for accurate plotting of points.

E marks are given for correctly explaining or establishing a given result.

C marks are given for clear communication.

Abbreviations

cao correct answer only

cso correct solution only

ft follow through

oe or equivalent

soi seen or implied

ww without working

www without wrong working

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
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Question	Answer	Mark	Notes	Comments																																											
1 (a)	3	2	B2 OR M1 for 9×6 or 54 seen	Communication mark possible for a complete method for one of these																																											
(b)	7	2	B2 OR M1 for 44×13 or 572 seen																																												
(c)	4	2	B2 OR M1 for 4×7 or 28 seen																																												
(d)	2	2	B2 OR M1 for 30×17 or 510 seen																																												
2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Prime</th> <th>Division</th> <th>Remainder</th> <th>Division</th> <th>Remainder</th> <th>Division</th> <th>Remainder</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>$2^2 \div 3$</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>$2^4 \div 5$</td> <td>1</td> <td>$3^4 \div 5$</td> <td>1</td> <td>$4^4 \div 5$</td> <td>1</td> </tr> <tr> <td>7</td> <td>$2^6 \div 7$</td> <td>1</td> <td>$3^6 \div 7$</td> <td>1</td> <td>$4^6 \div 7$</td> <td>1</td> </tr> <tr> <td>11</td> <td>$2^{10} \div 11$</td> <td>1</td> <td>$3^{10} \div 11$</td> <td>1</td> <td>$4^{10} \div 11$</td> <td>1</td> </tr> <tr> <td>13</td> <td>$2^{12} \div 13$</td> <td>1</td> <td>$3^{12} \div 13$</td> <td>1</td> <td>$4^{12} \div 13$</td> <td>1</td> </tr> </tbody> </table>	Prime	Division	Remainder	Division	Remainder	Division	Remainder	3	$2^2 \div 3$	1					5	$2^4 \div 5$	1	$3^4 \div 5$	1	$4^4 \div 5$	1	7	$2^6 \div 7$	1	$3^6 \div 7$	1	$4^6 \div 7$	1	11	$2^{10} \div 11$	1	$3^{10} \div 11$	1	$4^{10} \div 11$	1	13	$2^{12} \div 13$	1	$3^{12} \div 13$	1	$4^{12} \div 13$	1				
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13	$2^{12} \div 13$	1	$3^{12} \div 13$	1	$4^{12} \div 13$	1																																									
		6	B6 Deduct $\frac{1}{2}$ for each error or omission and round down If 0, SC1 for $3^{12} \div 13$ or $4^{12} \div 13$	Ignore extra entries																																											
3 (a)	13	1	B1																																												
(b)	17	1	B1																																												
4 (a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>$7^{12} \div 13$</td> <td>1</td> </tr> <tr> <td>$7^{12} - 1$</td> <td>13</td> </tr> </tbody> </table>	$7^{12} \div 13$	1	$7^{12} - 1$	13	2	B1 B1																																								
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$7^{12} - 1$	13																																														
(b)	17	1	B1	Accept 2, 5, 41 or 193																																											
5	p	1	B1	Accept $(p - 1) + 1$ or $p - 1 + 1$																																											
6	$3^{28} - 1$ has a prime factor of 29	2	B2 B1 for a prime bigger than 25 seen	Other examples possible																																											
7	23	1	B1	Accept 89 or 683																																											
		1	C1	Communication seen in question 1																																											