

**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.

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

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



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**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

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<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Notes</b>	<b>Comments</b>																																											
<b>1 (a)</b>	3	2	B2 OR M1 for $9 \times 6$ or 54 seen	Communication mark possible for a complete method for one of these																																											
<b>(b)</b>	7	2	B2 OR M1 for $44 \times 13$ or 572 seen																																												
<b>(c)</b>	4	2	B2 OR M1 for $4 \times 7$ or 28 seen																																												
<b>(d)</b>	2	2	B2 OR M1 for $30 \times 17$ or 510 seen																																												
<b>2</b>	<table border="1"> <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><math>2^2 \div 3</math></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td><math>2^4 \div 5</math></td> <td>1</td> <td><math>3^4 \div 5</math></td> <td>1</td> <td><math>4^4 \div 5</math></td> <td>1</td> </tr> <tr> <td>7</td> <td><math>2^6 \div 7</math></td> <td>1</td> <td><math>3^6 \div 7</math></td> <td>1</td> <td><math>4^6 \div 7</math></td> <td>1</td> </tr> <tr> <td>11</td> <td><math>2^{10} \div 11</math></td> <td>1</td> <td><math>3^{10} \div 11</math></td> <td>1</td> <td><math>4^{10} \div 11</math></td> <td>1</td> </tr> <tr> <td>13</td> <td><math>2^{12} \div 13</math></td> <td>1</td> <td><math>3^{12} \div 13</math></td> <td>1</td> <td><math>4^{12} \div 13</math></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																																											
<b>3 (a)</b>	13	1	B1																																												
<b>(b)</b>	17	1	B1																																												
<b>4 (a)</b>	<table border="1"> <tbody> <tr> <td><math>7^{12} \div 13</math></td> <td>1</td> </tr> <tr> <td><math>7^{12} - 1</math></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>(b)</b>	17	1	B1	Accept 2, 5, 41 or 193																																											
<b>5</b>	$p$	1	B1	Accept $(p - 1) + 1$ or $p - 1 + 1$																																											
<b>6</b>	$3^{28} - 1$ has a prime factor of 29	2	B2 B1 for a prime bigger than 25 seen	Other examples possible																																											
<b>7</b>	23	1	B1	Accept 89 or 683																																											
		1	C1	Communication seen in question 1																																											