



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/05**

Paper 5 (Core)

**For Examination from 2010**

SPECIMEN MARK SCHEME

**1 hour**

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**MAXIMUM MARK: 24**

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This document consists of **4** printed pages.



**TYPES OF MARK**

- **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 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 (Papers 5 and 6 only).
- **R** marks are given for appropriate reasoning (Papers 5 and 6 only).

**ABBREVIATIONS**

- ft Follow through
- oe Or equivalent
- soi Seen or implied
- www Without wrong working

<b>1</b> <b>(a)</b>  <b>(b)</b>	$\frac{3}{24} + \frac{4}{24} = \frac{7}{24}$ $\frac{2}{12} + \frac{3}{12} = \frac{5}{12}$	AR1  AR1	(both accuracy & reasons are required)
<b>2</b> <b>(a)</b> <b>(i)</b>  <b>(ii)</b>  <b>(iii)</b>  <b>(b)</b>   <b>(c)</b>	$\frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$ $\frac{1}{4} + \frac{1}{12} = \frac{3}{12} + \frac{1}{12} = \frac{4}{12} = \frac{1}{3}$ $\frac{1}{5} + \frac{1}{20} = \frac{4}{20} + \frac{1}{20} = \frac{5}{20} = \frac{1}{4}$ $\frac{1}{5} = \frac{1}{6} + \frac{1}{30}$ $\frac{1}{6} = \frac{1}{7} + \frac{1}{42}$ $\frac{1}{7} = \frac{1}{8} + \frac{1}{56}$ $\frac{1}{99} = \frac{1}{100} + \frac{1}{9900}$	R2     B2   B1	       (B1 or two correct)
<b>3</b> <b>(a)</b>  <b>(b)</b> <b>(i)</b>  <b>(ii)</b>  <b>(c)</b>	$2 \times \frac{1}{3} = 2 \left( \frac{1}{4} + \frac{1}{12} \right)$ $\text{So } \frac{2}{3} = \frac{2}{4} + \frac{2}{12} = \frac{1}{2} + \frac{1}{6}$ $\frac{2}{5} = 2 \left( \frac{1}{6} + \frac{1}{30} \right) = \frac{1}{3} + \frac{1}{15}$ $\frac{2}{7} = 2 \left( \frac{1}{8} + \frac{1}{56} \right) = \frac{1}{4} + \frac{1}{28}$ $\frac{10}{99} = 10 \left( \frac{1}{100} + \frac{1}{9900} \right) = \frac{10}{100} + \frac{10}{9900}$ $= \frac{1}{10} + \frac{1}{990}$	R2  M1A1  M1A1  M1 A1	

<p><b>4</b></p> <p><b>(a)</b></p> <p><b>(b) (i)</b></p> <p><b>(b) (ii)</b></p> <p><b>(c)</b></p> <p><b>(d)</b></p> <p><b>(e)</b></p> <p><b>(f)</b></p>	$\frac{1}{6} + \frac{1}{10} = \frac{5}{30} + \frac{3}{30} = \frac{8}{30} = \frac{4}{15}$ <p><math>x = 3</math> and <math>y = 9</math> (or vice versa) in which case <math>k = \frac{9+3}{4} = 3</math> giving</p> $\frac{4}{27} = \frac{1}{9} + \frac{1}{27}$ <p><b>OR</b></p> <p><math>x = 1</math> and <math>y = 27</math> (or vice versa) in which case <math>k = \frac{1+27}{4} = 7</math> giving</p> $\frac{4}{27} = \frac{1}{7} + \frac{1}{189}$ <p><math>x = 3</math> and <math>y = 11</math> (or vice versa) in which case <math>k = \frac{11+3}{7} = 2</math> giving</p> $\frac{7}{33} = \frac{1}{6} + \frac{1}{22}$ <p>Take <math>x = 1</math> and <math>y = 15</math> (or vice versa) in which case <math>k = \frac{1+15}{4} = 4</math> giving</p> $\frac{4}{15} = \frac{1}{4} + \frac{1}{60}$ <p>Taking <math>x = 1</math> and <math>y = 20</math> gives <math>k = 7</math> and <math>\frac{3}{20} = \frac{1}{7} + \frac{1}{140}</math></p> <p>Taking <math>x = 2</math> and <math>y = 10</math> gives <math>k = 4</math> and <math>\frac{3}{20} = \frac{1}{8} + \frac{1}{40}</math></p> <p>Taking <math>x = 4</math> and <math>y = 5</math> gives <math>k = 3</math> and <math>\frac{3}{20} = \frac{1}{12} + \frac{1}{15}</math></p> <p><math>1 = \frac{1}{2} + \frac{1}{2} = \frac{1}{2} + \frac{1}{3} + \frac{1}{6}</math> using the pattern in part 2.</p> <p>Breaking down <math>\frac{1}{6}</math> as in question 2 (b) gives <math>1 = \frac{1}{2} + \frac{1}{3} + \frac{1}{7} + \frac{1}{42}</math></p>	<p>C2</p> <p>B2</p> <p>B2</p> <p>B2</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B1</p>	<p>Accept also <math>1 = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{12}</math></p> $1 = \frac{1}{2} + \frac{1}{3} + \frac{1}{10} + \frac{1}{15}$ $1 = \frac{1}{2} + \frac{1}{4} + \frac{1}{5} + \frac{1}{20}$
For clear communication and reasoning throughout the paper award C2			

**Total: 30 marks scaled down to 24.**