



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

MAXIMUM MARK: 24

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

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

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

Total: 30 marks scaled down to 24.