Mark scheme

Recurring decimals

Mathematics 0580 · Paper 2 (Extended)

Total marks

26

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
1	2	2	2	3	3	3	3	3	4	**26**

Question 1 **[1]**

1	$\frac{7}{9}$	**1**	

Question 2 **[2]**

2	$\frac{2}{9}$ oe, must be a fraction	**2**	**M1** for $2.\dot{2} - 0.\dot{2}$ oe or **B1** for $\frac{k}{9}$

Question 3 **[2]**

3	$\frac{14}{90}$ oe must be fraction	**2**	**M1** for $15.\dot{5} - 1.\dot{5}$ oe or **B1** for $\frac{k}{90}$

Question 4 **[2]**

4	$\frac{8}{33}$ cao	**2**	**B1** for $\frac{24}{99}$ oe or **M1** for 24.24… – 0.24… oe

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Question 5 **[3]**

5	$10^{k+2} \times [0].\dot{6}\dot{3} - 10^{k} \times [0].\dot{6}\dot{3}$ oe where $k > 1$	**M1**	
	$\frac{63}{99}$ or equivalent fraction	**A1**	e.g. $\frac{6300}{9900}$ but not $\frac{7}{11}$
	$\frac{7}{11}$	**B1**	

Question 6 **[3]**

6	42.22… – 4.22… oe	**M1**	**M1** for correct working shown
	$\frac{19}{45}$ cao	**A2**	**A1** for $\frac{38}{90}$ oe seen If **M0** scored **SC1** for $\frac{k}{90}$ or for answer $\frac{19}{45}$ with insufficient working.

Question 7 **[3]**

7	621.21… – 6.21… oe	**M1**	
	$\frac{41}{66}$ cao	**A2**	**A1** for $\frac{615}{990}$ oe If M0 scored **SC1** for $\frac{k}{990}$ or for answer $\frac{41}{66}$ with insufficient working

Question 8 **[3]**

8	$419.\dot{1}\dot{9} - 4.\dot{1}\dot{9}$ oe	**M1**	
	$\frac{83}{198}$ cao	**A2**	**Al** for $\frac{415}{990}$ oe If M0 scored **SC1** for $\frac{k}{990}$ or correct answer with insufficient working

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Question 9 **[3]**

9	$\frac{311}{990}$ oe fraction	**3**	**M2** for $314.14\ldots - 3.14\ldots$ oe or $\frac{113}{990} + \frac{198}{990}$ or **M1** for $114.14\ldots - 1.14\ldots$ oe or $0.3\dot{1}\dot{4}$ or $\frac{113}{990}$

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Question 10 **[4]**

10	$\frac{38}{45}$ cao	**4**	**B3** for $\frac{76}{90}$ oe fraction OR **M3** for any complete correct method with common denominators that would reach $\frac{76}{90}$ oe e.g. $\frac{28.8\ldots - 2.8\ldots}{100-10} + \frac{50}{90}$ oe $\frac{50}{90} + \frac{18}{90} + \frac{8}{90}$ oe $\frac{84.4\ldots - 8.4\ldots}{100-10}$ oe or **M2** for any correct method to convert $0.2\dot{8}$ to fractional form e.g. $\frac{28.8\ldots - 2.8\ldots}{100-10}$ oe $\frac{2}{10} + \frac{8.8\ldots - 0.8\ldots}{100-10}$ oe or **M1** for correct method to add *their* fractions with a common denominator e.g. $\frac{50}{90} + \textit{their}\,\frac{26}{90}$ oe $\frac{50}{90} + \frac{18}{90} + \textit{their}\,\frac{8}{90}$ oe or for method to subtract to eliminate recurring parts $28.8\ldots - 2.8\ldots$ oe $8.88\ldots - 0.08\ldots$ oe or **B1** for a correct conversion between a relevant recurring decimal and a fraction e.g. $\frac{5}{9} = 0.\dot{5}$, $0.0\dot{8} = \frac{8}{90}$