



1. Marco used his calculator to divide a 2-digit number by a 2-digit number. His calculator showed this display.

2.030303030

What calculation did Marco do?

----- [4]



2. Write $0.\dot{7}\dot{2}$ as a fraction in its simplest terms.

----- [3]



3. Write $0.\dot{3}2\dot{4}$ as a fraction in its simplest form.

----- [3]



4.

Convert 0.126 to a fraction.

Give your answer in its lowest terms.

----- [3]



5.

Convert $0.\dot{7}\dot{6}$ to a fraction.

----- [2]

END OF QUESTION PAPER

Question		Answer/Indicative content	Marks	Part marks and guidance	
1		$67 \div 33$	4	<p>B3 for $x = \frac{201}{99}$</p> <p>Or B2 for $99x = 201$ or figures 33 & 67</p> <p>Or M1 for 203.03[03...] or figures 201 & 99</p> <p>Examiner's Comments</p> <p>Stronger candidates realised they were being asked to convert the recurring decimal to a fraction and many could complete that fully either by multiplying the given decimal by 100 or by subtracting the whole number first. Some got to</p> $\frac{201}{99}$ <p>correctly but did not simplify it, earning 3 out of 4 marks. Weaker candidates tended to make numerous random attempts to find two numbers that divided to give the correct answer, rarely with any success. Some realised they had to multiply the given number by a power of 10 but used 10 or 1000 rather than 100. Some got 1 mark for multiplying by 100 correctly, but then often forgot to subtract the 2 and went on to give the wrong answer of</p> $\frac{203}{99}$	<p>Condone $\frac{67}{33}$</p> <p>Condone 3.03[03...]</p>
		Total	4		

Question		Answer/Indicative content	Marks	Part marks and guidance	
2		$\frac{8}{11}$	3	<p>M2 for $\frac{72}{99}$</p> <p>or</p> <p>M1 for $100 [n] = 72.72$ or better</p> <p>Examiner's Comments</p> <p>Many wrote $72/99$ and did not attempt to simplify this fraction whilst a very common approach was to write $72/100$ and simplify to $18/25$. Some attempted to get $100x$ and then to subtract but this method was not well understood. It will be interesting to see how they might cope with decimals where the recurring digits do not start straight after the decimal point.</p>	
		Total	3		

Question		Answer/Indicative content	Marks	Part marks and guidance	
3		$\frac{12}{37}$	3	$\frac{324}{999}$ oe B2 for $\frac{324}{999}$ oe or M1 for $1000n =$ $\frac{[0].324}{324.324\dots}$ or $[0].999$ <u>Examiner's Comments</u> Many candidates recognised the technique expected, but used $100r = \frac{32}{99}$ while others gave $\frac{324}{1000}$. When $\frac{324}{999}$ was given it was often without previous working. Some simplified as far as $\frac{36}{111}$ but candidates did not seem to be able to recognise divisibility by 3 in larger numbers.	We must have a proper fraction
		Total	3		

Question		Answer/Indicative content	Marks	Part marks and guidance		
4		$\frac{19}{150}$ as final answer	3	<p>B2 for</p> $\frac{114k}{900k} \text{ oe}$ <p>or M1 for 126.66... and 12.66... or better</p> <p>or fraction</p> $\frac{k}{900} \text{ or}$ $\frac{k}{9000}$	<p>Sets up a 'pair' to eliminate the recurrence Accept eg 12.666.. and 0.126...</p>	
		Total	3	<p>Examiner's Comments</p> <p>Part (b) was done very poorly by most candidates. Many appeared to be using trials using division.</p>		

Question		Answer/Indicative content	Marks	Part marks and guidance	
5		$\frac{76}{99}$	2	Mark final answer M1 for 76.76... seen or answer $\frac{k}{99}$	
				<u>Examiner's Comments</u> This was very well answered. Many candidates appreciated that the resulting fraction should be given as a fraction with 99 as the denominator. Most showed correct methodology before obtaining the correct fraction.	
		Total	2		