



Recurring Decimals to Fractions Exam Practice

- Q1. Convert $\frac{2}{15}$ to a decimal. (2 marks)
- Q2. Convert $\frac{5}{11}$ to a decimal. (2 marks)
- Q3. Convert $\frac{4}{9}$ to a decimal. (2 marks)
- Q4. Prove algebraically that the recurring decimal $0.36363636\dots$ is equivalent to the fraction $\frac{4}{11}$. (2 marks)
- Q5. Prove algebraically that the recurring decimal $0.\dot{7}$ is equivalent to the fraction $\frac{7}{9}$. (2 marks)
- Q6. Prove algebraically that the recurring decimal $0.4\dot{7}$ is equivalent to the fraction $\frac{47}{99}$. (2 marks)
- Q7. Prove algebraically that the recurring decimal $0.0\dot{6}1$ is equivalent to the fraction $\frac{8}{495}$. (2 marks)
- Q8. Prove algebraically that the recurring decimal $0.1\dot{5}\dot{8}$ is equivalent to the fraction $\frac{a}{b}$ where a, b are whole numbers to be found. (2 marks)
- Q9. Prove algebraically that the recurring decimal $0.4\dot{2}$ is equivalent to the fraction $\frac{19}{45}$. (2 marks)
- Q10. Prove algebraically that the recurring decimal $0.53\dot{2}$ is equivalent to the fraction $\frac{479}{900}$. (2 marks)



Applied Mixed Practice Problems

Q11. Work out the following using algebra:

$$0.8\dot{2} + 0.\dot{3}$$

(3 marks)

Q12. Work out the following using algebra:

$$0.\dot{7}\dot{2} \times 0.\dot{7}$$

(3 marks)

Q13. (i) Convert the following to a mixed number using algebra: $5.\dot{3}4\dot{5}$

(2 marks)

(ii) Hence work out $5.\dot{3}4\dot{5} - 3.\dot{2}\dot{2}\dot{5}$

(2 marks)

Q14.a) A simplified fraction will be equivalent to a terminating decimal only if its denominator is just a product of 2's and/or 5's only.

(i) Use the above fact to show that $\frac{11}{28}$ will be a recurring decimal.

(1 mark)

(ii) Use the above rule to decide if $\frac{583}{3500}$ is a terminating decimal.

(1 mark)

(b) Using algebra, work out: $\frac{0.13\dot{7}4 \div 0.\dot{8}}{2}$

(3 marks)

Q15. Prove that $0.\dot{0}0\dot{x}$ is equivalent to the fraction $\frac{x}{999}$ where x is a single non-zero digit.

(2 marks)

Q16. Work out the equivalent fraction to $0.\dot{y}\dot{x} - 0.\dot{x}\dot{y}$ with $y = x - 1$ where $2 \leq x \leq 9$ and $1 \leq y \leq 8$. You must justify every step.

(4 marks)