O Level Maths

Topic: Recurring Decimals and Surds

Instructions

Answer all questions. Show working where necessary. Use your knowledge of recurring decimals and surds to simplify and solve the given problems.

Practice Problems

1. Convert the recurring decimal $0.\overline{3}$ into a fraction.
2. Simplify the following surd: $\sqrt{50}$
3. Convert $0.\overline{72}$ into a fraction.
4. Simplify the following expression involving surds: $\sqrt{12} + 2\sqrt{3}$
5. Find the value of $\sqrt{32}$ in its simplest form.
6. Convert the recurring decimal $0.\overline{142857}$ into a fraction.
7. Simplify: $\sqrt{98} - \sqrt{24}$
8. Express $0.\overline{54}$ as a fraction.

Word Problems

1. A number is written as $0.\overline{72}$. Convert this number into a fraction and calculate the exact value up to two decimal places.
2. The radius of a circle is $\sqrt{18}$ cm. Calculate the area of the circle in its simplest form.

3. A student wrote $0.\overline{123}$ as a fraction. Find this fraction and explain the process of conversion.

Multiple-Choice Questions

1. Which of the following is the correct fraction form of $0.\overline{6}$?

   A. $\frac{2}{3}$
   B. $\frac{1}{3}$
   C. $\frac{1}{6}$
   D. $\frac{2}{5}$

2. What is the simplest form of $\sqrt{72}$?

   A. $6\sqrt{2}$
   B. $12\sqrt{2}$
   C. $2\sqrt{18}$
   D. $3\sqrt{8}$

3. Which of the following is a recurring decimal?

   A. 0.75
   B. $0.\overline{3}$
   C. 0.5
   D. 0.6

4. Simplify the expression $\sqrt{24}$ to its simplest form.

   A. $4\sqrt{6}$
   B. $2\sqrt{6}$
   C. $6\sqrt{2}$
   D. $2\sqrt{3}$