National Institute of Open Schooling (NIOS)
Secondary Course
Lesson-02: Exponents and Radicals

Worksheet-02

1. Write any two positive rational numbers and express each in its exponential notation. Also write the base and exponent in each case.

2. Write any two negative rational numbers and express each in its reciprocal notation.

3. Express the following as power of rational number with positive exponents:

   i. $\left(\frac{3}{5}\right)^{-2}$

   ii. $\left(\frac{-10}{5}\right)^{-3}$

4. Simplify the following:

   i. $\left(\frac{3}{25}\right)^{2} \times \left(\frac{5}{9}\right)^{3}$

   ii. $(729)^{\frac{5}{6}}$

5. Simplify the following by using any laws of exponent:

   i. $\left(\frac{125}{27}\right)^{-\frac{3}{2}}$

   ii. $\left(\frac{5}{2}\right)^{2} \times \left(\frac{5}{2}\right)$

6. List out any three pure surds whose orders are 2, 3 and 5 respectively.

7. List out any three mixed surds whose co-efficient are 3, 4 and 5 respectively.

8. Express as a mixed surd in the simplest form.

   i. $\sqrt[3]{500}$

   ii. $\sqrt[4]{512}$

9. Simplify by rationalise the denominator

$$\frac{5+\sqrt{3}}{5-\sqrt{3}}+\frac{5-\sqrt{3}}{5+\sqrt{3}}$$

10. Write any two pure surds of different orders and compare between them.