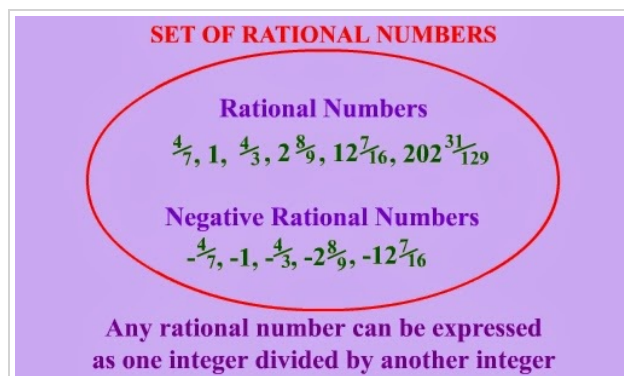


Introduction to Rational Numbers

All numbers, including **whole numbers, integers, fractions and decimal numbers**, can be written in the **numerator-denominator form**. A rational number is a number that can be written in the form p/q , where p and q are integers and $q \neq 0$. Eg: $\frac{2}{5}, \frac{-2}{5}, \frac{2}{-5}, \frac{-2}{-5}$.



The **denominator** of a rational number **can never be zero**. A rational number is positive if its numerator and denominator are both either positive integers or negative integers. Eg: $\frac{2}{5}, \frac{3}{4}, \frac{1}{5}, \frac{-8}{-5}$. If either the numerator or the denominator of a rational number is a negative integer, then the rational number is called a **negative rational number**.

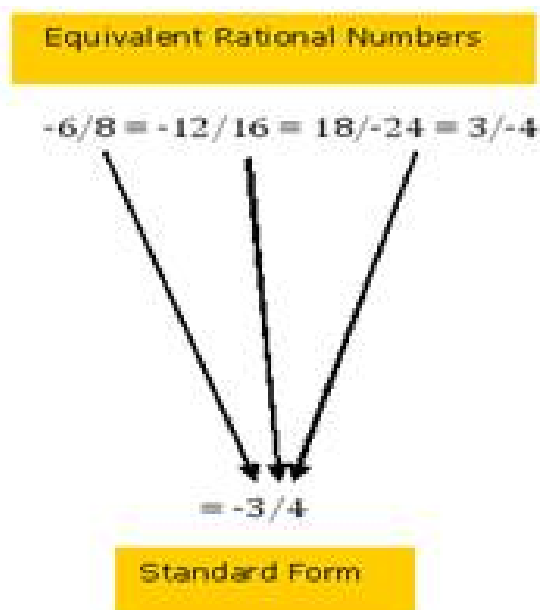
The rational number zero is neither negative nor positive.

On the number line:

- Positive rational numbers are represented to the right of 0.
- Negative rational numbers are represented to the left of 0.

By multiplying or dividing both the numerator and the denominator of a rational number by the same non-zero integer, we can get another rational number that is equivalent to the given rational number.

A rational number is said to be in its **standard form** if its numerator and denominator have no common factor other than 1, and its denominator is a positive integer.



To reduce a rational number to its **standard form**, divide its numerator and denominator by their **Highest Common Factor (HCF)**. To find the standard form of a rational number with a negative integer as the denominator, divide its numerator and denominator by their HCF with a minus sign.