The initial skills required for doing fraction arithmetic well are:

- Basic integer arithmetic
- The multiples of numbers
- The factor sets of numbers
- Common factors
- Knowledge of and what are prime numbers
- Write the prime factorization of numbers
- What is relatively prime

They greatly assist in doing Algebra as well.

These skills are fundamental to understanding and performing various concepts within **arithmetic**, particularly when dealing with **fractions, number theory, and simplification**. Here's how they relate:

- **Basic integer arithmetic:** This is the absolute foundation. You need to be able to add, subtract, multiply, and divide whole numbers (positive and negative) accurately to perform any operations with fractions, find factors, multiples, and prime factorizations.
- **The multiples of numbers:** Understanding multiples is crucial for:
  - **Finding common denominators** when adding or subtracting fractions. The common denominator is often a common multiple of the original denominators.
  - **Recognizing patterns in numbers.**
- **The factor sets of numbers:** Knowing the factors of a number is essential for:
  - **Simplifying fractions** by identifying and dividing out common factors from the numerator and denominator.
  - **Finding the greatest common factor (GCF),** which is the most efficient way to simplify fractions.
- **Knowledge of and what are prime numbers:** Understanding prime numbers is key for:
  - **Prime factorization,** which breaks down a number into its fundamental prime building blocks.
  - **Determining if a fraction is in its simplest form.** If the numerator and denominator share no common prime factors, the fraction is relatively prime and cannot be simplified further.
- **Write the prime factorization of numbers:** This skill is used for:
  - **Finding the greatest common factor (GCF)** and the **least common multiple (LCM)** of two or more numbers efficiently. These are vital for fraction arithmetic (simplifying, adding, subtracting).
  - **Understanding the fundamental structure of numbers.**
- **Common factors:** Identifying common factors between two or more numbers is directly used in:
  - **Simplifying fractions** by dividing both the numerator and denominator by a common factor.
  - **Finding the greatest common factor (GCF).**
- **What is relatively prime:** Understanding relatively prime numbers (numbers with a GCF of 1) is important for:
  - **Knowing when a fraction is in its simplest form.** If the numerator and denominator are relatively prime, the fraction cannot be reduced further.
  - **Certain number theory concepts.**

In essence, these skills work together to provide a strong number sense and the ability to manipulate and understand the relationships between numbers, which are all critical for mastering fraction arithmetic and other fundamental arithmetic concepts. They allow you to move beyond rote memorization of rules to a deeper understanding of how numbers work.