### 3.2 Least Common Multiple

**Learning Objectives:**
1. Find the Least Common Multiple (LCM) using Prime Factorization.
2. Write equivalent fractions when given a denominator.

1. **Finding the Least Common Multiple (LCM) using Prime Factorization**

   **Finding the LCM of a List of Numbers Using Prime Factorization.**
   1. Write the prime factorization of each number using exponent.
   2. For each different prime factor in Step 1, circle the greatest number or time that factor occurs or the highest exponent in any one factorization.
   3. The LCM is the product of the circles factors.

   **Example 1.** Find the Least Common Multiple using Prime Factorization.
   
   7, 14, 21, 36

2. **Writing equivalent fractions when given a denominator**

   **Example 2.** Write the fraction as an equivalent fraction with the given denominator.
   
   \[
   \frac{12}{7} = \frac{105}{105}
   \]