Adding and Subtracting Fractions

With different denominators

Different Denominators

- It's easy to add and subtract like fractions, or fractions with the same denominator.
  - You just add or subtract the numerators and keep the same denominator.
- To do this, you need to know how to find the **least common denominator.**
- In an earlier lesson, you learned how to simplify, or reduce, a fraction by finding an equivalent, or equal, fraction where the numerator and denominator have no common factors.
  - To do this, you divided the numerator and denominator by their greatest common factor.
- Next we will learn that you can also multiply the numerator and denominator by the same factor to make equivalent fractions.

LCD

$$\frac{3}{4} + \frac{1}{6}$$

- Since only like fractions can be added or subtracted, we first have to convert unlike fractions to equivalent like fractions.
- We want to find the smallest, or least, common denominator, because working with smaller numbers makes our calculations easier.
- The least common denominator, or LCD, of two fractions is the smallest number that can be divided by both denominators.

Methods for Finding LCD

- The first method is to simply start writing all the multiples of both denominators, beginning with the numbers themselves. Here's an example of this method. Multiples of 4 are 4, 8, 12, 16, and so forth (because 1 × 4=4, 2 × 4=8, 3 × 4=12, 4 × 4=16, etc.). The multiples of 6 are 6, 12,…--that's the number we're looking for, 12, because it's the first one that appears in both lists of multiples. It's the least common multiple, which we'll use as our least common denominator.

LCD

$$\frac{3}{4} + \frac{1}{6}$$

- What multiple is common to both 4 and 6?
- 12
- ¾ + 1/6 =9/12 +2/12=11/12