

## How to find LCD

To find the least common denominator using this method, **factor each of the denominators** into **primes**. Then for each **different** prime number in all of the factorizations, do the following...

1. **Count** the number of times each prime number appears in each of the factorizations.
2. For each prime number, take the **largest** of these counts.
3. Write down that prime number as **many times as you counted** for it in step #2.
4. The least common denominator is the **product** of all the prime numbers written down.

**Example:** We'll use the same fractions as above:  $1/5$ ,  $1/6$  and  $1/15$ .

- **Factor into primes**
  - Prime factorization of **5** is **5** (5 is a prime number)
  - Prime factorization of **6** is **2 x 3**
  - Prime factorization of **15** is **3 x 5**

Notice that the **different primes** are 2, 3 and 5.

- Now, we do **Step #1** – **Count** the number of times **each** prime number appears in **each** of the factorizations...
  - The count of primes in **5** is **one 5**
  - The count of primes in **6** is **one 2** and **one 3**
  - The count of primes in **15** is **one 3** and **one 5**
- **Step #2** - For **each** prime number, take the **largest** of these counts. So we have...
  - The largest count of **2s** is **one**
  - The largest count of **3s** is **one**
  - The largest count of **5s** is **one**
- **Step #3** – Since we now know the count of each prime number, you simply write down that prime number as **many times as you counted** for it in step #2.

Here are the numbers...

2, 3, 5

- **Step #4** – The least common denominator is the **product** of all the prime numbers written down.

$$2 \times 3 \times 5 = 30$$

Therefore, the least common denominator of  $1/5$ ,  $1/6$  and  $1/15$  is 30.