# Finding the Least Common Multiple (Denominator)

There are several ways that we can find the LCM of two or more numbers.

1) List out multiples of both numbers until we find a pair that match. This can become **long** and **tedious** if the numbers are large enough.

   The LCM of 12 and 15 is 60 because

   12: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, …

   15: 15, 30, 45, 60, 75, 90, 105, 120, …

2) Ladder method: Divide out the numbers as a set, starting with "2" and going through every **prime** number.

   A. Divide "2" from every possible number we're examining. If "2" doesn't go into a number, we just bring that number down. Continue doing this with the left over numbers until "2" can't go into anything.

   B. Divide "3" from every possible number. If "3" doesn't go into a number, we just bring that number down. Continue doing this with the left over numbers until "3" can't go into anything.

   C. Continue this process with all prime numbers until everything has divided out to "1"s.

   The LCM of 12 and 15 is 60 because

| | | |
|---|---|---|
| 2 | 12 | 15 ↓ |
| 2 | 6 | 15 ↓ |
| 3 | 3 | 15 |
| 5 | 1 ↓ | 5 |
| | 1 | 1 ← All "1"s means we're done! |

LCM = 2 • 2 • 3 • 5 = 60