L.C.M. by Long Division Method:
A least common multiple of two numbers is the smallest positive number that is a multiple of both.
Multiple of 3 — 3, 6, 9, 12, 15, 18,……..
Multiple of 4 — 4, 8, 12, 16, 20, 24,…….
So the LCM of 3 and 4 is 12, which is the lowest common multiple of 3 and 4.

An example of LCM
The LCM of 10, 20,25 is 100. It means that 100 is the lowest common multiple of these three numbers, but there is a question in our mind that can the LCM be (-100)? Since (-100) is lower than 100 and divisible by each of 10, 20, 25, or can it be zero or what will be the LCM of (-10) and 20? Will it be (-20) or (-200)?
For all these questions, there is only one answer that the LCM is only defined for positive numbers and LCM is not defined for 0.

PROCESS OF FINDING LCM

- We will do prime factorization in first step of all the numbers.
- Then we calculate the number of times each prime occurs in prime factorization and write each number as power of primes.
- Then in last step we write all the primes involved and raise each of the primes to highest power present.

Example based on above

Example 1:LCM of 10, 20, 25?
Step 1: $10= 2 \times 5$
$20 = 2 \times 2 \times 5$
$25= 5 \times 5$
Step 2: $10= 2^1 \times 5^1$
$20 = 2^2 \times 5^1$
$25= 5^2$
Step 3: Primes involved are 2 and 5
Now we raise each of the primes to highest power present i.e.$2^2 \times 5^2 =100$. So 100 is required LCM.

Example 2: What is the LCM of 35, 45, 55?
Step-1:
$35 = 5 \times 7$
$45 = 3 \times 3 \times 5$
$55 = 11 \times 5$
Step-2:
$35 = 5^1 \times 7^1$
$45 = 3^2 \times 5^1$
$55 = 11^1 \times 5^1$
Step-3: Primes involved are 3, 5, 7 and 11
Now we raise each of the primes to the highest power present i.e. $3^2 \times 5^1 \times 7^1 \times 11^1$
LCM of the given numbers = 3465