Lowest Common Multiple

The lowest common multiple (LCM) of two numbers is the lowest number that is a multiple of both.

Example

What is the lowest common multiple of 6 and 9?
Start by writing the multiples of both and we can stop when we get a number appear in both lists.

Multiples of 6 are: 6, 12, **18**
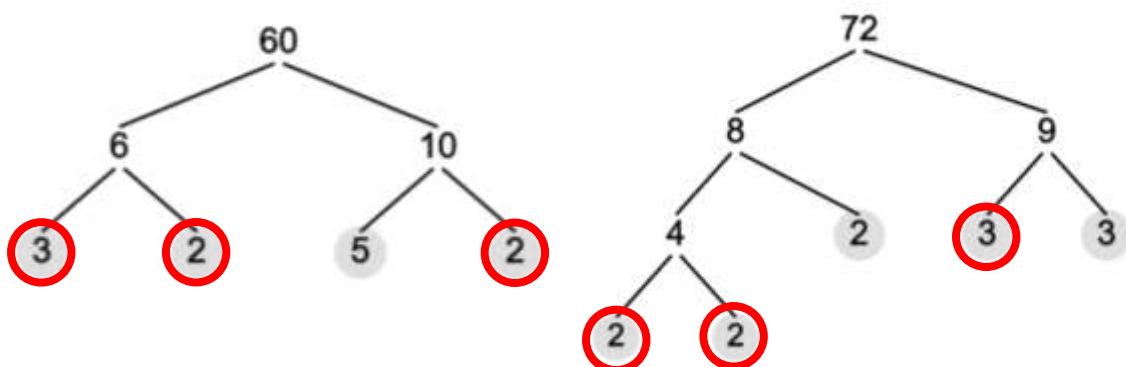
Multiples of 9 are: 9, **18**, 27

We can stop already because 18 has appeared in both lists. The lowest common multiple of 6 and 9 is 18.

What do we do if the numbers are a bit larger and/or the question is a bit harder? We make a factor tree of course. Once we have each number as the product of its prime factors, we simply multiply all the factors that are in either list together but if a factor is in both lists, we only count it once. (Remember with HCF it was all the factors in BOTH lists only). Confused? Let's do an example.

Example

What is the lowest common multiple of 60 and 72?

Start with factor trees,

Now we look at what common prime factors there are. There are two 2s and one 3 in each list, so we add 2, 2, 3 to our final list.

Then we look at what is left (i.e. in one but not both trees).

There is just a factor of 5 left in the 60 tree so we add 5 to our final list.

There is a 2 and a 3 left in the 72 tree so we add 2 and 3 to our final list.

Now that is done review our final list:

$$2, 2, 3, 5, 2 \text{ and } 3$$

The final step is to multiply all of the numbers in our final list together:

$$2 \times 2 \times 3 \times 5 \times 2 \times 3 = 360$$

So the lowest common multiple of 60 and 72 is 360.

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