

Examples of the Factor Tree Method

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In the previous segment, we learnt how to find the prime factors of a number using the **Factor tree approach**. In this segment, we will solve a few factor tree examples.

Example 1

Q. Find the prime factorisation of 45 using the factor tree method.

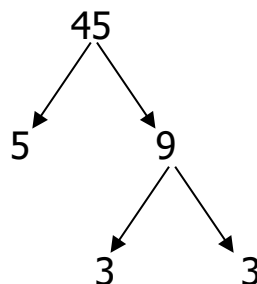
Solution:

<p>Write the number to be factored at the top. $45 = 3 \times 15$</p> <p>Factorise 15 down further. $15 = 3 \times 5$</p> <p>The branching stops as 3 and 5 are prime numbers. So, $45 = 3 \times 3 \times 5$</p>	<pre> graph TD 45 --> 3 45 --> 15 15 --> 3 15 --> 5 </pre>
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This completes the prime factorisation of 45.

The prime factorisation of 45 in exponential form is $45 = 3^2 \times 5$.

The factor tree of 45 could also be written like this:

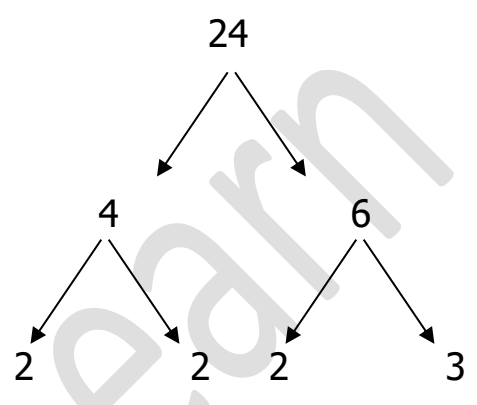


This also gives us the same result.

Example 2

Q. Find the prime factorisation of 24.

Solution:

<p>Write 24 at the top. $24 = 4 \times 6$</p> <p>Here, neither 4 nor 6 are prime numbers. Therefore both the numbers have to be broken down to prime numbers $4 = 2 \times 2$ $6 = 2 \times 3$</p> <p>Stop here as there are only prime factors. $24 = 2 \times 2 \times 2 \times 3$</p>	
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In exponential form, it can be written as $24 = 2^3 \times 3$.

Summary

What's next?

In the next segment of **Class 10 Maths**, we learn how to find **HCF and LCM of 2 numbers**.