Euclid's Division Algorithm

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In the previous segment, we saw **Euclid's Division Lemma**. In this segment, let us see Euclid's Division Algorithm.

What is Euclid's division algorithm?

Euclid's Division Algorithm is a technique to compute the **Highest Common Factor** of two positive integers.

Let us understand the steps of this algorithm with the help of the following example:

Q. Find the HCF of 15 and 25 using Euclid's division algorithm.

Solution:

Step 1: Consider the larger number to be the dividend and the smaller number to be the divisor and apply Euclid's division lemma. If the remainder is not zero, proceed to the next step. If the remainder is zero, then the divisor would be the HCF.

$\therefore$ 25 = 15 x 1 + 10

Step 2: Apply Euclid's division lemma to the divisor and the remainder of the first step. Continue with Euclid's division lemma if the remainder is not zero.

$\therefore$ 15 = 10 x 1 + 5

Step 3: Apply Euclid's division lemma to the divisor and the remainder of the second step

$\therefore$ 10 = 5 x 2 + 0

The remainder is 0.

$\therefore$ The HCF of 15 and 25 is 5.

Summary

Euclid's Division Algorithm	Euclid's Division Algorithm is a technique to compute the Highest Common Factor of two positive integers.

What's next?

In our next segment of Class 10 Maths, we will learn about the **Factor Tree Approach** to Find the Prime Factors of a Number.