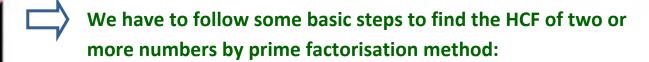
Finding HCF by Prime Factorisation



Step 1: Write each number as a product of its prime factors. This method is called here **prime factorization**.

Step 2: Now list the common factors of both the numbers

Step 3: The product of all common prime factors is the HCF (use the lower power of each common factor)



Example 1: Evaluate the HCF of 60 and 75.

Solution: Write each number as a product of its prime factors.

$$2^2 \times 3 \times 5 = 60$$

$$3 \times 5^2 = 75$$

The product of all common prime factors is the HCF.

The common prime factors in this example are 3 & 5.

The lowest power of 3 is 1 and 5 is 1.

So, HCF =
$$3 \times 5 = 15$$

Example 2: Find the HCF of 36, 24 and 12.

Solution: Write each number as a product of its prime factors.

$$2^2 \times 3^2 = 36$$

$$2^3 \times 3 = 24$$

$$2^2 \times 3 = 12$$

\Rightarrow	The product of all common prime factors is the HCF (use the lowest power of each common factor)
	The common prime factors in this example are 2 & 3.
	The lowest power of 2 is 2 and 3 is 1.
	So, HCF = 2 ² x 3 = 12
<u>i</u> <u>i</u> _	