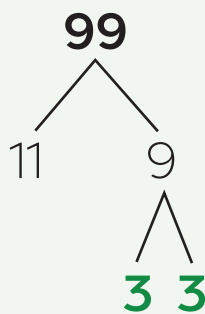
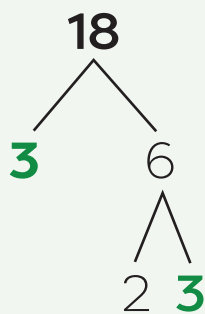


# Find the Greatest Common Factor By Prime Factorization #3

The **greatest common factor (GCF)** of two numbers is the greatest whole number that divides both numbers evenly. One way to find the GCF is by finding the prime factorization of each number. This method is especially useful for finding the GCF of two large numbers.

**Let's try an example. Find the GCF of 18 and 99.**

First, find the prime factorization of both numbers.



Then, identify the prime factors that the two numbers have in common, and multiply those shared prime factors to find the GCF.

Here, the prime factors that 18 and 99 have in common are **3** and **3**.

Multiply the shared prime factors to find the GCF:  $3 \cdot 3 = 9$

So, the GCF of 18 and 99 is **9**!

*Note: If there is only one prime factor that the two numbers share, that number is the GCF!*

**Factor trees will vary.**

**Try it out!** Find the greatest common factor by prime factorization for each pair of numbers below.

GCF: 3

GCF: 8

GCF: 14

GCF: 24