The Fundamental Theorem of Arithmetic  
Every integer greater than one can be expressed uniquely (up to order) as a product of powers of primes.

Some Fundamental Paths

Euclid, Book 7, Proposition 30 of the Elements, proves that if a prime divides the product of two numbers then it must divide one or both of these numbers. This provided a key ingredient of the Fundamental Theorem which then had to wait more than two thousand years before it was finally established as the bedrock of modern number theory by Gauss, in 1798, in his Disquisitiones Arithmeticae.

Web link: www.dpmms.cam.ac.uk/~wtg10/FTA.html