= Euclidean algorithm =

In mathematics , the Euclidean algorithm , or Euclid 's algorithm , is an efficient method for computing the greatest common divisor (GCD) of two numbers , the largest number that divides both of them without leaving a remainder . It is named after the ancient Greek mathematician Euclid , who first described it in Euclid 's Elements (c . 300 BC) . It is an example of an algorithm , a step @-@ by @-@ step procedure for performing a calculation according to well @-@ defined rules , and is one of the oldest algorithms in common use . It can be used to reduce fractions to their simplest form , and is a part of many other number @-@ theoretic and cryptographic calculations .