

$= 0$, the next step corresponds to $k = 1$, and so on .

Each step begins with two nonnegative remainders r_{k-1} and r_k . Since the algorithm ensures that the remainders decrease steadily with every step , r_{k-1} is less than its predecessor r_{k-2} . The goal of the k th step is to find a quotient q_k and remainder r_k that satisfy the equation

<formula>

and that have $r_k < r_{k-1}$. In other words , multiples of the smaller number r_{k-1} are subtracted from the larger number r_{k-2} until the remainder r_k is smaller than r_{k-1} .