

# ETERNITY: NUMBERS - Silver Ratio ( $\delta_s$ )

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## 1 Introduction

This document provides an understanding of only an irrational number called Silver Ratio ( $\delta_s$ ). An irrational number is not a rational number, it is not possible to express an irrational number as a quotient of two integers.

### 1.1 History

Silver Ratio is studied from the time of Greek knowledge, which discusses the fundamental characteristics of the number system. Though it is not used by normal people intentionally. Silver ratio is the limiting of consecutive of infinite sequence of integers, The silver ratio is presented in a Greek symbol ( $\delta_s$ ).

### 1.2 Mathematical Definition

A ratio of the sequential sum of smaller number and twice of the larger number, which will produce an infinite sequence and the ration between smaller and larger number will be always same. This can be presented in mathematical equation:-

$$\frac{2a + b}{a} = \frac{b}{a} = \delta_s$$

It will be easier to understand if it can be compared with Fibonacci number. In Fibonacci, the smaller and larger number are added to get the next one. Example:-

1, 1, 2, 3, 5, 8, 13, ..

For silver ratio, the smaller and twice of the larger number are added to get the next one. Example:-

1, 2, 5, 12, 29, 70, ..