fibonacci

Italian mathematician, 1270–1240/50

“the most talented Western mathematician of the Middle Ages”

popularized the Indo–Arabic numeral system (base-ten / decimal numeral system) in the Western world, through his composition of *Liber Abaci* (book of calculation)

introduced Europe to the sequence of Fibonacci numbers

son of a merchant, travelled in Bugia (Algeria) as a young boy, being educated in the Hindu–Arabic numeral system ~ travelled around the Mediterranean coast, realized the many advantages of the Hindu–Arabic system over the Roman numerals, the Hindu–Arabic system allowing for easy calculation using a place–value system (meaning: the contribution of a digit to the value of a number is the value of the digit multiplied by a factor determined by the position of the digit)

l i b e r a b a c i

published in 1202

Fibonacci introduces numeral system with ten digits, including a zero and positional notation (as in the Hindu–Arabic numeral system)

the book had profound impact on European thought, replacing Roman numerals, its ancient Egyptian multiplication method, and using an abacus for calculations

f i b o n a c c i s e q u e n c e

sequence: each number is the sum of the previous two numbers

0, 1, 1, 2, 3, 5, 8, 13, 21, 34 …

xn = xn-1 + xn-2  
  
the ratio of any two successive Fibonacci numbers is very close to the golden ratio, approx. 1.618034… φ *p h i*

when making squares with those widths, a spiral emerges

*liber abaci* contains the earliest known description of the sequence outside of India, but the sequence had been described by Indian mathematicians as early as the sixth century

the numbers and ratios in the sequence can be found in patterns of nature

n a t u r e ‘ s c o d e