

## Fibonacci AD 1202

Leonardo Fibonacci (c. AD 1175–1240) was born in Pisa, Italy. The son of a merchant, he was educated in North Africa, and traveled with his father to many places, including Syria, Egypt, and Greece.

Leonardo became a great mathematician. He helped spread Hindu-Arabic numbers throughout Europe, replacing the Roman numeral system. The Hindu-Arabic system used unique symbols (1, 2, 3, . . .) and place value. In AD 1202, he explained its advantages in his book, *Liber Abaci*. He also explained fractions, integers, square roots, and the numeral zero.

He is most famous for the *Fibonacci sequence* in which each number is the sum of the two numbers that come immediately before it: 1, 1, 2, 3, 5, 8, 13, 21, 34, . . . The ratio of any two Fibonacci numbers is very close to the *golden ratio* used by the Greeks (1:1.618). This sequence is seen in the arrangement of seeds, the shape of a spiral snail shell, and music. Truly, God created an orderly universe.