FIBONACCI SEQUENCE

ELIA ARNAU MONRABAL 3°B

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FIBONACCI SEQUENCES

An infinite mathematical succession. It consists of a series of natural numbers that add up to a 2, from 0 and 1.

Basically, the Fibonacci sequence is done by always adding the last 2 numbers (All the numbers present in the sequence are called Fibonacci numbers) of as follows:

0,1,1,2,3,5,8,13,21,34 ...

FIBONACCI BIOGRAPHY

Fibonacci was a 13th-century Italian mathematician, the first to describe this mathematical succession. He was also known as Leonardo de Pisa, Leonardo Pisano or Leonardo Bigollo and already spoke of the succession in 1202, when he published his Liber abaci. Fibonacci was the son of a merchant and grew up traveling, in a medium where mathematics was of great importance, arousing his interest in the calculation immediately.



It is said that his knowledge in arithmetic and mathematics grew enormously with the Hindu and Arab methods he learned during his stay in North Africa and after years of research, Fibonacci made interesting progress. Some of his contributions refer to geometry, commercial arithmetic and irrational numbers, in addition to having been vital to develop the concept of zero.



A page of Fibonacci 's Liber Abaci

HISTORY

The Fibonacci sequence appears in Indian mathematics in relation to Sanskrit prosody, as noted by Parmanand Singh in 1985.

In the Sanskrit poetic tradition, there was interest in listing all patterns of long syllables (L) of 2 units of duration, juxtaposed with short syllables (S) of 1 unit of duration. Counting the different successive L and S patterns with a given total duration results in Fibonacci numbers: the number of duration patterns m units is F m + 1.

THE FIBONACCI SPIRAL

- A Fibonacci spiral is a series of connected quarter quarters that can be drawn into a series of frames regulated by Fibonacci numbers for all dimensions.
- With each other, the squares fit perfectly as a result of the very nature of the succession, where any number is equal to the sum of the previous two. The resulting spiral or rectangle is known as the golden spiral and the golden rectangle.



GOLDEN RATIO

Each of the Fibonacci numbers is very close to the so-called golden ratio, golden ratio or gold number (approximately 1.618034). The higher the Fibonacci number pair, the closer to the golden ratio we are. Naturally, this figure is more beautiful and more pleasant to our perception and whether consciously or unconsciously, artists have used it throughout the history of mankind.

GOLDEN RATIO = (APPROXIMATELY) 1.618034

FIBONACCI SEQUENCES IN THE NATURE

The branches and leaves of the plants are more or less efficient to catch as much sunlight as possible according to the way they are distributed around the stem. If you look a little in your garden, you will see that there are no plants in which the leaves are located just in the vertical of the other. In general, the leaves are born following a spiral around the stem.



 Daisies also obey this sequence, and accommodate their seeds in the form of 21 and 34 spirals.

Pineapples, virtually any variety you find, also have a number of spirals that match two terms of the Fibonacci sequence, usually 8 and 13 or 5 and 8

In the human body, the length of the phalanges also represent Fibonacci nuts, the bones that form the finger are at the same rate as the numbers 2, 3, 5 and 8





Some say that Leonardo found these numbers when he studied the growth of rabbit populations, and it is very possible that this is the case. Imagine that a couple of rabbits takes a month to reach fertile age, and from that moment each time generates another pair of rabbits, which in turn (after reaching the age of fertility) will breed a couple of rabbits each month.

Each month there will be a number of rabbits that match each of the terms of the Fibonacci sequence.



