**Complexity of Fibonacci number**

Fibonacci numbers

F(n) = F(n-1) + F(n-2).

The characteristic equation to generate this sequence is .

Or dividing ,

.

2 solution: .

So nth fibonacci number can be written as .

So complexity of fibonacci number generating is

So , which is simplified as .

So time complexity of fibonacci i.e. time required to calculate nth order fibonacci number is .

Source wikipedia