Pisano Periods:

Unlocking the Secrets of the Fibonacci Sequence using Modular Arithmetic.

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**PISANO PERIODS** 

## Abstract:

The Fibonacci sequence has many interesting patterns in it. Perhaps the most interesting patterns to be found are the Pisano Periods. Pisano Periods are how many terms it takes the Fibonacci sequence modulo *n* to repeat itself. Determining this value for any given number is an open problem in mathematics. In this paper, we discuss how to find this value for powers of prime numbers, how to find this value for multiples of co-prime numbers, and how to find this value for prime numbers themselves. We also talk about the unique algorithms that we have made to help us determine these values, and why these algorithms do not work for powers of ten. Finally, we introduce something known as the minor modulus in the paper.