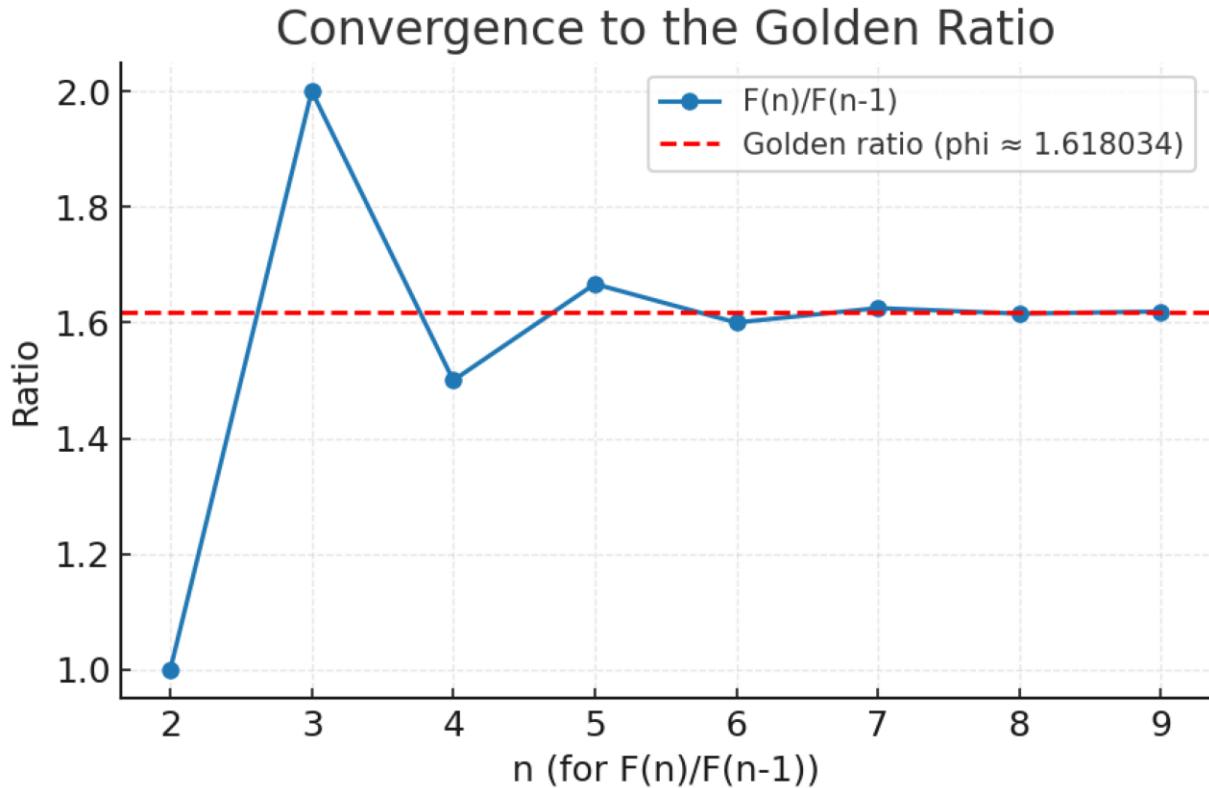


## Convergence to the Golden Ratio



#### Explanation:

As  $n$  increases, the ratio of consecutive Fibonacci numbers  $F(n)/F(n-1)$  approaches the ratio,  $\phi \approx 1.618033988750$ . This happens because the Fibonacci sequence satisfies the recurrence  $F(n)=F(n-1)+F(n-2)$ . The characteristic equation  $r^2 = r + 1$  has the dominant root  $= \phi$ , so the ratio of successive terms converges to this value.

#### First 10 Fibonacci numbers:

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