

Collatz Function: $c(n) = \begin{cases} 3n+1 & \text{if } n \text{ is odd} \\ \frac{n}{2} & \text{if } n \text{ is even} \end{cases}$

example: $n=5$

$$c(5)=16, \quad c(16)=8, \quad c(8)=4, \quad c(4)=2, \quad c(2)=1, \quad c(1)=4$$

Sequence: 5, 16, 8, 4, 2, 1, 4, 2, 1, 4, ...

Collatz Conjecture: For any starting positive integer n , the sequence of iterates of the collatz function eventually reaches 1.

This has been computationally verified up to 10^{20} .