

1. (001021) 已知数列 $\{a_n\}$ 满足 $a_1 = 1$, $a_{n+1} = 2a_n + 1 (n \in \mathbf{N}^*)$. 求证: $a_n = 2^n - 1 (n \in \mathbf{N}^*)$.