249√ (roller-coaster) Let $n$ be a natural variable. It is easy to prove

$$n' = 1 \iff \begin{cases} 
\text{if } n = 1 \text{ then } \text{ok} \\
\text{else if } \text{even } n \text{ then } n := n/2. \ n' = 1 \\
\text{else } n := 3n + 1. \ n' = 1 
\end{cases}$$

The problem is to find the execution time. Warning: this problem has never been solved.