Definition

The Halting Problem is the problem of constructing a program, $H$, that takes two parameters: $P$, another computer program and $I$, input for $P$. $H$ should report “halts” or “loops forever” depending on whether or not $P$ halts on input $I$.

$$H(P, I) = \begin{cases} 
"\text{halts}" & \text{if } P(I) \text{ halts} \\
"\text{loops forever}" & \text{if } P(I) \text{ does not halt}
\end{cases}$$

Prove there is no algorithm that solves the Halting Problem.