BunnyHop Complexity

You have shown that the BunnyHop problem is $\in NP$.

Now you want to know: Is it $\in P$ or is it $\in NP\text{-}C$?

You consider the reductions below. For each reduction, say what its implications would be...

TRUE, FALSE, $P=NP$, $P \neq NP$, BunnyHop $\in P$, BunnyHop $\in NP\text{-}C$, etc.

Reductions can involve

HAMCycle = $\{\langle G \rangle \mid G$ has a hamilton cycle$\}$

Connected = $\{\langle G \rangle \mid G$ is a connected graph$\}$

CLIQUE = $\{\langle G, K \rangle \mid G$ has a K-clique$\}$.

SAT = $\{\langle \phi \rangle \mid \phi$ is a boolean formula in CNF that has a satisfying assignment$\}$

Min = $\{\langle S, K \rangle \mid S$ is a set of integers, one of which is $\leq K\}$

$CLIQUE \leq_p SAT$

$SAT \leq_p CLIQUE$

BunnyHop $\leq_p$ SAT

BunnyHop $\leq_p$ Connected

Connected $\leq_p$ Min

Min $\leq_p$ BunnyHop

SAT $\leq_p$ Min

CLIQUE $\leq$ BunnyHop