Problem 1

Prove: If SAT ∈ PCP\(o(\log n), O(1)\), then P = NP.

Problem 2

Definition: For undirected \(G = (V, E)\):
\[\text{Neighbors}(S) = \{v : \exists u \in S, (u, v) \in E\}\]
\[f(G) = \min\{|S| : V \subseteq (S \cup \text{Neighbors}(S))\}\]

Prove: There exists \(\gamma < 1\) s.t. obtaining an \(1/\gamma\) approximation to \(f(G)\) is NP-hard.