CS331 Practice Problem Set #4

1. *[10 pts]* Prove that the problem of determining if a CFL L is the same as L^R is undecidable.

2. *[10 pts]* Let $L \subseteq (\mathbf{0}+\mathbf{1})^*$ be the language $\{(M, x) \mid$ Turing Machine M on input x enters every state of M at least once $\}$. Assume M to be a single-tape TM encoded in binary as we discussed in class. The string x is also assumed to be a binary string. Show that membership in L is undecidable.