CSE 531
Assignment 7

Due Tuesday, November 21, 2000

1. It is known that SPACE$(n) \subset$ SPACE(n^2) (this is proper containment). Use this fact to show that SPACE$(n) \neq$ NP. (Hint: It will be a proof by contradiction. Consider a language A in SPACE$(n^2) -$ SPACE(n). Construct a new language $A' = \{w\#^{|w|^2} \ : \ w \in A\}$ where $\#$ is a new symbol. Show that $A' \in$ SPACE(n). Then move on to a contradiction.)

2. Show that the set PAREN = the set of matched parentheses is in SPACE$(\log n)$. Examples: $(())(()()) \in$ PAREN but $()) \notin$ PAREN.