1. Show that if $\text{NEXPTIME} \neq \text{EXPTIME}$ then $\text{NP} \neq \text{P}$. Recall that $\text{EXPTIME} = \bigcup_k \text{TIME}(2^{n^k})$ and $\text{NEXPTIME} = \bigcup_k \text{NTIME}(2^{n^k})$.

2. Design an alternating polynomial time algorithm for $\text{NE}_{\text{NFA}} = \{ (M) : M$ is an NFA that accepts all its inputs $\}$. (Hint: if $M$ has $k$ states then $M$ accepts all strings if and only if it accepts all strings of length $< 2^k$.)

CSE 531
Assignment 8
Due Thursday, November 30, 2000