CS 682 Homework #8
Due May 2, 2001

1. Prove that for any axiomatizable, sound formal system F there exists a recursive bound $L(n)$, such that for no total M_i with $L(n) \leq L_i(n)$ is it provable in F that M_i is total.

2. Prove that there exists a recursive function $f(n) \geq n$ such that

$$TIME\,[f(n)] = NTIME\,[f(n)].$$

3. Give a $\leq_m^p$-complete language for $P^{SAT[4]}$.

4. Show that if A is in $SPACE[loglogn]$ then either A or $\bar{A}$ contains an infinite regular subset.