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Modern Complexity Theory

Spring 2001

Assignment 3

Problem 8 (3 points)**:**
Show that if L can be decided by a $t(n)$ time-bounded Turing machine, then L can be also decided by an $n + t(n)/2$ time-bounded Turing machine.

Problem 9 (4 points)**:**
Prove that $\lfloor \log n \rfloor$ is space constructible and that $n \cdot \lfloor \log n \rfloor$ is time constructible. (Provide Turing machine-like algorithms.)

Problem 10 (3 points)**:**
Specify TEST' in the proof of Theorem 3.16 and show that the space required by TEST' is $O(s(n)^2)$.