Theory of Computation

Homework 3

Problem 1. Suppose L_1 is NP-complete, L_2 is in NP and L_1 is reducible to L_2, prove that L_2 is NP-complete.

Problem 2. Define the language

$C_{NP} = \{\langle M, x, 1^s \rangle | M \text{ is a nondeterministic TM that accepts } x \text{ within } s \text{ steps}\}$

Prove that C_{NP} is NP-complete. (Recall that 1^k denotes the string consisting of k bits of 1's.)