EECS 343: Theoretical Computer Science, Homework Exercise 10
due Monday, April 6, 2020 before class

Problem 1: The class **co-NP** $= \{L \mid \overline{L} \in \text{NP}\}$. Prove that if A is NP-complete then $\overline{A}$ is complete for **co-NP**. ($\overline{L} = \Sigma^* - L$).

Problem 2: Prove the if some NP-complete language is also PSPACE-complete,then NP = PSPACE.

Problem 3: (Sipser 8.13) Define $A_{LBA} = \{\langle M, w\rangle \mid M \text{ is a linear bounded Turing machine that accepts } w\}$. A linear bounded Turing machine is one where the head cannot move off of the cells that store the input. Any move to the right of the input (or the left off the tape) will result in the head staying in the same cell.

Prove that A_{LBA} is PSPACE-complete.