COM S 331: Theory of Computing, Summer 2021
Homework Assignment 1

Due at 11:59PM, Wednesday, May 19, on Gradescope.

Problem 1 (20 points). Give an example of two non-empty unequal languages $A, B \subseteq \{0,1\}^*$ such that $AB = BA$. Show why your examples of A and B satisfy the requirements.

Problem 2 (30 points). Write formal descriptions of the following sets.

1. The set of strings over alphabet $\{0,1\}$ that has equal number of 0's and 1's.
2. The set of string me symbol.
3. The set of stings

Problem 3 (25 poi s

1. if $w = \epsilon$, $w^R = \epsilon$
2. if $w = au$ for so

Prove: that for any st

Problem 4 (25 poi