You are strongly encouraged to do all of the problems. However, only the ones marked with (*) will be graded.

We defined Grammars in class. We have not yet defined regular Grammars. See Definition 8.7 in the book before doing the following problems.

(*) Question 1: Problem 8.12, part a.

(*) Question 2: Problem 8.12, part b.

Question 3: Problem 8.12, part c.

Question 4: Give a grammar (not necessarily regular!) for the following language, $L$ over alphabet $\Sigma = \{a, b\}$. $L = \{a^n b^n \mid n \geq 0\}$ (Note, this is not the same as the language $L' = \{a^* b^*\}$)

Question 5: Give a regular grammar for the language $L$ in Question 4.

Question 6: Give a regular grammar for the following language $L$ over alphabet $\Sigma = \{a, b\}$. $L = \{a^n b^m \mid n, m \geq 0\}$. 