Problem 4.8, parts a-d, p. 190 in text

Problem 4.8(a): 10 points
Problem 4.8(b): 10 points
Problem 4.8(c): 10 points
Problem 4.8(d): 10 points

Preparation: Read or review Chapter 4 of the textbook (Loudon, “Compiler Construction”), which will provide all of the information you need to complete this assignment. Helpful readings are:

- 4.8(a) - Section 4.2.3, pages 157-160, especially Examples
- 4.8(b) - Section 4.3, pages 168-177
- 4.9(c) - Definition on page 155 and 4.8(d) answer
- 4.9(d) - Section 4.3.3, pages 177-180

4.8 Consider the grammar

\[
\begin{align*}
lexp & \rightarrow \atom \mid \list \\
\atom & \rightarrow \text{number} \mid \text{identifier} \\
\list & \rightarrow ( \lexpseq ) \\
\lexpseq & \rightarrow \lexpseq \lexpseq \lexp \mid \lexp
\end{align*}
\]

a. Remove the left recursion.

b. Construct First and Follow sets for the nonterminals of the resulting grammar.

c. Show that the resulting grammar is LL(1).

d. Construct the LL(1) parsing table for the resulting grammar.