1. The following sentence has a coordination ambiguity. Draw two parse trees that attach the ambiguity in two different locations: *He lost the bent nail and hammer.*

2. Convert this grammar to Chomsky Normal Form (pg 437). *(put your grammar below on the right)*

   \[
   S \rightarrow VP \ NP \\
   VP \rightarrow Aux \ VB \ NP \\
   NP \rightarrow JJ \ JJ \ NN \\
   NP \rightarrow JJ \ NN \\
   NP \rightarrow the \ NN
   \]

3. Section 13.4 describes the CKY parsing algorithm. Figure 13.10 gives the pseudocode. What is the complexity (big-oh notation) of this algorithm? Use \( n \) as the number of words in a sentence. Describe your answer for partial credit in case you are incorrect.

   \[O(\quad)\]
4. Use the L1 grammar on the right of figure 13.8, and only this grammar’s rules! Show the result of parsing with CKY (as in figure 13.9) for the following sentence: *She prefers the meal before the flight.*

Your answer should be a picture of the matrix with the appropriate non-terminals in each cell. All possible parses should be represented!