Quiz #6 - October 17, 2005

Name & Honor Code: _____

Solve the following questions given $\Sigma = \{a, b\}$ and the grammar G_1:

$G \rightarrow H|GG|a$
$H \rightarrow a|b|\epsilon$

1. Name two strings derived by G_1 and two strings not derived by G_1.

$\epsilon, a, b, \ aa, \ ab, \ \cdots$ No strings in Σ^* are not in G_1

$\Sigma^* \in G_1$

2. Is G_1 an ambiguous grammar? Why or why not?

Yes, because a string w can be derived in two different ways using leftmost derivations.

3. Is G_1 in Chomsky Normal Form? Why or Why not?

No, b/c $G \rightarrow H$ is not allowed in CNF
$G \rightarrow GG$ is not allowed in CNF
$H \rightarrow \epsilon$ is not allowed in CNF

4. Show a parse tree for the string $abba$.