Submit one per group.

1. Construct a context-free grammar for the following language.

L = { anbmc2n : m ≥ 0, n > 0} ∪ {bnan : n > 0}

1. Consider the following grammar G = ({S, A}, {a, b}, S, P} where P is defined below

S → SS | AAA | λ

A → aA | Aa | b

1. Describe the language generated by this grammar.
2. Give a left-most derivation for the terminal string abbaba.
3. Show that the grammar is ambiguous by exhibiting two distinct derivation trees for some string w∈L(G).
4. Let L = { anbn : n ≥ 0 }

a. Show that L2 is a context-free language.

b. Show that L\* is a context-free language.

EXTRA CREDIT: Prove that context-free languages are closed under union.