1. You are given the following facts:

 JJ is pink.
 JJ is a plebian.
 Plebians are people.
 All pink people eat Cheerios.

 You want to prove the conjecture: JJ eats Cheerios.

 (a) Convert the facts and the negation of the conjecture to first-order logic formulas and express them in CNF.

 (b) Show a refutation graph for the proof by contradiction that JJ eats Cheerios.
2. Given the following game tree:

   (a) Fill in the values for full minimax search.

   (b) Show how a depth-first alpha-beta procedure works. Indicate values of alpha and beta and show cutoffs by drawing a line through the edges leading to cutoff nodes.