1. **Describe the possible states, initial state, transition function.**
2. **Describe the terminal states of both checkers and tic-tac-toe.**

The terminal state for checkers is when one of the players has no pieces left so either A wins or B wins.

TTT terminal states is when a player gets 3 in a row, i.e. either A wins or B wins. There are also draw states when the board is full but no one achieves 3 in a row.

1. **Why is ν(A,s) = #{white checkers} − #{red checkers} a valid heuristic function for checkers (knowing that A plays white and B plays red)?**

It is a valid heuristic if A plays white and B plays red as generally in checkers if you have more pieces than your opponent left then you are more likely to win which is was a heuristic is supposed to calculate, a value that corresponds how good that move will be for your odds to win.

1. **When does v best approximate the utility function, and why?**
2. **Can you provide an example of a state s where v(A,s)>0 and B wins in the following turn? (Hint: recall the rules for jumping in checkers)**

Its plausible that there are more white checkers than red checkers and for player B to win when the white checkers are all one tile away from each other (in a “chain”) and a red checker is next to the white checker on the end of the “chain”. Hence the red checker can jump over each white checker in the same turn and win.

1. **Will η suffer from the same problem (referred to in the last question) as the evaluation function ν?**