CSCE 580 Fall 2012
Quiz 4
Assigned Tuesday, 12-09-18

In [AIMA-2], the **missionaries and cannibals** problem is stated as follows: Three missionaries and three cannibals are on the left bank of a river, along with a boat that can hold one or two people. Find a way to get to the other bank, without ever leaving a group of missionaries in one place outnumbered by a group of cannibals in that place.

Formulate the problem as a search problem precisely, making only those distinctions necessary to insure a valid solution. Draw a diagram of the complete state space.

Answer: Notes. Represent state as a 6-vector: (missionaries on Left Bank, cannibals on LB, Boat on LB, Missionaries on RB, Cannibals on RB, Boat on LB). The start state is (3 3 y 0 0 n). The goal state is (0 0 n 3 3 y). The state-space is much simpler than one thinks: except for moves that "circle back" to the state just visited, there is only one choice, except for a small set of states near the start and a small set of states near the goal.