

Q1: Search and Heuristics

- an admissible heuristics is a function in searching algorithms that never overestimates the cost to reach a goal.
- Yes a heuristic of " $h=0$ " is admissible
- Yes a heuristic of " $h=k$ " is admissible because it is always less than or equal to the cost.
- $h = \min(h_1, h_2, h_3)$ may or may not be admissible. However taking the max: $h = \max(h_1, h_2, h_3)$ is admissible.

Q2: Using search for a practical problem

Q2.1:

- It implements a 5-tuple state representation which includes the missionaries and cannibals on the left bank, missionaries and cannibals on the right bank, and the boat's position. An example goal would be . It implements breadth first search.