1. Designing heuristics

A knight moves on a chessboard two squares up, down, left, or right followed by one square perpendicular (i.e., the move is L-shaped.) Suppose the knight is on an unbounded board at square \((0,0)\) and we wish to move it to square \((x,y)\) in the smallest number of moves. For example, to move from \((0,0)\) to \((1,1)\) requires two moves.

(a) Explain how to decide whether the required number of moves is even or odd without constructing a solution.

(b) Design an admissible heuristic function for estimating the minimum number of moves required; it should be as accurate as you can make it. Prove rigorously that your heuristic is admissible.

2. Exercise 5.9

3. Exercise 5.10 (a-c)