Heuristic function proof

my heuristic function is the Euclid distance of the location of the empty cell to its location in the goal state.

Proof: h*(x) is always smaller or equal to h(x) because in order for the empty cell to get to the correct location in the goal state it must move at least one step (if it's not located in the correct location- in that case it will be 0 for h*(x) and h(x)), and that's only if the empty cell is left or above from the right bottom corner, all other cases Euclid distance is sorter then Manhattan distance and in this game that is the only way the empty cell can move.