Kenny Ta
CECS451 Assignment 5
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1. a.) h(n) = 0 is an admissible heuristic for the 8-queens problem.
   True
   b.) Assume that a rook can move on a chessboard one square at a time in vertically or horizontally, but cannot jump over other pieces. Manhattan distance is an admissible heuristic for the problem of moving the rook from square A to square B in the smallest number of moves.
   False

2. The heuristic path algorithm is a best-first search in which the evaluation function is f(n) = (2 − w)g(n) + wh(n). What kind of search does this perform for w = 0, w = 1, and w = 2?

   f(n) = (2 − w)g(n) + wh(n)

If w = 0: f(n) = 2g(n)	Iterative-Deepening Search
If w = 1: f(n) = g(n) + h(n)	A* search
If w = 2: f(n) = 2h(n)	Greedy Search

3. Give the name of the algorithm that results from each of the following cases:
   a.) Hill-climbing
   b.) Depth-first

4. Imagine that, one of the friends wants to avoid the other. The problem then becomes a two-player pursuit–evasion game. We assume now that the players take turns moving. The game ends only when the players are on the same node; the terminal payoff to the pursuer is minus the total move taken. An example is shown in Figure 1.
   a.) -4
   b.) BE and BD
   c.) Terminal payoff would be at most 3, so no.
   d.) Node (6) could have a shorter path, so yes

5. True or False? You don't need to explain your answers.
   a.) True
   b.) True
   c.) False
   d.) True

6.

ɑ	β	y	$_{\beta}$^y	ɑ□($_{\beta}$^y)
T	T	T	T	T

T	T	F	N/A	N/A
T	F	T	N/A	N/A
T	F	F	N/A	N/A
F	T	T	T	T
F	T	F	F	T
F	F	T	F	T
F	F	F	F	T

Therefore, the statement, ◌̲□(◌̲$_{\beta}$^y) is true.