

Artificial Intelligence (CPS 170) : Homework 1

Due February 2, 2003

1 Basic Search

Do problem 3.8 from the textbook.

2 Advanced Search

Do problem 3.11, parts A-C.

3 A*

Prove that using A* with a heuristic which never overestimates (additively) by more than c will return a solution with cost that exceeds the optimal cost by no more than c .

4 Consistency

Do problem 4.7 from the textbook.

5 Minimax

Do problem 6.2 from the textbook.

6 Pruning

Consider Figure 6.2 in the textook. (a) Rearrange siblings in the last level of the tree to *maximize* the amount of pruning done by alpha-beta, assuming that nodes are expanded in left to right order. (b) Rearrange siblings in the last level of the tree to *minimize* the amount of pruning done by alpha-beta, again assuming that nodes are expanded in left to right order. *Show the alpha and beta values in both cases.*