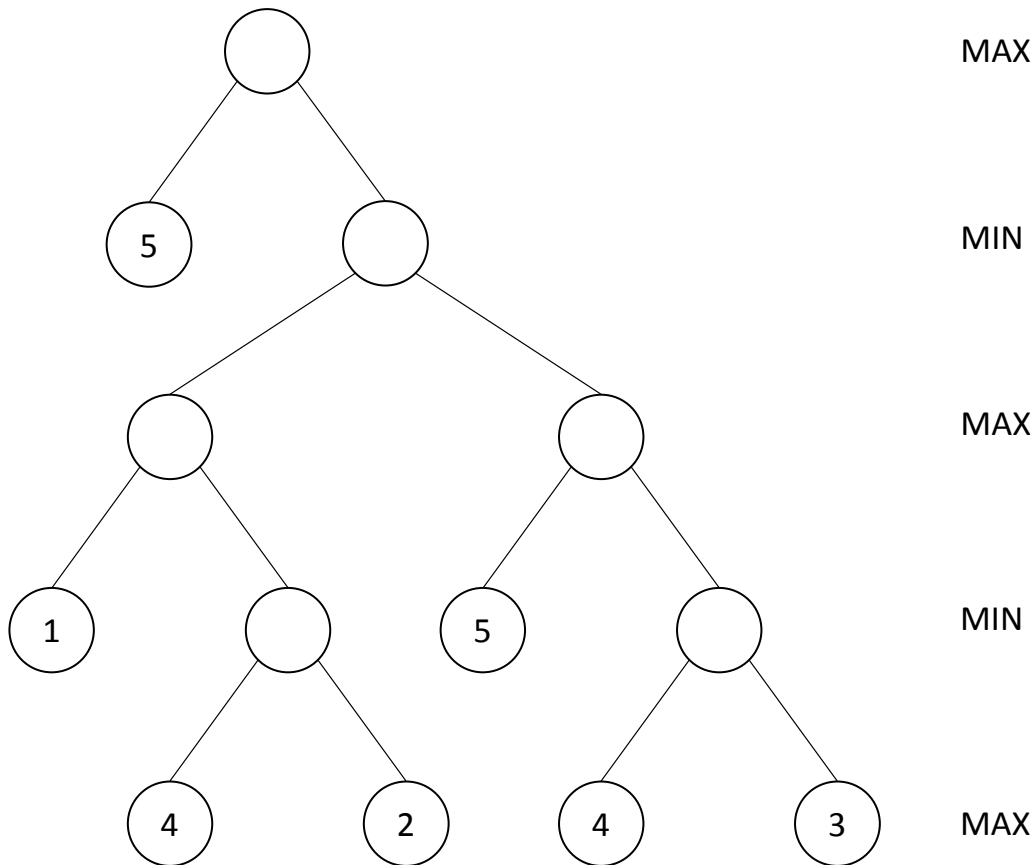


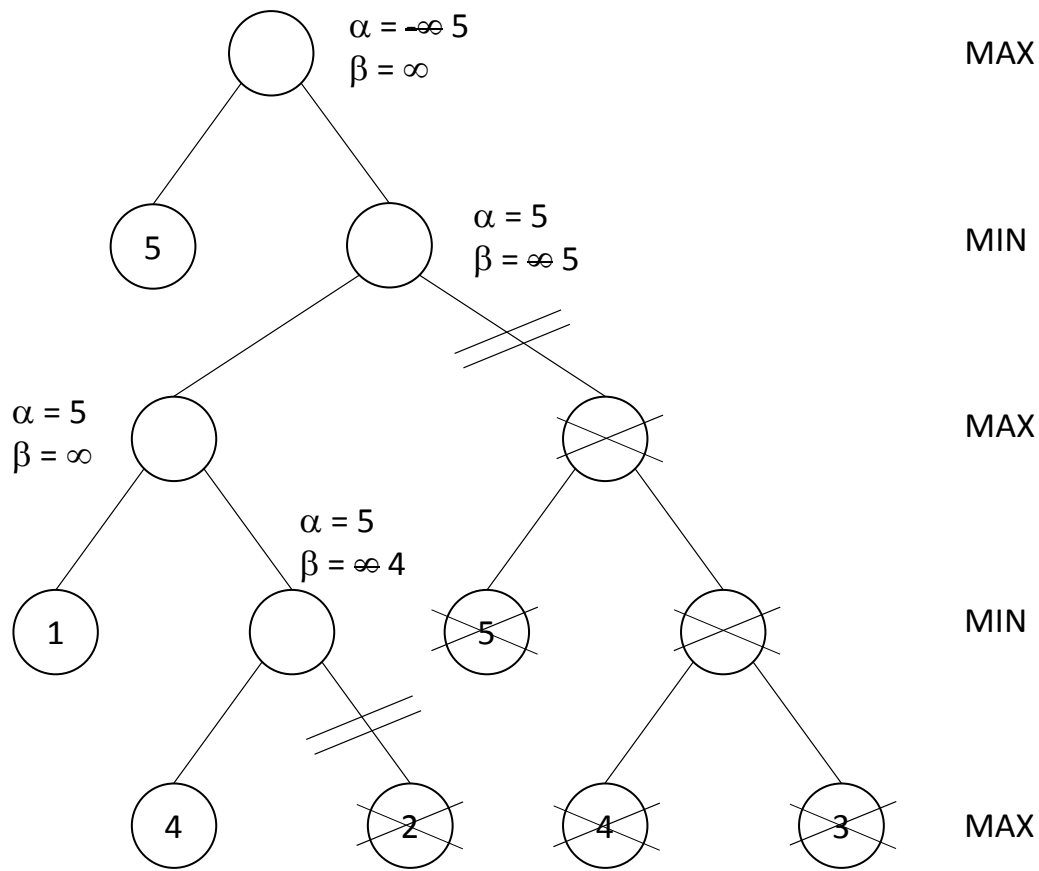
Adversarial Search– Solution

- 1) What is the minimax value of the root node for the game tree below? Cross out the node(s) whose value(s) the alpha-beta method never determines, assuming that it performs a depth-first search that always generates the leftmost child node first and a loss (and win) of MAX (and MIN) corresponds to a value of $-\infty$ (and ∞ , respectively). Determine the alpha and beta values of the remaining node(s).

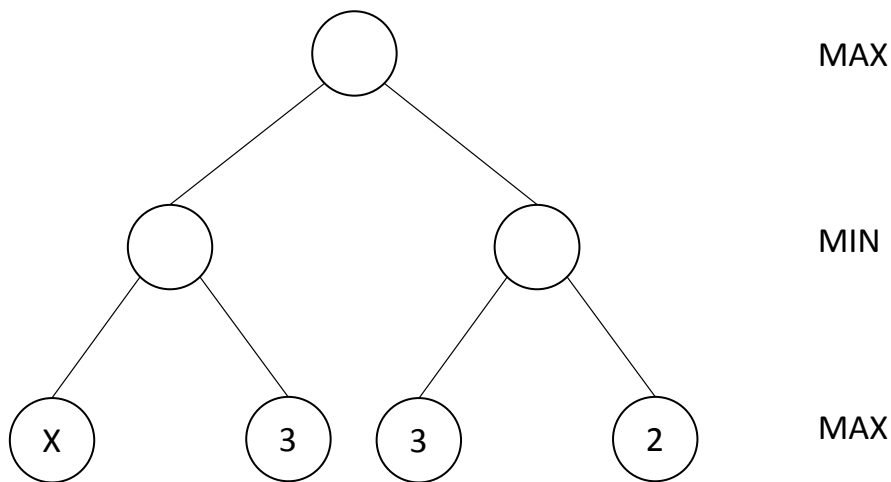


Answer:

The minimax value is 5.



- 2) Assume that you are given a version of the alpha-beta method that is able to take advantage of the information that all node values are integers that are at least 1 and at most 6. Determine ALL values for X that require the algorithm to determine the values of ALL nodes of the following game tree, assuming that the alpha-beta method performs a depth-first search that always generates the leftmost child node first.



Answer:

(Remember to initialize $\alpha = 1$ and $\beta = 6$ for the root node of the minimax tree.) Let a be the sibling of the node with value X, and b be the node with

