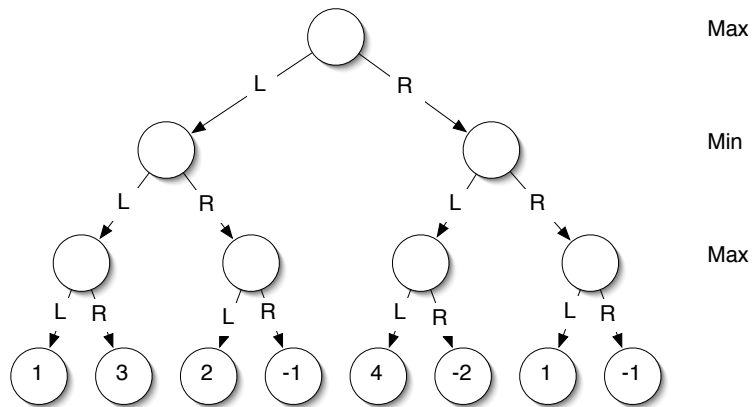


## 4 Game Search (5 points)

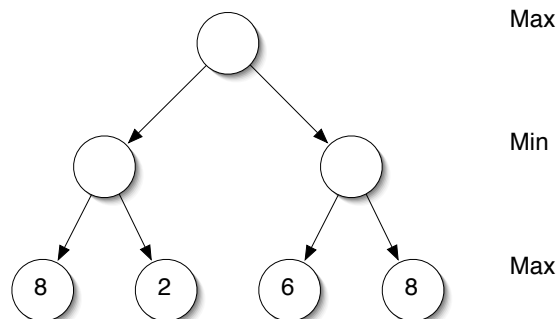
Consider the game tree shown below. Assume the top node is a max node. The labels on the arcs are the moves. The numbers in the bottom layer are the values of the different outcomes of the game to the max player.



1. What is the value of the game to the max player?
2. What first move should the max player make?
3. Assuming the max player makes that move, what is the best next move for the min player, assuming that this is the entire game tree?

## 5 Alpha-Beta Pruning (5 points)

In the following game tree, are there any alpha-beta cutoffs?



- Consider the nodes from left to right, which nodes are cutoff? Circle the nodes that are not examined and label them with L. .
- Consider the nodes from right to left, which nodes are cutoff? Circle the nodes that are not examined and label them with R. .