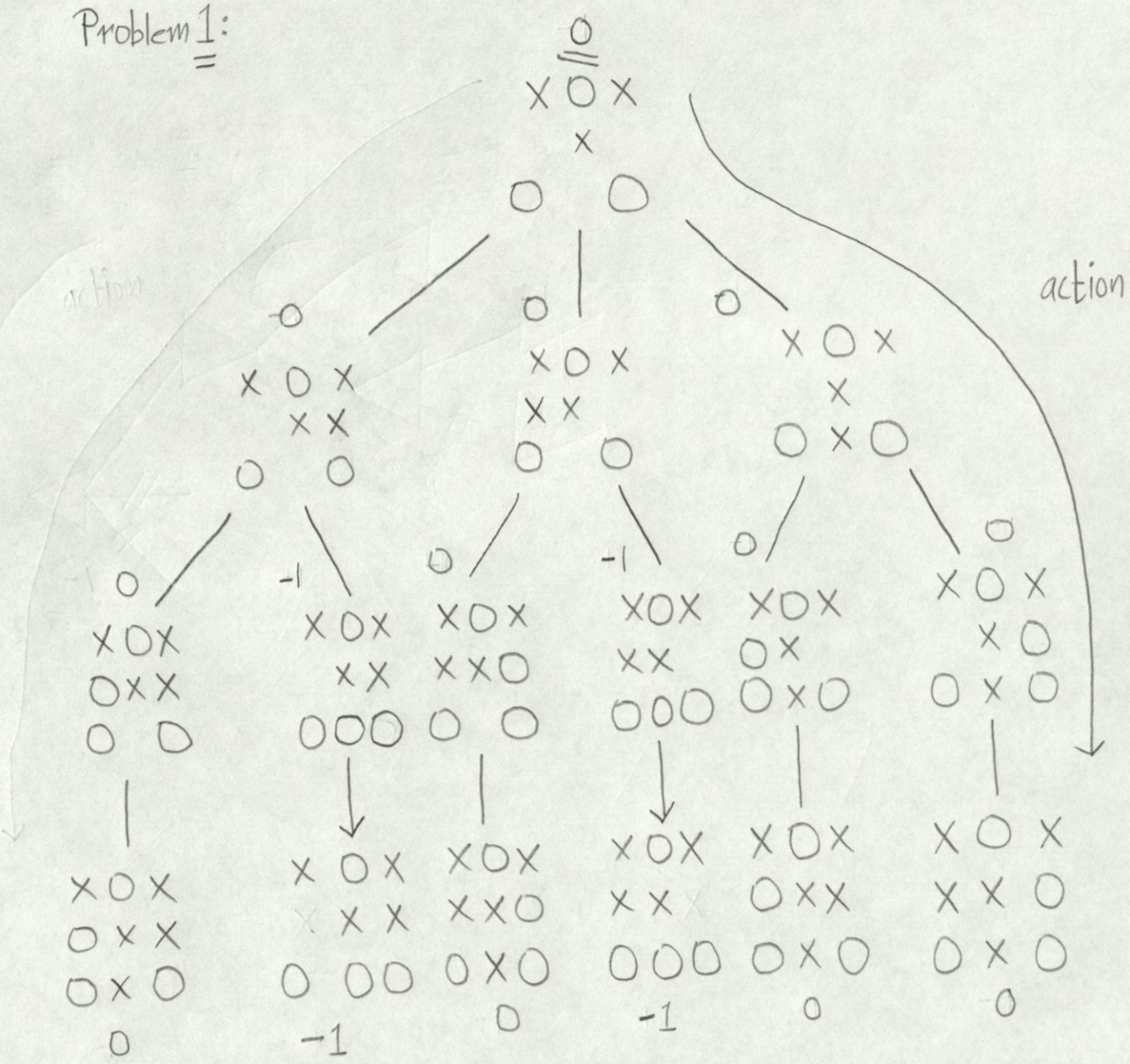
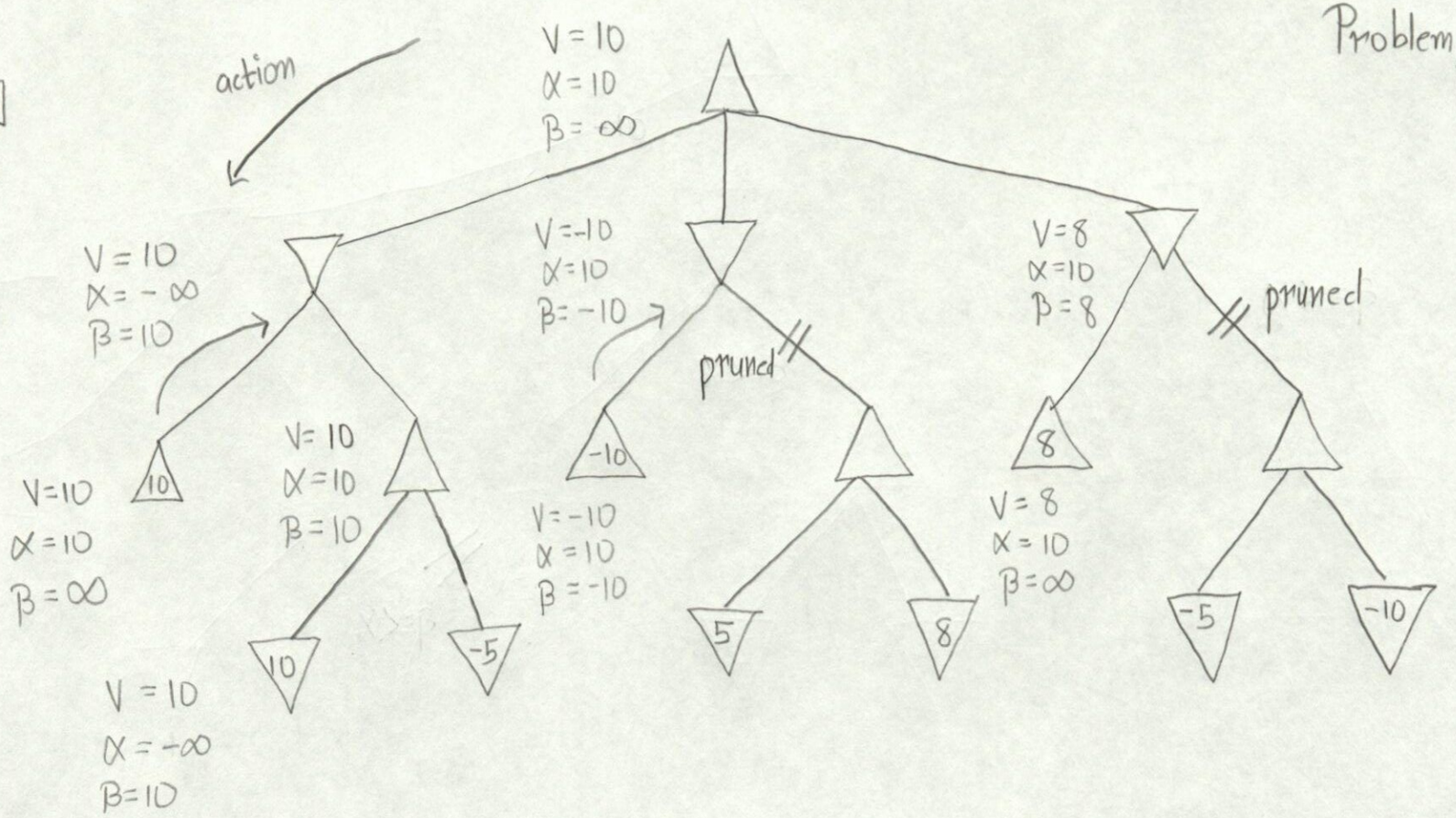
Problem 1:

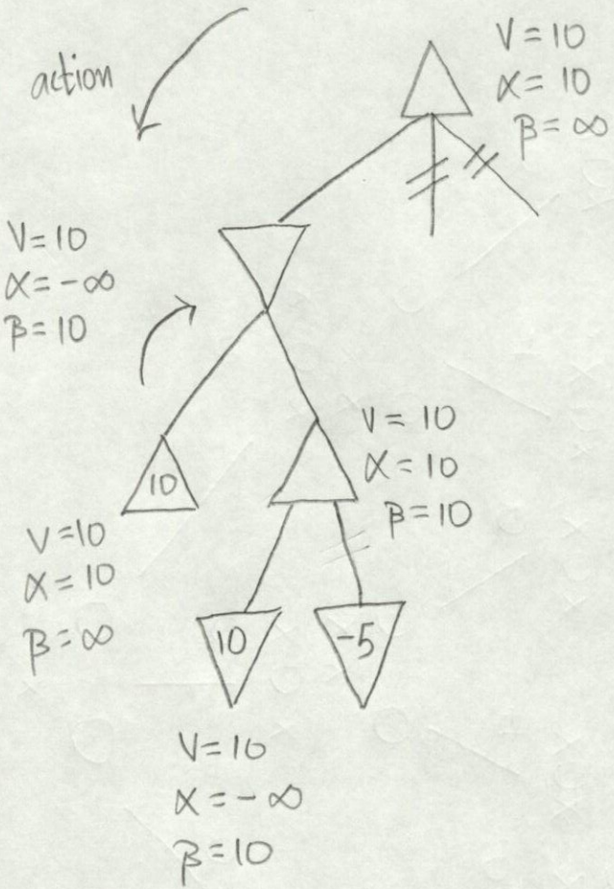


Problem 2:

a]



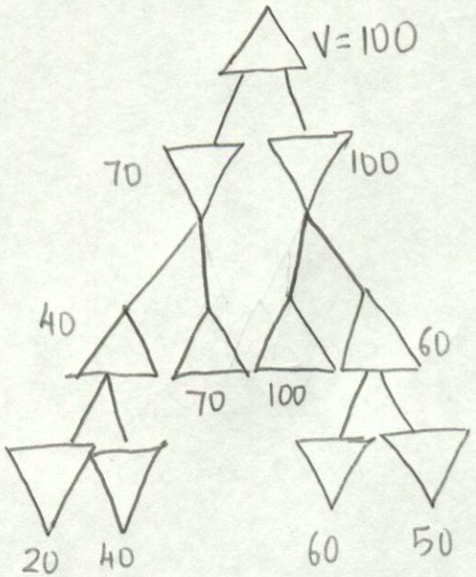
b] Since we know the outcome cannot be greater than 10 and less than -10 {10 is the maximum outcome}, as soon as there is a path from Root to node with outcome 10, the rest of the branches are all pruned.


action
V = 10
α = 10
β = ∞
V = 10
α = −∞
β = 10
10
V = 10
α = 10
β = 10
V = 10
α = 10
β = ∞
10
-5
V = 10
α = −∞
β = 10

Problem 3:

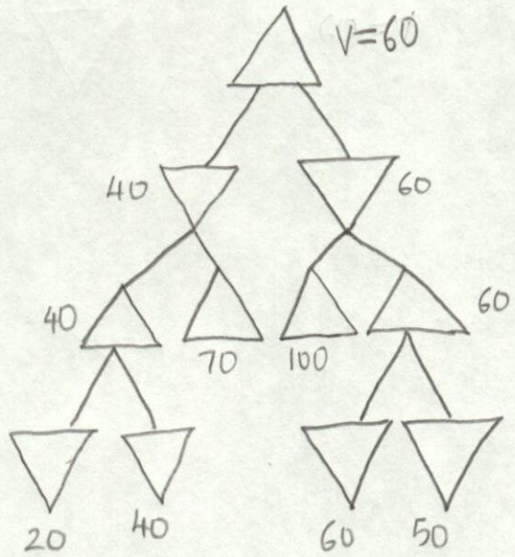
Best Possible Outcome:

The best possible outcome for the MAX player is when the opponent chooses the maximum at every originally min-Node(▽)

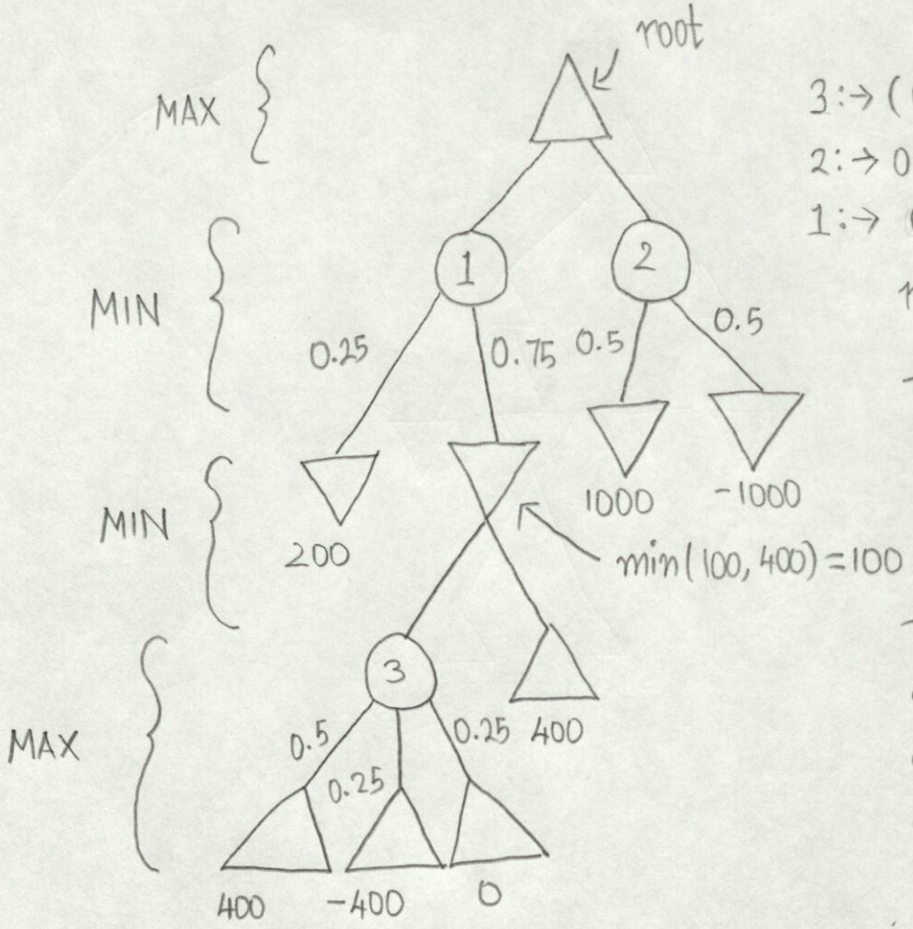


Worst Possible Outcome:

The worst possible outcome for the MAX player is when the opponent plays optimally i.e. ▽ = min



Problem 4:



3 :→ (0.5(400) + 0.25(−400)) = 100

2 :→ 0.5(1000) − 0.5(1000) = 0

1 :→ 0.25(200) + 0.75(100) = 125

root :− max(125, 0) = 125

The minimax value obtained by the root node (125) is the expectiminimax value of all its successors i.e. rest of the nodes of the tree.

Removing the probabilities, the maximum actual payoff for the MAX Player is 1000 and the minimum actual payoff is −400.