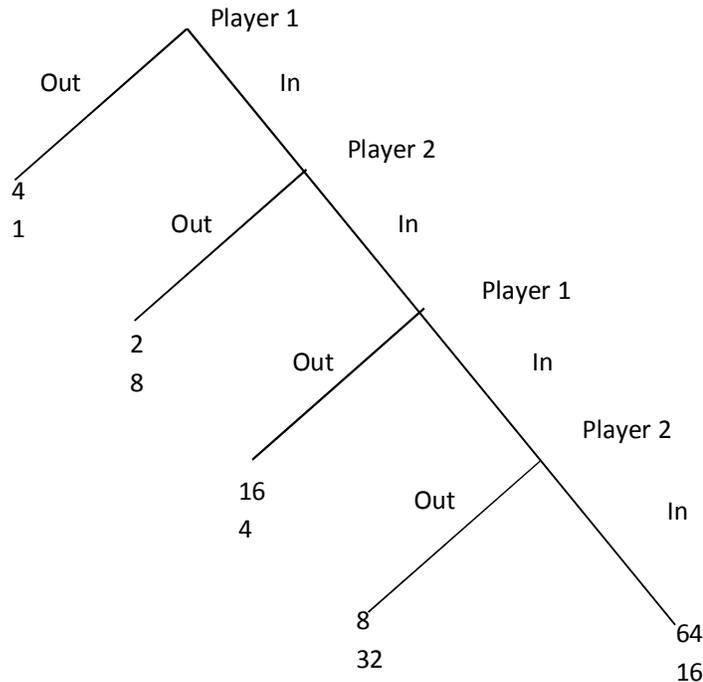


Problem set 4

Ex 1.



In each decision node players have two possible actions, *In* or *Out*

- How many information sets for each player?
- How many subgames?
- Write all possible strategies for both players
- Represent this game in normal form and find all Nash equilibria.

Ex 2. Two individuals, A and B, are working on a joint project. They can devote it either high effort or low effort. If both players devote high effort, the outcome of the project is of high quality and each one receives 100\$. If one or both devote low effort, the outcome of the project is of low quality and each one receives 50\$. The opportunity cost to provide high effort is 30. The opportunity cost to provide low effort is 0. Individual A moves first, individual B observes the action of A and then moves.

- Represent this situation using the extensive form representation
- for both players write all possible strategies
- Using the normal form, find all Nash equilibriums

Ex. 3 There are 3 players that must state one number from the set $\{0, 1, 2\}$. The payoff of each player is given by the stated number minus the absolute difference between his stated number and the average of the numbers stated by the other two players. Players move in a sequence: Player 1 moves first, player 2 observes the choice of player 1 then he moves, player 3 observes the choice of player 2 (not that of player 1) then he moves.

- Represent this situation using the extensive form
- How many information sets has this game?
- How many subgames?

