

Mathematics 121 – Game Theory

Homework Assignment No. 7

- 1) A zero-sum game is given by the matrix

$$A = \begin{pmatrix} 1 & 4 \\ 4 & 1 \end{pmatrix}$$

Find the value of the game and a point of equilibrium (\vec{p}_e, \vec{q}_e)

- 2) Find the value and all points of equilibrium of the zero-sum game given by the matrix

$$A = \begin{pmatrix} 0 & 2 \\ 1 & 1 \end{pmatrix}$$

- 3) A zero-sum game is given by the matrix

$$A = \begin{pmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{pmatrix}$$

Find the value of the game and a point of equilibrium (\vec{p}_e, \vec{q}_e) .

- 4) Kids always invent new rules. They now are tinkering with the game of “rock, scissor and paper”. They are adding a well to the game. Their idea is: A rock and a scissor falls into a well, while a piece of paper covers the well.
- Make these rules precise. The outcome should be a symmetric zero-sum game.
 - Find a point of equilibrium of this game.