Assignment on 3 March 3, 2021

0-Sum5. Suppose $A=(a_{kl})$ is a matrix game and that a_{ij} is a saddle point. Show that Row i, Col j are safety strategies for Player I and Player II respectively.

(Remark: We will prove this result in full generality.)

0-Sum6.

Solve the game with matrix $\begin{pmatrix} 0 & 2 \\ t & 1 \end{pmatrix}$ for any arbitrary number t. Draw the graph of $v(t)$, the value of the game, as a function of t, for $-\infty < t < \infty$.

0-Sum7.

Suppose that p_1, p_2 are optimal strategies for the row player of a matrix game. Prove that if $0 \le t \le 1$ then $tp_1 + (1-t)p_2$ is also an optimal strategy for the row player.

0-Sum8.

Solve the following games.

(i)

3	2	5	0
–2	1	–4	5

(ii)

3	–5
1	–4
2	–1
–1	3

0-Sum9.

Reduce by domination to 2x2 games and solve.

(a) $\begin{pmatrix} 5 & 4 & 1 & 0 \\ 4 & 3 & 2 & -1 \\ 0 & -1 & 4 & 3 \\ 1 & -2 & 1 & 2 \end{pmatrix}$ (b) $\begin{pmatrix} 10 & 0 & 7 & 1 \\ 2 & 6 & 4 & 7 \\ 6 & 3 & 3 & 5 \end{pmatrix}$.