Step-1

Let us consider the simplified version of Poker matrix.

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

Step-2

Strategy for Y : (Row 1) If X bets, Y folds (Row 2) If X bets, Y matches the extra $2.

Step-3

Strategy for X : (1) Bet the extra $2 on a king and fold on a jack (2) Bet the extra $2 in either case (bluffing) (3) Fold in either case, and lose $1 (4) Fold on a king and bet on a jack

Step-4

Consider the optimal strategy for x, $x^{\bullet}=\begin{bmatrix}\frac{1}{2} & \frac{1}{2} & 0 & 0\end{bmatrix}$

Thus, $Ax^{\bullet}=\begin{bmatrix}\frac{1}{2} & \frac{1}{2}\end{bmatrix}$

And,

$$yAx^{\bullet}=\frac{1}{2}y_1+\frac{1}{2}y_2$$
$$=\frac{1}{2}$$

for all strategies of Y

Step-5

Similarly, consider the optimal strategy for y, $y^{\bullet}=\begin{bmatrix}\frac{1}{2} & \frac{1}{2}\end{bmatrix}$

Thus, $y^{\bullet}A=\begin{bmatrix}\frac{1}{2} & \frac{1}{2} & -1 & -1\end{bmatrix}$

And,

$$y^{\bullet}Ax=\frac{1}{2}x_1+\frac{1}{2}x_2-x_3-x_4$$

The above expression cannot exceed $\frac{1}{2}$ for all strategies of X

Step-6

And the in between value is $\boxed{y^{*}Ax^{*}=\frac{1}{2}}$