[16] **6.** Different choices for k make for different outcomes in the zero-sum matrix game defined by

$$G(k) = \begin{bmatrix} 2 & k & 3 \\ 3 & 1 & 2 \end{bmatrix}.$$

(a) Find an equilibrium pair of strategies, and the row player's payoff, when $k = 2$. [3 marks]

(b) Find an equilibrium pair of strategies, and the row player's payoff, when $k = 3$. [8 marks]

(c) Find the largest interval of k-values around $k = 3$ with this property: the column player's optimal strategy is a mixture of the same two pure strategies that he uses when $k = 3$. Find the equilibrium strategies and the game's value as a function of k in this interval. [5 marks]

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