[15] **6.** Rowena plays the rows and Callum plays the columns in a standard zero-sum matrix game in which the rewards to Callum are displayed in the following matrix:

$$G = \begin{bmatrix} 3 & 2 \\ 1 & 2 \\ 2 & 1 \\ -1 & 4 \\ -2 & 5 \end{bmatrix}.$$

(a) Write a short, clear definition of "Nash equilibrium" applicable to zero-sum games. Use only words: no mathematical symbols or variables are allowed.

(b) Consider the mixed strategies $\widetilde{\mathbf{x}} = \left(\frac{1}{4}, \frac{3}{4}\right)$ for Callum and $\mathbf{y}^* = \left(0, 0, \frac{5}{6}, \frac{1}{6}, 0\right)$ for Rowena. Are these strategies in Nash equilibrium? Explain, making reference to your definition in part (a).

(c) Find all strategies $\mathbf{x}$ for Callum (if any) that can participate in a Nash equilibrium with Rowena's choice of $\mathbf{y}^*$ from (b).

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