Problem 24.1 (6.4 #7)

a) negative eigenvalue of $\begin{bmatrix} 1 & b \\ b & 1 \end{bmatrix}$

$b > 1$ & $b < -1$

(b) Pivots have the same signs as the eigenvalues
If negative eigenvalue, then it must have negative pivot

(c) If you choose $b > 1 \Rightarrow \lambda_1 = 1 + b$ will be positive
while $\lambda_2 = 1 - b$ will be negative.

(or)

$b < -2 \Rightarrow \lambda_1 = 1 + b$ (negative)
while $\lambda_2 = 1 - b$ will be positive.

$\therefore$ The matrix cannot have 2 negative eigenvalues.

Problem 24.2 (6.4 # 23)

See solution.