1. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix}$.

   (a) Verify that $\lambda_1 = 4$ and $\lambda_2 = -1$ are eigenvalues for A.

   (b) Find the eigenvectors corresponding to λ_1 and λ_2.

2. If 0 is an eigenvalue of A, what can you say about A?

3. If 0 is *not* an eigenvalue of A, what can you say about A?