

Name:

1. Find an invertible matrix  $S$  and a diagonal matrix  $\Lambda$  such that  $A = S\Lambda S^{-1}$ .

$$A = \begin{pmatrix} 2 & 0 & 0 \\ 5 & -3 & -4 \\ -2 & 2 & 3 \end{pmatrix}$$

2. Find an orthogonal matrix  $Q$  and a diagonal matrix  $\Lambda$  such that  $B = Q\Lambda Q^{-1}$ .

$$B = \begin{pmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{pmatrix}$$