

## MATH 3D Prep: Eigenvalues and Eigenvectors

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1. Let  $A = \begin{bmatrix} 3 & 0 & 1 \\ 0 & 2 & 0 \\ 1 & 0 & 3 \end{bmatrix}$ , find all eigenvalues, and for each eigenvalue, find a basis for the corresponding eigenspace.