Unit 2 - Linear Algebra: Transformations, Eigenstuff, Diagonalization
Week 2 - Eigenvalues and Eigenspaces

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1

- Find all Eigenvalues and Eigenvectors for the linear transformation $T(p(x)) = \int_0^x p(t)\frac{dt}{x} - xp'(x)$

- Prove that the map $T(p) = xp$ has no eigenvectors.

2

LLM: 5.3.28
Show that if A has n linearly independent eigenvectors, then so does A^T. Hint, use the diagonalization theorem.

3

Use diaganolization and the taylor series to find $\sin\left(\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}\right)$