

Homework

[① ... ④ of G, F, VS] ~~10~~

1. Prove assertions on bottom of p 13 about basis for $\text{Hom}(V, W)$

2. What is the characteristic equation of $M = \begin{pmatrix} 3 & 1 \\ 0 & 3 \end{pmatrix}$?
What are its eigenvalues + eigenvectors?

3. What is the c.e. of $\begin{pmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{pmatrix}$?

What are its eigenvalues + eigenvectors?

4. Same as above for $\begin{pmatrix} 5 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 5 \end{pmatrix}$.

5. Same as above for $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 \\ 0 & 0 & 3 & 0 \\ 0 & 0 & 0 & 4 \end{pmatrix}$.