
1. Let $\mathbf{u} = \begin{pmatrix} 3 \\ 2 \\ -1 \\ 5 \end{pmatrix} \in \mathbf{R}^4$ and let $P = \{\mathbf{x} \in \mathbf{R}^4 \mid \langle \mathbf{x}, \mathbf{u} \rangle = 0\}$.

- (a) Express P as the set of solutions to some system of linear equations and also describe the relationship between \mathbf{u} and P in geometric terms.
- (b) Find a basis for P .
2. Exercise 4.2.7
3. Exercise 4.2.8
4. Exercise 4.2.9
5. Exercise 4.2.10