Math 221
Class Exercises: Mar. 16

1. Let x be a vector in $\mathbb{R}^3$. Show that set of vectors orthogonal to x is a subspace of $\mathbb{R}^3$.

2. Consider the vector space $\mathbb{P}_2$ with inner product $\langle p(x), q(x) \rangle = \int_{-1}^{1} p(x)q(x)\,dx$. Carry out the orthogonalization process to produce an orthonormal basis from the basis $\alpha = \{1, x, x^2\}$.