1. Let $V = \{u \in P_3(\mathbb{R}) : \ u(0) = u(1) = 0\}$. Find a basis and the dimension of V.

see Lecture 4

2. Let $f : \mathbb{C} \to \mathbb{C}$, $f(z) = \bar{z}$.

   (a) Show that f is a linear map over $\mathbb{R}$.

   See Lecture 5

   (b) Show that f is not a linear map over $\mathbb{C}$.