Math 304 Spring 2010
4/15/2010
Quiz #11 Name: _____

Show all work clearly and in order. Please box your answers. 10 minutes.

1. There is a polynomial $p(x)$ in P_2 which has the coordinate vector $K_B(p(x)) = \begin{bmatrix} -1 \\ 1 \\ 5 \end{bmatrix}$ with respect to the basis $B = (1, 1-x, x+x^2)$. Find $p(x)$.

2. Show that the linear transformation $T{:}\mathbb{R}^2 \to \mathbb{R}^2$ with associated matrix $\begin{bmatrix} 1 & 2 \\ 0 & -1 \end{bmatrix}$ is an isomorphism.

3. Show that the set $X = \{1, 1-x, 1+x+x^2\}$ is linearly independent in P_2.