MATH 54 FALL 2017: DISCUSSION 205/208 QUIZ#5

GSI: CHRISTOPHER EUR, DATE: 9/29/2017

STUDENT NAME: _____

Problem 1. (6 points) Let T be a linear transformation $T : \mathbb{P}_2 \to \mathbb{R}^2$ given by $p(t) \mapsto \begin{bmatrix} p(0) \\ p(1) \end{bmatrix}$.

(a) Show that T is *not* one-to-one.

(b) Show that T is onto (Hint: show that both $\vec{e}_1$ and $\vec{e}_2$ are in the range (image) of T).

Problem 2. (4 points) Suppose $T : V \to W$ is a linear transformation that is onto. If $\{v_1, \ldots, v_n\}$ spans V, show that $\{Tv_1, \ldots, Tv_n\}$ spans W.