Math 54 Quiz 5
Feb. 27, 2014

This quiz will be graded out of 20 points. Read each problem carefully and show your work.

1. (10 points) Let $\mathbb{P}_2$ be the space of degree 2 polynomials. Define the map $T : \mathbb{P}_2 \to \mathbb{R}^2$ by
$T(p) = \begin{bmatrix} p(-1) \\ p(1) \end{bmatrix}$.

   (a) Find a nonzero element of the kernel of T.

   (b) Find a nonzero element of the range of T.

2. (10 points) Find a basis for the nullspace and column space of this matrix

$$A = \begin{bmatrix} 1 & 1 & -2 & 1 & 5 \\ 0 & 1 & 0 & -1 & -2 \\ 0 & 0 & -8 & 0 & 16 \end{bmatrix}$$