MATH 335 Quiz 7 Name: .

Show all work. 5 points each.

1. Let $\mathbb{P}_3$ be the set of all polynomials of degree at most 3. Show that $V = \{p(t) \in \mathbb{P}_3 | p(0) = 0\}$ is a subspace of $\mathbb{P}_3$ by showing $\mathbf{0} \in \mathbf{V}$ and $cp(t) + dq(t) \in V$ for all $c, d \in \mathbb{R}$ and all $p(t), q(t) \in V$.

2. Find a spanning set for the null space of A if

$$A = \begin{bmatrix} -3 & 6 & -1 & 1 \\ 1 & -2 & 2 & 3 \\ 2 & -4 & 5 & 8 \end{bmatrix} \sim \begin{bmatrix} 1 & -2 & 0 & -1 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$