

0) Midterm Questions?

1) [4.1 Q6,7] Determine if the given set is a subspace of \mathbb{P}_n for an appropriate value of n . Justify your answers. (i.) All polynomials of the form $p(t) = a + t^2$, where $a \in \mathbb{R}$. (ii.) All polynomials with degree at most 3 with integers as coefficients.

2) [4.1 Q10] Let H be the set of all vectors of the form $\begin{bmatrix} 2t \\ 0 \\ -t \end{bmatrix}$. Show that H is a subspace of \mathbb{R}^3 .

3) [4.2 Q1] Determine if $w = \begin{bmatrix} 1 \\ 3 \\ -4 \end{bmatrix}$ is in $\text{Null}(A)$, where

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