

Name: _____ / 10

There are 10 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

1. (5 points) Do the vectors $\{1+x, x-2x^2, x^2\}$ span the vector space \mathcal{P}_2 , the vector space of all polynomials of degree 2 or less? Justify your answer.

2. (5 points) Parametrize the subspace $W = \left\{ \begin{pmatrix} a & b \\ c & d \end{pmatrix} : a + b + c = 0 \text{ where } a, b, c, d \in \mathbb{R} \right\}$.
Then express the subspace as a span.

1 point Extra Credit Explain why, given your work in problem 2 above, you did not need to be told that W is a subspace.