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MATH 223 LINEAR ALGEBRA	**Quiz 2**	12.10.2004
Name	**Student No.**	**Sign**

You will not get any points if your answer is wrong, that is no points to your explanations if your answer is wrong. And of course no points to a correct answer if your explanation or proof is not correct or clear.

YOU must write GOOD Mathematics

1. Let $V = \mathbb{P}_2$ and T be the linear operator on V defined by $T(f(x)) = (1 + x^2)f''(x) + f'(x) + f(x)$.
   (a) Find the characteristic polynomial and the eigenvalues of T.
   (b) If possible, find a basis for $\mathbb{P}_2$ consisting of eigenvectors of T.

Solution: