Name: _____   R. Hammack   Score: _____

Directions: Please answer all questions in the space provided.
Use of calculators or any form of electronic communication device is strictly forbidden on this quiz.

1. Suppose $\mathbf{u}, \mathbf{v}, \mathbf{w}$ are three vectors in a vector space V. Without knowing any further information, is it possible to say whether or not the set $\{\mathbf{v} - \mathbf{u}, \ \mathbf{w} - \mathbf{v}, \ \mathbf{u} - \mathbf{w}\}$ is linearly independent or dependent?

2. Does the set $S = \{1 + x, \ x + x^2, \ x^2 + x^3, \ 1 + x^3\}$ span P_3?