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 a matrix A has 45 columns and its rows are linearly independent.
   Also, the set $\{\mathbf{x} \in \mathbb{R}^{45} \mid A\mathbf{x} = \mathbf{0}\}$ is 7-dimensional. How many rows does A have? Explain.

2. The set $B = \{1 + x + x^2,\ 2 + x + x^2,\ 1 - x + x^2\}$ is a basis for P_2.
   Find the coordinate vector $[3 + x^2]_B$.