Homework 4

1. Let $\{\mathbf{v}_1, \ldots, \mathbf{v}_n\}$ be a set of linearly independent vectors in a vector space V, and $\mathbf{u} \in V$. True or False? If span $\{\mathbf{v}_1, \ldots, \mathbf{v}_n\} \subset$ span $\{\mathbf{v}_1, \ldots, \mathbf{v}_n, \mathbf{u}\}$, then the vector set $\{\mathbf{v}_1, \ldots, \mathbf{v}_n, \mathbf{u}\}$ is linearly independent.

2. Let A be an $n \times n$ Vandermonde matrix. Show that $\det A = \prod_{i>j}(x_i - x_j)$.