Homework 6

1. Let $\{\mathbf{a}_1, \ldots, \mathbf{a}_m\} \subset \mathbf{R}^m$. Identify vectors $\mathbf{u}$ and $\mathbf{v}$ in $\mathbf{R}^m$ so that the line $\{\mathbf{u}+t\mathbf{v} \ : \ t \in \mathbf{R}\}$ is the best least squares approximation to the set $\{\mathbf{a}_1, \ldots, \mathbf{a}_m\}$.