Turn these problems in with the assigned problems from the text:

(Optional) Bonus Problems: For each problem that you solve correctly I will increase your homework score by one point. All or nothing for these – no partial credit.

Let $T: V \to V$ be a linear transformation from a finite dimensional vector space to itself. Suppose $\vec{v_1}$ is an eigenvector of T with eigenvalue $\lambda_1, \vec{v_2}$ is an eigenvector of T with eigenvalue λ_2 , and $\lambda_1 \neq \lambda_2$.

Show that $\vec{v_1}$ and $\vec{v_2}$ are linearly independent.