1. Let $B = \{\overrightarrow{v_1}, \overrightarrow{v_2}, \overrightarrow{v_3}\}$ be a basis of a subspace S of a vector space V. Show that $B' = \{\overrightarrow{v_1}, \overrightarrow{v_1} + \overrightarrow{v_2}, \overrightarrow{v_1} + \overrightarrow{v_2} + \overrightarrow{v_3}\}$ also forms a basis of S.

2. Let A be an $n \times n$ invertible matrix with λ as its eigen values. Show that A^{-1} has $\frac{1}{\lambda}$ as its eigen values. (Hint: Show that $|A^{-1} - \frac{1}{\lambda} I_n| = 0$)