In the sequel, $V$ denotes a vector space defined over the field $\mathbb{F} = \mathbb{R}$ or $\mathbb{C}$ unless otherwise specified.

1. Read from the textbook: Chapter 1, Section 6. Chapter 2, Section 3-6.


5. [20pts] Let $V$ be a finite dimensional vector space. Let $U \subset V$ be a subspace. Show that if $\dim U = \dim V$, then $U = V$. 