7. Let $(X, \mathfrak{B})$ be a mesurable space and on it, ν is a finite measure and μ a σ-finite measure, show the following are equivalent:
   (a) $\nu \ll \mu$ and
   (b) If the sequence $E_n \subseteq \mathfrak{B}$ has the property that $\lim_{n\to\infty} \mu(E_n) = 0$, then $\lim_{n\to\infty} \nu(E_n) = 0$.

8. (a) Show: The normed vector space $L^p(\mu)$ is a Banach space.
   (b) Let ϕ be a continuous linear map from $\mathbb{R}^n$ into a normed vector space F. Find the sup norm of ϕ.