Section 11.3 General Convergence Theorems

Proposition (11.19)**.** Let $(X, \mathcal{B})$ be a measure space, and $\{\mu_n\}$ be a sequence

Definition. By a **signed measure** on the measure space $(X, \mathcal{B})$ we mean an extended real-valued set function v defined for the sets of $\mathcal{B}$ and satisfying the following conditions:

i. v assumes at most one of the values $+\infty$, $-\infty$.

ii. $v(\emptyset) = 0$

iii. $v\left(\bigcup_{i=1}^{\infty} E_i\right) = \sum_{i=1}^{\infty} v(E_i)$ for any sequence E_i of disjoint measurable sets, the equality taken to mean that the series on the right converges absolutely if $v\left(\bigcup_{i=1}^{\infty} E_i\right)$ is finite and that it properly diverges.