Real Integral Series Convergence

1 Why

Sums of non-negative functions are increasing.

2 Result

Proposition 1. *Let $(X, \mathcal{A}, \mu)$ be a measure space, and let $f_n :\to [0, \infty]$ a $\mathcal{A}$-measurable function for every natural number n. Then*

$$\int \sum_{k=1}^{\infty} f_k d\mu = \sum_{k=1}^{\infty} \int f_k d\mu.$$

Proof. □