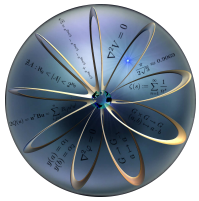

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dominated convergence theorem

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Let X be a measure space, and let $\Phi, f_1, f_2, \ldots$ be measurable functions such that $\int_X \Phi < \infty$ and $|f_n| \leq \Phi$ for each n. If $f_n \to f$ almost everywhere, then f is integrable and

$$\lim_{n\to\infty} \int_X f_n = \int_X f.$$

This theorem is a corollary of the Fatou-Lebesgue theorem.