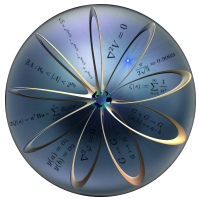

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proof of Abel's test for convergence

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Let b be the limit of $\{b_n\}$ and let $d_n = b_n - b$ when $\{b_n\}$ is decreasing and $d_n = b - b_n$ when $\{b_n\}$ is increasing. By Dirichlet's convergence test, $\sum a_n d_n$ is convergent and so is $\sum a_n b_n = \sum a_n(b \pm d_n) = b \sum a_n \pm \sum a_n d_n$.