§8.30

(for all $n \geq 1$)

Pf: Suppose $|A_n| \leq A^* < \infty$

Fix any $\varepsilon > 0$. Take any $\delta > 0$ to be chosen later

$\exists N$ s.t. for $n \geq N$

$0 \leq b_n < \delta\varepsilon$.

For $n \geq N$ and $p \geq 0$

$$\sum_{j=n}^{n+p} a_j b_j = \sum_{j=n}^{n+p} (A_j - A_{j-1}) b_j$$

$$= \sum_{j=n}^{n+p} A_j b_j - \sum_{j=n-1}^{n+p-1} A_j b_{j+1}$$