Exercise 7.14. [217] *Suppose $(a_n)_n, (b_n)_n$ are sequences of real numbers and c_n is defined by* [0FH]*; let then*

$$A_n = \sum_{h=0}^{n} a_h \ , \ B_n = \sum_{h=0}^{n} b_h \ , \ C_n = \sum_{h=0}^{n} c_h$$

the partial sums of the three series; suppose that $\sum_{n=0}^{\infty} b_n = B$ is convergent: show that

$$C_n = \sum_{i=0}^{n} a_{n-i} B_i = \sum_{i=0}^{n} a_{n-i}(B_i - B) + A_n B \quad .$$

Solution 1. [216]