Recall that $s_n \to S(A)$ means $\lim_{r \to 1} (1 - r) \sum s_n r^n = S$, and $s_n \to S(C)$ means $\lim (1/N) \sum_{1}^{N} s_n = S$.

1. Prove that $\Gamma(z) \neq 0$ on the line $\Re z = 1$.

2. Show that if $s_n \to S(C)$ then $s_n \to S(A)$. We do not assume $s_n = O(1)$.
   (Hint: summation by parts.)

3. Give an example to show that $s_n \to S(A)$ does not imply $s_n \to S(C)$.
   (Of course the $s_n$ must be unbounded.)

Also: Rudin, Chapter 9, problems 1, 2, 6, 7, 14, 15.