

PROBLEM. Let $\{a_n\}$ be an infinite sequence and let c be a constant. Show that if the series $\sum_{n=1}^{\infty} (a_n + c)$ is convergent then we must have $c=0$ and $\lim_{n \rightarrow \infty} a_n = 0$.

[Hint: Use the method we used in proving that the series $\sum_{n=1}^{\infty} \sqrt[n]{2} - 1$ diverges.]