Math 2326 - Introduction to Abstract Mathematics
Assignment 36 - Due Friday, April 25

Problem 119: Show that if $|r| < 1$, then $\displaystyle\sum_{n=1}^{\infty} r^n$ converges. Also find its limit.

Problem 120: Show that if $\lim x_n = a$, then $\lim |x_n| = |a|$. Give a counter-example showing the converse is not true if $a \neq 0$.

Problem 121: Let $x_n \geq 0$ and $\lim x_n = 0$. For each n, define $y_n = \min\{x_1, x_2, \ldots, x_n\}$. Show that $\lim y_n = 0$.