

Name:

Warm-up #8

Let x_n and y_n be bounded sequences of real numbers. Suppose there is an $N_0 > 0$ such that if $n \geq N_0$, then $x_n \leq y_n$. Show that

$$\limsup_{n \rightarrow \infty} x_n \leq \limsup_{n \rightarrow \infty} y_n.$$

(Hint: From Warm-Up 7, we know that for $N \geq N_0$, we have $\sup_{n \geq N} x_n \leq \sup_{n \geq N} y_n$.)