

Name: _____

Score:

1. Let $\{x_n\}_{n=1}^{\infty}$ and $\{y_n\}_{n=1}^{\infty}$ be a bounded sequence of real numbers. Let $\{z_n\}_{n=1}^{\infty}$ be given by

$$z_n = x_n + y_n$$

for all $n \geq 1$. Show that

$$\limsup_{n \rightarrow \infty} z_n \leq \limsup_{n \rightarrow \infty} x_n + \limsup_{n \rightarrow \infty} y_n$$