

Upper and Lower Limits- HW problems

1. Find the $\lim_{n \rightarrow \infty} \text{Sup}(s_n)$ and $\lim_{n \rightarrow \infty} \text{Inf}(s_n)$ for the following sequences:

a. $s_n = 1 + \frac{1}{n}$

b. $s_n = n$

c. $\{s_n\} = \{1, 0, 1, 0, 1, 0, 1, 0, \dots\}$

d. $s_{2n} = (-1)^n(n); \quad s_{2n-1} = e^{\frac{1}{n}}$

e. $s_{3n} = (-1)^n; \quad s_{3n-2} = (-1)^n \left(\frac{n}{2n+1} \right); \quad s_{3n-1} = (-1)^n \left(\frac{n}{3n+1} \right)$