

Problem of the week #2

Due January 31st

Define the k -times iterated logarithm $\ln^k x = \overbrace{\ln \cdots \ln}^k x$.

Problem. *Prove or disprove* the claim that there exist sequences $(a_n)_{n=1}^{\infty}$ and $(b_n)_{n=1}^{\infty}$ such that $\lim_{n \rightarrow \infty} [\ln^k a_n - \ln^k b_n] = +\infty$ for all k .

- Partial credit may be given for partial answers.
- Each POW will be due the following week at 1pm.
- Questions? Email: bthorner@unomaha.edu
- Submit solutions to (above email), DSC 210, or DSC 203.
- POWs, solutions, backgrounds, leaderboard available at

<https://www.unomaha.edu/college-of-arts-and-sciences/mathematics/student-opportunities/pow.php>