1 Prompt

Show that the summation $\sum_{i=1}^{n} \log i$ is $O(n \log n)$.

2 Discussion

$\sum_{i=1}^{n} \log i \leq \sum_{i=1}^{n} \log n = n \log n$ for $n \geq 1$. Hence, $\sum_{i=1}^{n} \log i$ is $O(n \log n)$.