1 Prompt

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

2 Discussion

$\sum_{i=1}^{n} \log i \geq \sum_{i=1}^{n} \log \sqrt{n} = \frac{n}{2} \log n$ for $n \geq 1$. Hence, $\sum_{i=1}^{n} \log i$ is $\Omega(n \log n)$.