

1. In class we showed that $\{a_n\}$ is bounded and if $m < \limsup a_n < M$ then $a_n > M$ for only finitely many $n \in \mathbb{N}$ and $a_n > m$ for infinitely many $n \in \mathbb{N}$.

State and prove a similar result for the $\liminf a_n$.