Answer on question #69116 – Math – Real Analysis

Question

If $a \in R$ is such that $0 \le a \le \varepsilon \;\; \forall \varepsilon > 0$, then show that $a = 0$.

Solution

Let $\boldsymbol{a \neq 0}$ and $a = \delta > 0$, then there exists some ε: $\;\; \delta > \varepsilon > 0$ for which the condition $\;\; 0 \le a \le \varepsilon \;$ does not hold.

Hence the assumption $\boldsymbol{a \neq 0}$ is not true, so $a = 0$.

Answer: $a = 0$.