1. Let \( f : [a, b] \to \mathbb{R} \) be continuous. Prove that if \( \int_a^b |f| = 0 \) then \( f = 0 \) at each point of \([a, b]\).

2. Let \( f \) be (Riemann-)integrable on \([a, b]\). Prove that if \( \int_a^b f > 0 \) then there exist a nonempty open interval \( I \subset [a, b] \) and a strictly positive number \( \delta \) such that \( f \geq \delta \) at each point of \( I \).

3. Let the function \( f : [a, b] \to \mathbb{R} \) vanish throughout a dense subset of \([a, b]\). If \( f \) is (Riemann-)integrable over \([a, b]\) then \( \int_a^b f = 0 \); true or false?