Homework 9.

(1) Prove that a set E has content zero if and only if there exists a closed bounded interval $[a, b]$, containing E, such that χ_E is Riemann integrable on $[a, b]$ and has Riemann integral zero.

(2) Prove that a set has zero content if and only if its closure is a bounded set with measure zero.

(3) Give an example of a bounded set with measure zero which does not have content zero.

(4) 6.3: 14

(5) 6.7: 3